## ICMI Cyanide Code Gold Mining Certification Audit Summary Audit Report

## Goldcorp - Mina Cerro Negro Santa Cruz - Argentina

#### **Submitted to:**

The International Cyanide Management Institute 1400 I Street, NW – Suite 550 Washington, DC 20005 USA

2016 Audit Cycle





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## **Company Names and Contact Information:**

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## **Location detail and description of Operation:**

The Cerro Negro Project (Cerro Negro) is the legal entity of Oroplata S.A., a wholly owned subsidiary of Goldcorp Inc.

Cerro Negro is located approximately 60 kilometers southeast of Perito Moreno town in the province of Santa Cruz, Argentina. The nearest large town is Comodoro Rivadavia, located about 240 kilometers from the mine site. The project currently consists of two underground mines (Eureka and Mariana Central), ore processing facilities and miscellaneous infrastructure and support facilities. Tonnage capacity is 4,000 tonnes per day.

Cyanide was first received at Cerro Negro on March 3, 2014 and the first dore was poured July 25, 2014. Cerro Negro began commercial production on January 1, 2015 and became an ICMC Signatory mine on June 11, 2015.

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Ore is extracted and then transported in haul trucks to the crushing area at the process plant. The mine plan calls for a stockpile of ore be maintained on the pad near the crusher. Cerro Negro's design standards were found to be in compliance with the International Cyanide Management Code. The Cerro Negro processing plant consists of conventional metallurgical technology suitable for the style of ore mineralization. The process plant and associated service facilities process the run-of-mine ore delivered to the primary crusher. The process encompasses crushing and grinding of the run-of-mine ore, agitated leaching, counter-current decantation, solution clarification, the Merrill-Crowe process (de-aeration and zinc precipitation) and smelting to produce gold/silver bars that are shipped to a refinery for further processing. The counter-current decantation tailings are washed to recover cyanide prior to being detoxified by the INCO process (SO2 and air) and pumped to the lined tailings storage facility. The plant commenced initial feed on July 14, 2014 and the first gold was poured on July 25, 2014. The plant is expected to process 4,000 metric tonnes per day once the mines have ramped-up to full production capacity. The Tailings Facility is located 1.5 km east of the Process Plant. The tailings basin is approximately 50 hectares.

Permanent power from the national grid was supplied starting on February 2, 2015. The Cerro Negro Mine has no formal settlements within its boundaries and the closest towns are Perito Moreno (population 4,200), located approximately 75 kilometers away, and Las Heras (population 12,206), which is located 107 kilometers to the northeast and can provide basic services.

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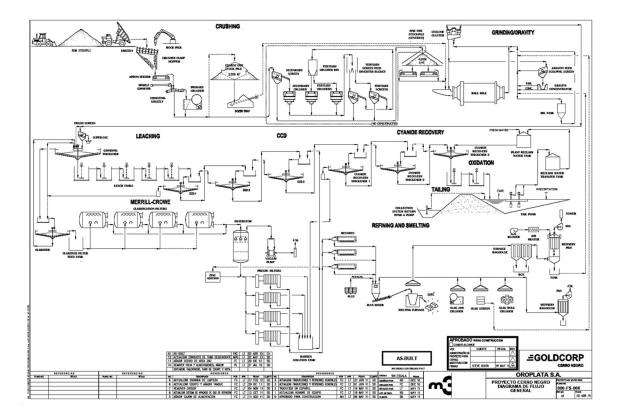
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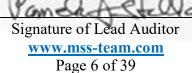
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The Cerro Negro process plant is displayed in a schematic below. The operations in this schematic were reviewed during the certification auditing process. (Please note that the intensive leach reactor tank in the concentrated gravity circuit is for future development).







## **Auditor's Finding**

The ICMI-approved Audit Team verified that the Cerro Negro operation is in FULL COMPLIANCE with ICMI Cyanide Code requirements for Gold Mining operations. (Please note that the intensive leach reactor tank in the concentrated gravity circuit is for future development).

This operation was determined to be in FULL COMPLIANCE with the International Cyanide Management Code.

#### **Auditor's Attestation**

Audit Company:	MSS Code Certification Service, a Division of Management
	System Solutions
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Lead Auditor:	Pamela J. Stella
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Mining Technical Auditor:	Bruno Pizzorni
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Date(s) of Audit:	June 23 to June 27, 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 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 Transportation Operations and using standard and accepted practices for health, safety and environmental audits.

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#### **SUMMARY AUDIT REPORT**

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.

The operation is:

■ in full compliance

in substantial compliance not in compliance...with Standard of Practice 1.1

Discuss the basis for this Finding/Deficiencies Identified:

Cerro Negro Mine is in FULL COMPLIANCE with Standard Practice 1.1 requiring the purchase of 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.

Cerro Negro purchases solid sodium cyanide exclusively from Orica International Pty Ltd. (Orica). The master purchasing agreement was originally valid through December 2015 and according to the agreement it has been automatically renewed for two years and will continue to be renewed in 2 year increments, unless otherwise requested. Confirmation was made during the audit that this certified supplier is the only supplier to the mine.

Cyanide that is delivered to the mine is produced at the Orica International Pty Ltd. (Orica) Yarwun plant in Queensland, Australia, and is then transported by rail, ship and truck to the mine. All portions of the Orica production, Australia, Peru, Chile and Argentina Supply Chain are certified by the International Cyanide Management Institute (ICMI).

Confirmation was made during the audit that the ICMC certifications are current and that the manufacturer's chain of custody letter matches the scope of the current certifications. The conditions appended to recent purchase orders and the master contract include language that both Cerro Negro and Orica will remain ICMI Cyanide Code Signatories and shall achieve and maintain ICMC certification. No distributors are used to supply this mine.

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### 2. TRANSPORTATION - Protect communities and the environment during cyanide transport.

#### Standards 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.

The operation is: **■** <u>in full compliance</u>

> in substantial compliance not in compliance... with Standard of Practice 2.1

Discuss the basis for the Finding/Deficiencies Identified:

Cerro Negro is in FULL COMPLIANCE with Standard 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.

All ICMC requirements relative to packaging, labeling in local language, storage, route risk assessment, community involvement, security, loading, unloading, and emergency response are clearly defined in the contract between Cerro Negro and Orica. Orica is contractually responsible for all in-transit spill response actions. Per the conditions of the master-purchasing contract with Orica, Cerro Negro takes formal ownership of the cyanide once the cyanide is offloaded at the warehouse. Cerro Negro personnel have detailed procedures and controls in place for the unloading, handling and storing of the cyanide in a secure facility at the mine site pending its mixing and use.

The Australian supply chain of cyanide from Orica's Yarwun Facility to the Port of Brisbane and the storage within the Toll Customized Solution Production Facility was certified on January 26, 2015. The Latin America Supply Chain was certified by the ICMI in June 2015 and is posted in the ICMI web-site in the Orica Australia Limited Latin America Supply Chain Amendment report. This certification includes the transportation of solid sodium cyanide by ship from the Port of Brisbane to the Ports of Callao (Peru), Puerto Deseado (Argentina), and Punta Arenas (Chile) using Hamburg SUD, Maersk and MSC. Within Peru, solid sodium cyanide is transported to Orica's production transfer facility in Ventanilla, Peru. Within Argentina, solid sodium cyanide is transported by road to Cerro Negro by Victor Masson Cruz del Sur S.A (Cruz del Sur), which was re-certified in February 2014.

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All entities involved in the supply chain to Chile (production, packaging, transportation, and interim storage) are under the direct control of Orica. The transportation of the cyanide from Chile to Cerro Negro and offloaded into Cerro Negros' warehouses are the responsibility of Cruz del Sur.

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

The operation is: ■ <u>in full compliance</u>

in substantial compliance not in compliance...with Standard of Practice 2.2.

Discuss the basis for the Finding/Deficiencies Identified:

Cerro Negro is in FULL COMPLIANCE with Standard Practice 2.2 requiring that cyanide transporters (Orica and Cruz del Sur) implement appropriate emergency response plans and capabilities, and employ adequate measures for cyanide management.

Cerro Negro only purchases solid sodium cyanide from Orica International Pty Ltd. (Orica). The master purchasing agreement was originally valid through December 2015 and according to the agreement it has been automatically renewed for two years and will continue to be renewed in 2 year increments, unless otherwise requested. Confirmation was made during the audit that this certified supplier is the only supplier to the mine. The conditions of the master contract include the requirement that Orica will remain Signatory to the ICMI Cyanide Code and shall achieve and maintain ICMC certification for all parts of its supply chain used to provide cyanide to Cerro Negro.

All Orica transportation partners in this supply chain (truck, rail, ship, and interim storage yards) have demonstrated compliance to the ICMC Transportation Protocol, which requires that the operations have appropriate emergency response plans, response capabilities, and cyanide management practices. Orica's production transfer facility in Peru was audited using the ICMC Production Protocol, which also requires that the operations have appropriate emergency response plans, response capabilities, and cyanide management practices.

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# *3. HANDLING AND STORAGE* - Protect workers and the environment during cyanide handling and storage.

#### Standards of Practice

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

The operation is: ■ in full compliance

in substantial compliance not in compliance...with Standard of Practice 3.1.

Discuss the basis for this Finding/Deficiencies Identified:

Cerro Negro is in FULL COMPLIANCE with Standard Practice 3.1 requiring the design and construction of unloading, storage and mixing facilities consistent with sound, accepted engineering practices and quality control and quality assurance procedures, spill prevention and spill containment measures.

Cerro Negro has two cyanide storage warehouses designated as Old and New. The operation is transitioning from the Old Warehouse to the New Warehouse. Therefore, both warehouses were evaluated for Code compliance. Cerro Negro does not have the design, construction or QA/QC documentation for the Old Warehouse. Cerro Negro does have design specifications, as-builts and QA/QC documentation for the New Warehouse. A representative of Cerro Negro's cyanide producer (Orica) conducted visual inspections of both warehouses and had discussions with site personnel. Orica produced reports of each warehouse of their inspection results and concluded that both warehouses appear to provide adequate containment protection for dry cyanide storage.

The storing and mixing facilities were designed and constructed by M3 Engineering & Technology Corp (M3) and are in accordance with sound and accepted engineering practices. The design package includes foundation, concrete, and steel specifications.

Cerro Negro is located in an area approximately 70 kilometers upstream from the nearest surface water body (Rio Deseado) and ranch. Therefore, the cyanide warehouses and offload facilities are located a safe distance from the public and away from locations where workers may congregate.

Cerro Negro does not receive liquid cyanide.

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There are level sensors installed on the cyanide mixing and distribution tanks to prevent overfilling of the tanks. The levels are continuously monitored in the plant control room via the distributed control system. The sensor instrumentation is equipped with an audible/visual alarm system. The auditor observed screen shots in the control room that indicated the level controls were functioning on these tanks.

Process tanks, including mixing and storage tanks, are secured to solid, reinforced concrete foundations. The containment floor and tank foundations are monolithic and the floor is thickened beneath the foundation plinths. This foundation and floor system serves to prevent any seepage from the tank bottoms from entering the ground.

The entire process area is contained within a reinforced concrete pad surrounded by curbs, parapets and stem walls, providing a competent barrier to seepage. This was confirmed through visual examination and review of as-built drawings.

Currently, Cerro Negro stores solid cyanide wooden boxes inside the Old Warehouse. The Old Warehouse is kept locked. In the near future Cerro Negro will store the cyanide at the New Warehouse and will not use sea containers for extra storage. The warehouse and sea containers are located within a locked fenced area. Both warehouses have a concrete floor and are covered with a metal frame and corrugated metal roof to minimize the potential for contact with rainwater and snow melt. There is passive ventilation in the warehouses to prevent build-up of hydrogen cyanide gas. The cyanide storage areas are located within secure areas. Cerro Negro does not store any other chemicals, explosives, food, animal feed or tobacco products in the cyanide storage warehouse other than cyanide. No smoking, drinking or eating is allowed within the cyanide storage areas

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.

The operation is: ■ in full compliance

in substantial compliance not in compliance...with Standard of Practice 3.2.

Discuss the basis for this Finding/Deficiencies Identified:

Cerro Negro is in FULL COMPLIANCE with Standard Practice 3.2 requiring that unloading, storage and mixing facilities use inspections, preventive maintenance and contingency plans to prevent or contain releases and control and respond to worker exposures.

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Cerro Negro has procedures with respect to empty cyanide containers to prevent reuse of the containers. Cerro Negro has written procedures for the management, rinsing and disposal of the super-sacks and wooden boxes. A cyanide mix was observed to verify that the operation is following its procedures for mixing and disposal of the cyanide boxes and super-sacks (bags). After mixing, the boxes are dismantled and the bags triple-rinsed. The rinse solution drains into the mixing tank. The dismantled boxes and rinsed bags are temporarily stored in a locked on-site facility and then ultimately disposed of in an off-site certified landfill. Inspection of the chain of custody records for the individual boxes was completed. Cerro Negro does not return any cyanide containers to the vendor.

Cerro Negro has a written procedure Preparation of Cyanide that outlines the requirements for inspection, observation and mixing of cyanide. This procedure includes instructions for the operation of critical valves related to the addition of caustic, raw water and connection with the Storage tank and operation of valves and couplings during the mixing. There are two procedures that cover the handling of cyanide containers. One procedure is for the offload from the transporter into the warehouse and the second procedure is for the transportation from the warehouse to the process plant. Cerro Negro has written procedures for the Old and the New warehouses that specify a maximum stacking height of three boxes in the warehouse. The procedure Preparation of Cyanide addresses the requirement for prompt clean-up of solid cyanide spills during mixing. The procedure Preparation of Cyanide requires that personnel wear PPE including Tyvek ® suits, full-face shield, dust respirator, hardhat, rubber boots, acrylic nitrile gloves and a personnel HCN monitor during mixing. The procedure requires that a minimum of four operators be present for the mixing. There are two cameras that provide coverage of the mix activity to the control room. A cyanide-mixing event was observed during the audit. The review indicated that Cerro Negro has developed an appropriate checklist, defined the safe tasks, and appropriate observation to safely complete and document all mixing events.

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

#### Standards of Practice

4.1 Implement management and operating systems designed to protect human health and the environment including contingency planning and inspection and preventive maintenance procedures.

The operation is: ■ <u>in full compliance</u>

in substantial compliance not in compliance...with Standard of Practice 4.1.

Discuss the basis for the Finding/Deficiencies Identified:

Cerro Negro is in FULL COMPLIANCE with Standard Practice 4.1 requiring the implementation of management and operating systems designed to protect human health and the environment including contingency planning and inspection and preventive maintenance procedures.

Cerro Negro has developed written management and operating plans and procedures for the cyanide facilities in order to protect human health and the environment. Procedures and operating plans cover the cyanide operations at the cyanide storage warehouses, the cyanide mix and distribution tanks, ball mill, leach tanks, the counter-current decantation (CCD), cyanide oxidation circuit, emergency pond and the tailings facility. Cerro Negro has safety work procedures for the cyanide storage and offload areas, the ball mill, leach tanks, CCD circuit, Merrill-Crowe Plant, cyanide solution pipelines and the associated containment channels, the oxidation plant, and the tailings facility. These procedures include the tailings pipeline, process tanks and vessels (mixing and distribution tanks, de-aeration tower, pregnant solution tank, barren solution tank, clarifier and thickener tanks, and clarifier filters), the associated piping, pumps, valves and secondary containments. Procedures were reviewed and were found to be sufficiently detailed to enable safe operation.

Cerro Negro has plans and procedures that form the basis of the facility design and operation. M3 Engineering prepared the design criteria, assumptions and parameters for the cyanide mix and distribution area, the Merrill-Crowe circuit, milling, leaching, CCD, and the cyanide destruct and oxidation plant. Golder Associates prepared the design criteria, assumptions and parameters for the tailings facility and initial water balance. MWH Global Inc. (MWH) prepared the updated water balance.

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Critical design criteria such as freeboard, cyanide concentration, design storm events for the tailings facility, and water flow rate information are included in the detailed studies. Operational requirements and control points form the detailed feasibility studies and project deliverables were incorporated into standard operating procedures (SOPs). Operating plans and procedures were reviewed during the audit. Interviews were held with personnel responsible for the operation and maintenance of the facility.

Cerro Negro has developed and implemented work procedures for cyanide related tasks, which describe the standard practices necessary for the safe and environmentally sound operation of the cyanide facilities. The operation has identified equipment, personnel, and procedures for the process plant, tailings facility and all associated piping and pumps that have contact with cyanide.

Cerro Negro's Management of Change procedure describes the different types of changes that may occur at the plant (equipment, process, maintenance, materials, personnel, software, etc.). The purpose of the procedure is to ensure that systematic processes are in place to evaluate any changes at the plant so that the risks of incurring negative impacts to people, environment, property, or product quality are minimized.

The operation has implemented contingency procedures for the process plant and tailings facility to respond to upsets in water balance, problems identified by inspections, and to address temporary closure of the operation. Procedures include step-by-step measures for stopping and starting the plant facilities, what to do in the event of a power outage, how to provide response measures for emergencies related to failures of cyanide equipment, and response plans to address upsets in the process water balance.

Cerro Negro maintains a program to inspect cyanide facilities on a frequency that was found to be sufficient to assure that the operation is safe and is functioning within design parameters. The records reviewed during the certification audit showed that inspections were being done in a consistent manner.

Personnel perform weekly visual inspections of the process plant and inspect all cyanide tanks for signs of corrosion and leakage; secondary containments for their integrity, the presence of fluids, and to ensure drains are closed and locked; the spill collection systems at the cyanide preparation, process area and trenches; the process facilities, pipelines, pumps and valves for signs of corrosion and leakage. Operators perform daily inspections of water levels in the tailings pond.

Inspections records were available for all inspections performed. Records included the date of inspection, the name of the inspector, and any observed deficiencies. Corrective measures were noted directly on the hard-copy inspection records in the situations where deficiencies were noted.

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Cerro Negro has a documented preventive maintenance program. to ensure that equipment and devices function as necessary for safe cyanide management. The preventive maintenance program is used to perform necessary maintenance and to inspect the integrity of process equipment, piping and tanks, according to a maintenance program and to keep equipment and installations properly working.

The operation has two Caterpillar C-175 diesel-powered generators (2,000 kW each), located at Area 700 in the process plant, for use in the event of a power outage. The power required to operate the critical areas of the plant is around 3,600 kW. The crusher will not work during power outages as the purpose of the generators is to prevent loss of product. In the event of a power outage, the ball mills will stop turning and the electronic controllers on the cyanide feed lines from the day tank will stop flow to the ball mills.

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

The operation is: ■ in full compliance

in substantial compliance not in compliance...with Standard of Practice 4.2.

Discuss the basis for this Finding/Deficiencies Identified:

Cerro Negro is in FULL COMPLIANCE with Standard Practice 4.2 requiring management and operating systems that minimize cyanide use, thereby limiting concentrations of cyanide in mill tailings.

Cerro Negro conducts a program to determine appropriate cyanide addition rates in the mill and evaluates and adjusts addition rates as necessary. Cerro Negro has a written procedure, Leach Testing, for metallurgical testing of mineral samples to avoid incidents and accidents to people, equipment and the environment. Cerro Negro adjusts the cyanide addition rates based on monthly composite samples and analysis from tank CCD 6 (last tailings tank prior to cyanide destruction) and completes diagnostic leach testing to determine the association between silver and gold not recovered. Cerro Negro has implemented a strategy to control its cyanide addition. Results from the daily cyanide concentration analyses are a continuous strategy to control cyanide addition.

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#### 4.3 Implement a comprehensive water management program to protect against unintentional releases.

The operation is: ■ <u>in full compliance</u>

in substantial compliance not in compliance ... with Standard of Practice 4.3.

Discuss the basis for the Finding/Deficiencies Identified:

Cerro Negro is in FULL COMPLIANCE with Standard Practice 4.3 requiring a comprehensive water management program to protect against unintentional releases.

Cerro Negro has a water balance that is specifically intended for management of the tailings storage facility to prevent overtopping and is both probabilistic and comprehensive. The water balance was found to be reasonable and appropriate for the facilities and environment. The model considers the tailings deposition rate into the tailings storage facility and the design storm and return interval duration that provides a sufficient degree of probability that overtopping of the tailings facility can be prevented during the operational life of the facility. The water balance uses data from an on-site meteorological station. Run-on to the tailings facility is not considered because all run-on is diverted. The model can account for effects of freezing and thawing. Solution losses due to evaporation at Cerro Negro can be significant. The model accounts for evaporation. Losses to seepage are not considered because the tailings facility is lined. Losses to surface water are not considered because there are no discharges to surface water. Power outage is considered (even though there are backup generators); treatment capacity is not considered because there is no discharge to surface water. The impact from the phreatic surface is not considered because the groundwater table is at least 12 m below the liner.

Cerro Negro conducts inspections of operating levels in the tailings disposal facility, the emergency pond, the surface water diversions around the tailings facility and the channel for the tailings delivery pipeline. Cerro Negro produces quarterly and annual reports that include surveyed water levels, bathymetric data, tailings surface, and piezometer data. Cerro Negro has developed a standard operating procedure (SOP) for upset conditions in the water balance. It has also developed a weekly inspection program for the surface water channels around the heap leach pad itself. The auditors observed completed examples of these forms.

The tailings facility and emergency pond were designed with adequate freeboard above the maximum design storage capacity determined by the water balance. The auditors observed that the tailings and emergency ponds are being operated with the adequate freeboard and reviewed examples of completed inspection forms.

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Cerro Negro is a new operation and the water balance model has not indicated any need to revise the design assumptions or operating practices. The site does measure precipitation and compare the results to the design assumptions. The water balance model will be updated annually with meteorological data collected from regional weather monitoring stations and compared to on-site data. The water balance projections are revised as necessary based on actual data. On-site meteorological monitoring data was reviewed by the auditor and found to be complete.

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

The operation is: ■ <u>in full compliance</u>

in substantial compliance not in compliance...with Standard of Practice 4.4.

Discuss the basis for the Finding/Deficiencies Identified:

Cerro Negro is in FULL COMPLIANCE with Standard Practice 4.4 requiring measures to protect birds, other wildlife and livestock from adverse effects of cyanide process solutions.

Cerro Negro has no open waters with WAD cyanide concentrations exceeding 50 mg/l. The tailings impoundment supernatant pond is maintained well below the 50 mg/L WAD cyanide. Verification was made through review of water quality samples of the tailings solution prior to discharge into the tailings facility and from the active spigot discharge into the tailings facility.

Cerro Negro has a bird deterrent system (i.e. noise blasts) at the tailings facility. A perimeter fence around the tailings facility restricts wildlife access to the supernatant pond. Cerro Negro has not had any cyanide-related wildlife mortalities. Cerro Negro maintains a formally documented wildlife protection and monitoring program. Daily inspections of the tailings facility are conducted to observe for wildlife.

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

The operation is: ■ in full compliance

in substantial compliance not in compliance...with Standard of Practice 4.5.

Discuss the basis for the Finding/Deficiencies Identified:

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Cerro Negro is in FULL COMPLIANCE with Standard Practice 4.5 requiring measures to protect fish and wildlife from direct and indirect discharges of cyanide process solutions to surface water.

Surface water in the vicinity of Cerro Negro is ephemeral, flowing only in response to rainfall; there are no nearby perennial surface water features such as springs, rivers, or lakes. Cerro Negro does not directly or indirectly discharge to any of the dry washes in the vicinity of the mine. Cerro Negro conducts a regional surface water-monitoring program. There have not been any recorded exceedances of WAD or Free cyanide.

4.6 Implement measures designed to manage seepage from cyanide facilities to protect the beneficial uses of ground water.

The operation is: ■ in full compliance

in substantial compliance not in compliance...with Standard of Practice 4.6.

Discuss the basis for the Finding/Deficiencies Identified:

Cerro Negro is in FULL COMPLIANCE with Standard Practice 4.6 requiring measures to manage seepage from cyanide facilities to protect the beneficial uses of ground water.

The Process Plant is designed and operated to manage seepage and protect groundwater quality. The entire process area, including the cyanide offload area, is contained within a reinforced concrete pad surrounded by curbs, parapets and stem walls, which provide a competent barrier to seepage. The concrete floor is sloped to drain solution into a common sump and then pump the solution back into the process circuit. All process tanks at the Plant are secured to solid, reinforced concrete plinth (pedestal-type) foundations. The containment floor and tank foundations are monolithic and the floor is thickened beneath the foundation plinths. This foundation and floor system serves to prevent any seepage from the tank bottoms from entering the ground. All solutions are contained in process tanks and columns with secondary containment provided by the concrete floor of the plant in order to prevent seepage to groundwater

The tailing facility is lined and the tailings delivery pipeline is contained within a concrete ditch.

Cerro Negro has a network of groundwater wells around the tailings facility and process plant. All of these wells are sampled monthly and analyzed for WAD, free and total cyanide along with other water quality parameters. Analytical results from samplings since the wells were installed showed non-detectable values for WAD, free and total cyanide.

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Cerro Negro does not have seepage and does not use mill tailings for underground backfill.

4.7 Provide spill prevention or containment measures for process tanks and pipelines.

The operation is: ■ <u>in full compliance</u>

in substantial compliance not in compliance...with Standard of Practice 4.7.

Discuss the basis for the Finding/Deficiencies Identified:

Cerro Negro is in FULL COMPLIANCE with Standard Practice 4.7 in providing spill prevention or containment measures for process tanks and pipelines.

The operation has spill prevention and containment measures for all cyanide unloading, mixing and process solution tanks. All areas are built on concrete and secondary containment is in place for all production areas, as well as all cyanide unloading areas. Sump pump systems are installed in the process area. Systems detect the presence of liquid in the secondary containment area and turn on automatically to drain the secondary containment area back into the process circuit.

Secondary containment areas for the cyanide tanks are linked to provide sufficient containment volume for the largest tank within the linked secondary containment area, pipes leading that would drain back into the area, and a significant storm event.

Cerro Negro has developed and implemented the Operation Procedure Against a Water Imbalance to maintain control of the plant operation level in critical tanks and safe operation of the tailings facility in cases of water imbalance due to atmospheric phenomena.

All cyanide process tanks and cyanide process solution pipelines have concrete secondary containment.

There are no surface waters near the plant; the nearest river is around 70 km downstream of the plant. Nevertheless, during the visit to the site, the auditors verified no cyanide pipelines presented a risk to surface discharge.

All cyanide tanks and pipelines at Cerro Negro process plant and tailings facility are constructed with materials compatible with cyanide and high pH conditions.

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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

in substantial compliance not in compliance...with Standard of Practice 4.8.

Describe the basis for the Finding/Deficiencies Identified:

Cerro Negro is in FULL COMPLIANCE with Standard Practice 4.8 requiring quality control/quality assurance procedures to confirm that cyanide facilities are constructed according to accepted engineering standards and specifications.

Cerro Negro implemented Quality Assurance and Quality Control (QA/QC) programs during construction of all cyanide facilities and provided documentation for review such as construction testing reports, earthworks, concrete, welding, soil compaction and asphaltic liner testing reports for the facilities at the process plant and tailings pond. The QA/QC program included areas for unloading, mixing, and distribution where high strength cyanide solutions are present.

Cerro Negro does not have design reports or construction QA/QC reports for the cyanide warehouse (Old Warehouse). This facility was built prior to Goldcorp purchasing Cerro Negro. Goldcorp requested the cyanide supplier, Orica, to conduct an evaluation of the warehouse. Orica completed the inspection and produced a report verifying that the Old Warehouse is operating within established parameters to protect against cyanide exposures and releases. The QA/QC documentation for the New Warehouse includes soil testing for the foundation, design calculations for the foundation cement, cement control protocol, topography and electrics. The QA/QC documentation for the process plant and tailings pond includes appropriate testing concerning the suitability of materials, welding, concrete, adequacy of earthworks and soil compaction, and installation of asphaltic liners.

Cerro Negro maintains copies of construction QA/QC files in hard and electronic copies in the document control room.

Qualified engineering companies performed the QA/QC inspections and reviews during construction of the cyanide installations at Cerro Negro and prepared the final construction reports certifying that the facilities were constructed in accordance with the design drawings and technical specifications.

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

The operation is: ■ <u>in full compliance</u>

in substantial compliance not in compliance...with Standard of Practice 4.9.

Describe the basis for the Finding/Deficiencies Identified:

Cerro Negro is in FULL COMPLIANCE with Standard Practice 4.9 requiring implementation of monitoring programs to evaluate the effects of cyanide use on wildlife, surface and ground water quality.

Cerro Negro has prepared and implemented a written standard procedure for the monitoring activities used to evaluate the effects of cyanide use on wildlife, surface water and groundwater quality. Appropriately qualified personnel in the environmental department developed the wildlife monitoring and surface and groundwater sampling procedures and protocols. The certified analytical laboratory that conducts the groundwater sampling prepared the groundwater-sampling plan for Cerro Negro.

The procedure for groundwater sampling describes how samples should be taken, sample preservation, chain of custody procedures, sample handling, shipping instructions and cyanide species to be analyzed.

Cerro Negro's monitoring reports record in writing the weather conditions, the presence of wildlife and cattle, field parameters (i.e., conductivity, pH, temperature), groundwater levels, and other characteristics of the water (i.e., color and smell). Completed field forms were reviewed to verify that Cerro Negro records this information.

Cerro Negro is a zero discharge facility and does not discharge process water to any location. Cerro Negro monitors groundwater quality down gradient and up gradient of the tailings facility and the process plant to ensure that indirect discharges are not occurring. There are no surface waters near the site but Cerro Negro conducts surface water monitoring on a regional basis.

Wildlife mortality monitoring is part of the daily inspection that includes a field form. Examples of completed forms were reviewed and found to be adequate.

The monitoring frequency at Cerro Negro of groundwater wells, surface water and wildlife is appropriate for the characterization and timely identification of changes.

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

#### Standards of Practice

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

The operation is: ■ in full compliance

in substantial compliance

not in compliance...with Standard of Practice 5.1.

Describe the basis for the Finding/Deficiencies Identified:

Cerro Negro is in FULL COMPLIANCE with Standard Practice 5.1 requiring implementation of a plan and procedure for effective decommissioning of cyanide facilities to protect human health, wildlife and livestock.

Cerro Negro has prepared a Conceptual Closure Plan (dated April 28, 2016) with written procedures to decommission the cyanide facilities including: processing facilities (i.e. process tanks, piping, concrete foundations), emergency pond, tailings facility and post-closure.

Cerro Negro has developed a Gantt Chart Implementation Schedule for closure that includes the major decommissioning activities for the cyanide facilities. The sequence of activities is shown with reference to years after closure.

Cerro Negro's Conceptual Closure Plan includes a statement regarding review and revision of the Plan indicating that Goldcorp requires all closure plans and estimated costs be reviewed and updated as needed every year. Cerro Negro prepared the Conceptual Closure Plan in 2016 and plans to update the closure plan in December 2017.

5.2 Establish an assurance mechanism capable of fully funding cyanide-related decommissioning activities.

The operation is: ■ in full compliance

in substantial compliance

not in compliance...with Standard of Practice 5.2.

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Describe the basis for this Finding/Deficiencies Identified:

Goldcorp has developed a cost model using a spreadsheet that Cerro Negro uses to estimate costs for mine closure and decommissioning of cyanide facilities. The cost estimate is in alignment with fully funding completion of the work by a contractor. Labor and equipment rates are based on updated quotes from contractors and vendors in Argentina.

The estimate includes the applicable cyanide facilities for milling, leaching, the CCD circuit, the Merrill Crowe plant, the cyanide recovery and Oxidation Circuit and the tailings storage facility.

Goldcorp's corporate financial accounting procedures (as part of its Asset Retirement Obligation Policy) require that mine closure liabilities be evaluated every year.

The local and national governments do not require financial guarantees for closure. Goldcorp provided documentation from a Chartered Accountant verifying Goldcorp Inc.'s conformance with the financial tests for a self-guarantee mechanism to cover the estimated costs for cyanide-related decommissioning activities. A letter dated August 18, 2016, by Deloitte LLP, confirmed that Goldcorp Inc. meets the criteria for self-guarantee without exception as defined in "Title 10, Code of Federal Regulations (CFR) Appendix A to Part 30 – Criteria Relating to Use of Financial Tests and Parent Company Guarantees for Providing Reasonable Assurance of Funds for Decommissioning."

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

#### Standards of Practice

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

The operation is: ■ <u>in full compliance</u>

in substantial compliance not in compliance...with Standard of Practice 6.1.

Describe the basis for the Finding/Deficiencies Identified:

Cerro Negro is in FULL COMPLIANCE with Standard Practice 6.1 requiring the identification of potential cyanide exposure scenarios and take measures, as necessary, to eliminate, reduce and control them.

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The operation has procedures for operations and plans that describe the management and operation of the cyanide facilities located in the process plant to help minimize the possibility of worker exposure to cyanide. The plans and procedures have been developed for cyanide storage, the preparation area and the process areas at the plant. They are detailed for the risks involved with each task (including preparation, plant operations, entry into confined spaces, and equipment decontamination) and adequately describe safe work practices. The procedures detail task specific requirements, such as training, PPE and procedures to follow in case of a contingency.

Cerro Negro work procedures require the use of Personal Protective Equipment (PPE) and address work inspections for cyanide related tasks. General safety training program and task specific training also discuss PPE requirements (i.e. hard-hat, steel toes shoes, and safety glasses). There are additional PPE requirements in areas and/or tasks where personnel may come into contact with cyanide. Observations during the audit confirmed that PPE were in use for tasks performed in potentially wet areas of the operation.

Cerro Negro has implemented a Management of Change procedure to ensure that systematic processes are in place to evaluate any changes at the plant so that the risks of incurring negative impacts to people, environment, property, or product quality are minimized. The auditors reviewed three changes in the plant that were processed using the MOC procedure.

Cerro Negro solicits and actively considers worker input into the development of health and safety procedures via direct communication between supervisors and operators during daily and weekly meetings (Direct Supervision Meetings) conducted at the process areas. Auditors reviewed records from meetings in which safety issues related to cyanide were discussed; examples of the 5 Point System cards were also available for review.

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

in substantial compliance not in compliance...with Standard of Practice 6.2.

Describe the basis for the Finding/Deficiencies Identified:

Cerro Negro is in FULL COMPLIANCE with Standard Practice 6.2 to operate and monitor cyanide facilities to protect worker health and safety and periodically evaluate the effectiveness of health and safety measures.

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Cerro Negro has determined the appropriate pH for limiting the evolution of HCN gas during preparation and production activities. The operational procedure Cyanide Preparation requires a pH greater than 11.5. The operational procedure Sodium Cyanide Dosage requires pH to be greater than 10.8 for cyanide solution addition in the process plant. In case of lesser pH values, the operator will add sodium hydroxide until the desired pH value is achieved.

Cerro Negro uses fixed and portable monitoring devices to confirm that controls are adequate to limit worker exposure to hydrogen cyanide. HCN alarms are set to provide visual and audible alerts at 2.1 ppm (immediately evacuate the preparation area) and 4.7 ppm (notify control room, stop activities and evacuate the facility). Fixed gas detectors are located in the preparation area, filters, gravitational cyclone, leaching and cyanide destruction. Portable multi-gas and personal HCN detectors are required for maintenance procedures, laboratory procedures, and cyanide-handling during specific operations where there is a potential for exposure to HCN gas. Operators, maintenance personnel, and laboratory personnel were observed using these monitors throughout the audit.

The operation has identified the areas where workers may be exposed to cyanide, in the procedure Gas Monitoring HCN, SO<sub>2</sub>. The areas are: Area 800 on the platform to access the mixing tank, and at the base of the tanks at the filters area; Area 300 at the gravitational cyclone; Area 400 at leaching tank; and in Area 600 at the oxidation tanks.

Fixed HCN monitors are maintained through the mine's formal preventive maintenance program as directed by the manufacturer. These are controlled biweekly with gas pattern, checking also the electrochemical sensor. Portable monitors are calibrated every 24 hours through the bump gas test with an automatic system that controls all parameters. This system sends an email to the safety coordinator notifying that the equipment has been calibrated. Training records and certificates were reviewed.

Warning signs are posted in all areas where cyanide is present. The warning signs are used to advise workers that cyanide is present, that smoking, open flames and eating and drinking are not allowed. PPE requirements are also posted in each area.

Shower /eye-wash stations and non-acidic fire extinguishers are located in all areas where there is a potential for exposure to cyanide and are maintained, inspected and tested on a regular basis. The equipment is inspected and functionally tested at the start of every shift and prior to beginning a task that has the potential for cyanide exposure. Records were reviewed to verify that all emergency equipment is inspected and tested on a regular basis. Safety personnel also conduct weekly inspections of fire extinguishers. Auditors verified the presence and conditions of the shower /eyewash stations and fire extinguishers.

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Storage and preparation areas, process tanks and piping containing cyanide are properly identified to alert workers of their contents. The direction of cyanide flow in pipes is designated. All areas observed during the audit had appropriately identified tanks, pipes, and cyanide storage areas.

Safety Data Sheet (SDS), first aid procedures, and a copy of the cyanide emergency response plan were available in the control room that is in front of the preparation area, and in main areas of the process plants where cyanide is managed. All documents are maintained in Spanish, the language of the workforce. SDS and medical first aid procedures are available in hard copy in the medical clinic.

Cerro Negro has developed and implemented the procedure Accidents Investigation to investigate and evaluate all accidents and incidents, including cyanide incidents, to determine the need for changes to process or procedure. As soon as an incident is reported the operation sends a Flash Alert to each area. Workers without access to computers during their work day are informed during the daily meeting. All incidents require investigation.

6.3 Develop and implement emergency response plans and procedures to respond to worker exposure to cyanide.

The operation is: ■ in full compliance

in substantial compliance not in compliance...with Standard of Practice 6.3.

Summarize the basis for this Finding/Deficiencies Identified:

Cerro Negro is in FULL COMPLIANCE with Standard Practice 6.3 to develop and implement emergency response plans and procedures to respond to worker exposure to cyanide.

Cerro Negro has all necessary safety equipment including fresh water, oxygen, a resuscitator, antidote kits, radios, telephones, and alarm systems available for use at the storage areas, preparation area, control room and throughout the operational area where cyanide is present in the process plant.

The operation personnel inspect all first aid equipment regularly to ensure that it is available when needed. Cyanide first aid equipment (oxygen) is inspected prior to a cyanide solution preparation event. Every shift, each plant operator roster reviews the first aid kits and oxygen bottles. Every 14 days the medical service inspects the oxygen bottles and Cyanokit. Inspection records were available for review during the audit and were found to be complete.

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Cerro Negro has developed and implemented the specific written procedure for emergencies to cyanide exposures: Emergency Action Intoxication with Hydrocyanic Acid (HCN). Auditors reviewed the training records showing personnel has been training through the audit period.

Cerro Negro has its own onsite capability to provide first aid and medical assistance to workers exposed to cyanide. Cerro Negro has a complete medical clinic onsite located near the process plant and two more medical clinics at each mine site operation. Each clinic is staffed with one a doctor and two nurses per shift, available 24 hours in 12-hour shifts. The mine also has 3 fully equipped ambulances at the medical clinics that will be the first choice for transporting a patient to a medical facility, if required.

The operation has developed procedures ("Plan for Cyanide Intoxication Attention" and the ERP) to transport workers exposed to cyanide to local hospitals for further treatment, if needed. The workers would be transported via the mine ambulance directly to the local hospitals. Aerial medical evacuation would also be available if required. A doctor and a nurse would go along with a cyanide antidote kit, as needed.

In the event that a cyanide exposure victim requires medical attention beyond the capabilities of the on-site medical clinics, the ambulance maintained at the clinic will be used to bring workers to area hospitals. The Procedure Medical Clinic Care and Transfers describes the patient to transfer transfer.

Cerro Negro has made arrangements with hospitals to provide assistance to workers exposed to cyanide. The closest hospital is Perito Moreno Hospital and is located approximately 80 km from the mine operation. The other hospitals are located in Pico Truncado, Caleta Olivia, Las Heras and Comodoro Rivadavia.

Cerro Negro conducts monthly emergency drills. Several of these drills were based on likely cyanide release/exposure scenarios to test the response procedure, and incorporate lessons learned from the drills into its response planning. Records, photographs, sign-in sheets, and actions taken from "lessons learned" were reviewed during the audit.

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

#### Standards of Practice

7.1 Prepare detailed emergency response plans for potential cyanide releases.

The operation is: ■ in full compliance

in substantial compliance not in compliance...with Standard of Practice 7.1.

Describe the basis for the Finding/Deficiencies Identified:

Cerro Negro is in FULL COMPLIANCE with Standard Practice 7.1 requiring the preparation of detailed emergency response plans for potential cyanide releases.

Cerro Negro maintains an Emergency Response Plan (ERP) to address accidental releases of cyanide. The ERP addresses several cyanide exposure scenarios such as cyanide transportation incidents, spills and cyanide exposure (through inhalation, absorption, skin contact and ingestion). In addition, the plan describes decontamination procedures, evacuation, emergency contact information, cleanup measures, reporting requirements and others.

The ERP provides response procedures for all potential cyanide failure scenarios required by the ICMC mine protocol, including: catastrophic release of hydrogen cyanide, transportation accidents, releases during cyanide solution preparation, and leaks in distribution pumps. The ERP considers releases during fires and explosions, equipment failure (valve, pipe or tank ruptures), power outages, uncontrolled seepage, failure of the cyanide oxidation process, and tailing facility.

Goldcorp works together with its ICMC-certified cyanide supplier Orica to ensure that all transportation-related emergencies are considered and that emergency response plans for such incidents are on file and up-to-date. In addition to Cerro Negro emergency response team, Orica provides emergency response assistance for all of it shipments. Orica has very detailed emergency response plans that apply to the Cerro Negro deliveries.

The Cerro Negro plans and procedures describe appropriate actions to be used in the event of a cyanide spill. They specifically address the treatment procedures for personnel who may have been exposed to cyanide, mine evacuation and emergency considerations for local communities. Although Cerro Negro is located in a remote area the ERP includes communication and evacuation

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plans for local communities and emergency response actions for cyanide transport in case of emergencies near on route communities.

7.2 Involve site personnel and stakeholders in the planning process.

The operation is: ■ in full compliance

in substantial compliance not in compliance...with Standard of Practice 7.2.

Describe the basis for the Finding/Deficiencies Identified:

Cerro Negro is in FULL COMPLIANCE with Standard Practice 7.2 requiring the involvement of site personnel and stakeholders in the planning process.

Cerro Negro has involved its workforce, stakeholders and communities through which cyanide is transported in its cyanide emergency response planning. All employees and contractors at Cerro Negro receive emergency response training. Cerro Negro provides emergency response training about the nature of the risks associated with accidental cyanide releases to communities through which cyanide is transported. Community meetings were held in 2014, 2015 and 2016. Local authorities, emergency responders and representatives from local hospitals were present.

Cerro Negro involved its stakeholders and communities through which cyanide is transported and nearby populations in cyanide emergency response planning. Local authorities, emergency responders and representatives from local hospitals were present.

The operation is in continuous communication and consultation with the workforce and outside responders to keep the ERP current. Cerro Negro maintains close communication with Orica and Cruz del Sur, its cyanide provider and transporter respectively, and with local communities to ensure that emergency planning information is maintained and is current.

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7.3 Designate appropriate personnel and commit necessary equipment and resources for emergency response.

The operation is: ■ in full compliance

in substantial compliance not in compliance...with Standard of Practice 7.3.

Describe the basis for the Finding/Deficiencies Identified:

Cerro Negro is in FULL COMPLIANCE with Standard Practice 7.3 requiring the designation of appropriate personnel and commitment of necessary equipment and resources for emergency response.

The ERP describes the responsibilities and level of authority of the emergency response coordinators for different site emergency scenarios, includes procedures for alternate emergency response coordinators and identifies the emergency response and medical (ERM) team. The plan states the ERM should be trained to act in an emergency, should know all the emergency response procedures and must attend the theoretical and practical training under the program. The ERP includes call-out procedures and a list of 24-hour contact information of the ERP coordinators and ERM members. The ERP describes the responsibilities of the emergency response coordinators for different site emergency scenarios, including responsibilities of the ERM. The plan has detailed lists of the emergency response equipment including the emergency equipment located in the process areas, the medical clinic and mine sites. According to the procedure Equipment and Tools Inspections, the process personnel inspect all emergency equipment and supplies weekly. The ERP describes the role of outside responders as police, medical services and fire departments. The plan states the role of the emergency responders inside the mine site will be determined by the ERM Leader.

Cerro Negro communicates its involvement during an emergency to outside entities (hospitals, fire fighters, police and communities) through the program "La Ruta del Cianuro" (Cyanide Route). Mock drills were performed together in 2014 related to a CN spill on route and in 2015 related to hazardous substance spill.

7.4 Develop procedures for internal and external emergency notification and reporting.

The operation is: ■ in full compliance

in substantial compliance

not in compliance...with Standard of Practice 7.4.

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Describe the basis for the Finding/Deficiencies Identified:

Cerro Negro is in FULL COMPLIANCE with Standard Practice 7.4 requiring the development of procedures for internal and external emergency notification and reporting.

The ERP provides on-site and off-site emergency response contact procedures showing the communications flow chart for emergency situations. Although the nearest population Perito Moreno is approximately 80 km from the mine operations, the ERP includes the requirement to notify local communities and regulatory entities if necessary.

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

The operation is: ■ in full compliance

in substantial compliance not in compliance...with Standard of Practice 7.5.

Describe the basis for the Finding/Deficiencies Identified:

Cerro Negro is in FULL COMPLIANCE with Standard Practice 7.5 requiring the incorporation into response plans monitoring elements and remediation measures that account for the additional hazards of using cyanide treatment chemicals.

The procedure Intervention for Spill of Hazardous Substances addresses the recovery and neutralization of liquid and solid cyanide spills. The procedure states to proceed immediately to neutralize the spill with sodium/calcium hypochlorite. Following neutralization, the spilled material and contaminated materials are to be disposed of in accordance with the Waste Management Procedure. The spill cleanup materials are to be disposed in the same place as hazardous material code Y-33 in its final disposal at a secure landfill by an authorized. The nearest communities to the mine are Perito Moreno (80 km) and Las Heras (120 km) and according to Cerro Negro environmental personnel no communities may be affected in case of an uncontrolled seepage from the process facilities or ground water contamination. Cerro Negro personnel drink bottled water.

Although there are no waterways in the area near Cerro Negro (the closest surface water is located approximately 18 km from the tailings pond) the Emergency Operating Procedure with Cyanide prohibits the use of chemicals such as sodium hypochlorite, ferrous sulfate and hydrogen peroxide to treat cyanide that has been released into surface water.

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The procedure Intervention for Spill of Hazardous Substances requires that contaminated water and/or soils are monitored as necessary after a cyanide spill. The document describes the procedure for soil sampling including methodologies, parameters and the final cyanide concentration that will be allowed in residual soils as evidence that the spill has been completely cleaned up.

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

The operation is: ■ **in full compliance** 

in substantial compliance not in compliance...with Standard of Practice 7.6.

Describe the basis for the Finding/Deficiencies Identified:

Cerro Negro is in FULL COMPLIANCE with Standard Practice 7.6 requiring the periodic evaluation of response procedures and capabilities and revises them as needed.

The operation reviews its operating procedures and emergency response plans every two years or whenever necessary. The auditors reviewed the emergency plans related to cyanide and found they are updated as required.

Cerro Negro conducts mock drills on a monthly basis as part of the Emergency Response Plan evaluation. Records were reviewed to verify that emergency response drills were held monthly during the one-year audit period from July 2015 through June 2016.

The Operative Procedure for Drills requires that each drill is critiqued for deficiencies and corrective action taken, including a review of procedures and emergency response plans if necessary. The ERP states that the Safety Manager reviews the program with the ERM leaders during quarterly meetings. Records were reviewed to verify that emergency response drills are being evaluated.

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

#### Standards of Practice

8.1 Train workers to understand the hazards associated with cyanide use.

The operation is: ■ in full compliance

in substantial compliance

not in compliance...with Standard of Practice 8.1.

Describe the basis for the Finding/Deficiencies Identified:

Cerro Negro is in FULL COMPLIANCE with Standard Practice 8.1 requiring the training of workers to understand the hazards associated with cyanide use.

The mine trains all its workers in cyanide hazard recognition. All new employees including contractors, are required to complete new hire training called Cyanide Management. In addition to the general training, all employees working in process areas are required to undergo task specific training. The Mine Emergency Responders (ERM) take additional and more specialized training for emergency response personnel.

Cerro Negro requires all employees to have refresher training in Cyanide Management every 1.5 years. Refresher training needs are monitored by means of the Training Matrix. Training records are retained indefinitely.

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

in substantial compliance not in compliance...with Standard of Practice 8.2.

Describe the basis for the Finding/Deficiencies Identified:

Cerro Negro trains all workers to perform their normal production tasks. Formal training in working procedures is given in cyanide-related tasks, among others, including cyanide unloading and storage, preparation, production and maintenance. Individual training is provided for each

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specific cyanide management related task an operator will perform and includes cyanide task work procedures as needed.

Training elements for each specific job are identified in the work procedures and presentations that are used as training material. These include, required PPE, decontamination requirements, risks associated with the cyanide task, contingency plans and the individual task specific steps.

Various process supervisors who have several years of experience in the mine process provide task specific training to operators. Cyanide specific training done by ERM members, doctors from the mine medical services and process supervisors also receive "Cyanide Management Train-the-Trainer" training provided by HAZMAT Argentina.

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 before being allowed to work in the process plant.

Refresher training on cyanide management is provided to all personnel who may work with cyanide every 1.5 years (18 months) or if there is a significant change in the process.

Cerro Negro evaluates the effectiveness of task specific training related to cyanide training by testing and observation. Following the classroom training, an employee is first supervised in all activities.

The operation retains the training records for each employee. Samples training records were reviewed and found to be complete.

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

The operation is: ■ in full compliance

in substantial compliance not in compliance...with Standard of Practice 8.3.

Describe the basis for the Finding/Deficiencies Identified:

Cerro Negro is in FULL COMPLIANCE with Standard Practice 8.3 requiring the training of appropriate workers and personnel to respond to worker exposures and environmental releases of cyanide.

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All cyanide unloading, preparation, process and maintenance personnel are trained in procedures to be followed if cyanide is released. The training in relevant management procedures if cyanide is released is covered in training specific procedures: Cyanide Emergencies Operative Procedure, Cyanide Hazardous Waste and Oxygen Therapy, including emergency response procedures.

Personnel who work in areas where cyanide is present receive training in decontamination and first aid procedures. These personnel include unloading, mixing, and production operators, as well as maintenance workers. Emergency drills are held monthly by the ERM team with participation of process and maintenance personnel to ensure that they are able to respond to an emergency and that their skills remain current.

Emergency response team members (ERM) are trained through participation in mock drill exercises as well as external training programs. Formal brigades are in place for fire, first aid, spill, and evacuation. Emergency responders (Brigade personnel) are available on all shifts. The emergency responders have received specialized training in first aid, rescue and HAZMAT.

Cerro Negro has discussed and involved cyanide response arrangements with hospitals, fire departments, authorities and police through training sessions and meetings during the program Cyanide Route. Records covering the audit certification period were available from the local authorities and external responders to show their acknowledgement of the information.

Cerro Negro provides refresher training in Cyanide Emergencies Management every 18 months. Refresher training covers cyanide intoxication routes and symptoms, HCN exposure first aid, medical treatment, cyanide spills, cyanide-related fire and the use of the cyanide emergency response equipment.

The operation conducts monthly mock drills for training purposes. Records were reviewed to verify that emergency response drills covered both worker exposures and environmental releases. Records show the date of the drill, the scenario tested, the names of the people who participated in the drill, and the results of the drill.

Cerro Negro evaluated the mock drills and identified corrective actions. A debrief was conducted to discuss lessons learned from the drills and corrective actions. Lessons learned from each drill are incorporated into the next drill.

Training records are retained throughout an individual's employment. Samples records were reviewed and found to be complete.

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#### *9. DIALOGUE* - Engage in public consultation and disclosure.

#### Standards of Practice

9.1 Provide stakeholders the opportunity to communicate issues of concern.

The operation is: ■ in full compliance

in substantial compliance not in compliance...with Standard of Practice 9.1.

Describe the basis for the Finding/Deficiencies Identified:

Cerro Negro is in FULL COMPLIANCE with Standard Practice 9.1 to provide stakeholders the opportunity to communicate issues of concern.

Cerro Negro provides the opportunity for stakeholders to communicate issues of concerns through community development programs in which meetings and workshops are held. The programs provide opportunities for stakeholders to communicate issues of concerns, establish a dialogue to discuss cyanide-operating procedures, and provide information on cyanide management procedures related to the environment and safety. Cerro Negro has provided various written material on cyanide describing what cyanide is, how it is used for recovering gold, what the International Cyanide Management Code is, training on site for safe working with cyanide, how Cerro Negro has cyanide safely transported to site and basic emergency response for cyanide. Cerro Negro has provided verbal presentations including cyanide characteristics, safety practices, routes of cyanide exposure, Emergency Response Plan, HCN exposure limits, medical treatment and spill cleanup procedures.

Cerro Negro provides the opportunity to interact with stakeholders through an information office located in Perito Moreno that has an "open-door" policy.

Cerro Negro provides written information to community leaders (monthly and quarterly) that include an email address that the public can use to contact Cerro Negro. Cerro Negro has hosted mine tours that included a discussion of the mine process.

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9.2 Initiate dialogue describing cyanide management procedures and responsively address identified concerns.

The operation is: ■ in full compliance

in substantial compliance not in compliance...with Standard of Practice 9.2.

Describe the basis for the Finding/Deficiencies Identified:

Cerro Negro is in FULL COMPLIANCE with Standard Practice 9.2 to initiate dialogue describing cyanide management procedures and responsively addresses identified concerns.

Cerro Negro operates an "open door" policy at its information office in Perito Moreno and organizes workshops and visits to the site. Mine tours take place by request. During mine tours a discussion of the mine process and use of cyanide is provided. Also, the community development program provides opportunities for stakeholders to communicate issues of concern, establish a dialogue to discuss cyanide-operating procedures, and provide information on cyanide management procedures related to the environment and safety. Verification was achieved through a review of meeting records, presentations and interviews with the community relations department.

9.3 Make appropriate operational and environmental information regarding cyanide available to stakeholders.

The operation is: ■ in full compliance

in substantial compliance not in compliance...with Standard of Practice 9.3.

Describe the basis for the Finding/Deficiencies Identified:

Cerro Negro is in FULL COMPLIANCE with Standard Practice 9.3 to make appropriate operational and environmental information regarding cyanide available to stakeholders.

Cerro Negro has developed written descriptions of how their activities are conducted and how cyanide is managed. The pamphlet "Cyanide Manual" distributed to workers and local communities, describes cyanide, how it is used, what the International Cyanide Management Code is, training on site for safe working with cyanide, how Cerro Negro has cyanide safely transported to the site and basic emergency response for cyanide. Information regarding the Goldcorp Management System that is used to manage environmental, safety, health, and

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community relation topics is available on the internet and includes YouTube videos. Goldcorp publishes, on its web site, an annual Corporate Social Responsibility Report and other information specific to the Cerro Negro Mine operation. In addition, Cerro Negro has published articles about the cyanide management at the site in local newspapers.

Information is disseminated in verbal form during Cerro Negro community meetings and during mine tours that are available to the public upon request. Most of the people from the communities located around the mine speak and write in Spanish. Cerro Negro provides information on cyanide in written and oral forms. Records of the workshops were reviewed.

No cyanide exposures, or cyanide releases have occurred at the Cerro Negro Mine since the start of operations. Cerro Negro has developed a risk assessment matrix that ranks the severity of various cyanide events. Depending on the nature of the event and severity there would be different levels of notification both to Goldcorp Corporate and various State and Provincial agencies. The mine will report to the corresponding regulatory agencies and communities, as described in the cyanide ERP, any cyanide releases or cyanide exposures requiring response or remediation that would result in significant adverse environmental effects.

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