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**ICMI Cyanide Code Gold Mining  
Re-Certification Audit**

**Goldcorp - Mina Peñasquito  
Zacatecas – Mexico**

**Summary Audit Report**

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

**2015 Audit Cycle**



## Table of Contents

<b>Company Information</b> .....	3
<b>Location Detail and Description of Operation</b> .....	3
<i>Auditor's Finding</i> .....	4
This operation is in FULL COMPLIANCE with the International Cyanide Management Code. .	4
Re-Certification Audit Results .....	5
1. PRODUCTION - Encourage responsible cyanide manufacturing by purchasing from manufacturers who operate in a safe and environmentally protective manner.....	5
2. TRANSPORTATION - Protect communities and the environment during cyanide transport. ....	6
3. HANDLING AND STORAGE - Protect workers and the environment during cyanide handling and storage. ....	8
4. OPERATIONS - Manage cyanide process solutions and waste streams to protect human health and the environment. ....	11
5. DECOMMISSIONING - Protect communities and the environment from cyanide through development and implementation of decommissioning plans for cyanide facilities. ....	22
6. WORKER SAFETY - Protect workers' health and safety from exposure to cyanide. ....	24
7. EMERGENCY RESPONSE - Protect communities and the environment through the development of emergency response strategies and capabilities. ....	29
8. TRAINING - Train workers and emergency response personnel to manage cyanide in a safe and environmentally protective manner.....	35
9. DIALOGUE - Engage in public consultation and disclosure. ....	39

## Company Information

<b>Company Name Mine Name and Location:</b>	Minera Peñasquito, S.A. de C.V.   Carretera Mazapil – Cedros km 21   Mazapil   98230   Zacatecas México   <a href="http://www.goldcorp.com">www.goldcorp.com</a>
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## Location Detail and Description of Operation

The Peñasquito mine is located in the northeastern part of the State of Zacatecas in north-central Mexico, 14 kilometers east of the town of Mazapil. MineraPeñasquito S.A. de C.V. is 100% owned by Goldcorp Inc. It is Mexico's largest gold producer and consists of two open pits - Peñasco and Chile Colorado (containing gold, silver, lead and zinc).

Gold production in 2014 totaled 567,800 ounces. Gold production for 2015 is expected to be between 700,000 and 750,000 ounces; production of silver is expected to total 24 to 26 million ounces; zinc production is expected to total 400 to 415 million pounds and lead production is expected to total 175 to 185 million pounds. Exploration will continue to focus on defining the high-grade core of the copper-gold, sulfide-rich skarn mineralization located below and adjacent to current mineral reserves.

Peñasquito employs flotation-and-grinding processing, in two 50,000-tonne/day sulphide processing lines and a 30,000-tonne/day, high pressure grinding roll (HPGR) circuit. Peñasquito processes the ore in two main areas (1) the heap leach pad, solution ponds, and Oxide Plant, and (2) the Sulfide Plant and tailings impoundment. The Oxide Plant uses Merrill-Crowe technology and a refinery. Cyanide is added at the zinc cone in the Oxide Plant and to the barren solution before application to the heap leach pad. The Sulfide Plant uses crushing, grinding, and flotation, with deposition of the tailings in the impoundment. Cyanide is added to the SAG mills and at the lead flotation circuit. The annual cyanide consumption for both plants is approximately 7.6 million kilograms.

Goldcorp Peñasquito Mine  
Name of Operation

  
Signature of Lead Auditor

January 25, 2016  
Date

All of these operations were reviewed during the re-certification auditing process. The ICMI-approved Audit Team verified that the operation is in FULL COMPLIANCE with ICMI Cyanide Code requirements for Gold Mining operations.

### **Auditor's Finding**

This operation is in FULL COMPLIANCE with the International Cyanide Management Code.

Audit Company:	MSS Code Certification Service, a Division of Management System Solutions, Inc. <a href="http://www.mss-team.com">www.mss-team.com</a>
Lead Auditor:	Bruno Pizzorni E-mail: <a href="mailto:bpizzorni@mss-team.com">bpizzorni@mss-team.com</a>
Mining Technical Auditor:	Gabriel Rodríguez
Date(s) of Audit:	August 31 to September 4, 2015

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.

Goldcorp Peñasquito Mine		January 25, 2016
Name of Operation	Signature of Lead Auditor	Date

Goldcorp Peñasquito Mine		January 25, 2016
Name of Operation	Signature of Lead Auditor	Date

## Re-Certification Audit Results

### **1. PRODUCTION - Encourage responsible cyanide manufacturing by purchasing from manufacturers who operate in a safe and environmentally protective manner.**

*Standards 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 Practice 1.1**

*Summarize the basis for this Finding:*

Peñasquito 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.


Peñasquito purchases solid sodium cyanide exclusively from The Chemours Company (formerly E.I. DuPont de Nemours and Company). The master purchasing agreement between the mine and DuPont (Chemours) is valid and 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 Chemours Memphis, Tennessee plant in the United States, and is then transported by rail and truck to the mine. All portions of the Chemours production, U.S., and Mexican Supply Chains have been ICMI Cyanide Code (ICMC) certified for many years.

Confirmation was made during the audit that all relevant 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 Peñasquito and DuPont (Chemours) will remain Signatories to the ICMI Cyanide Code and shall achieve and maintain ICMC certification. No distributors are used to supply this mine.

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Goldcorp Peñasquito Mine  
Name of Operation

  
Signature of Lead Auditor

January 25, 2016  
Date

## **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:  **in full compliance with Practice 2.1**

*Summarize the basis for this Finding:*

Peñasquito 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 Peñasquito and DuPont (Chemours). Chemours is contractually responsible for all in-transit spill response actions. Per the conditions of the master purchasing contract with DuPont (Chemours), Peñasquito takes formal ownership of the cyanide once the cyanide is transferred from the ISO tank into the mine tank. Peñasquito personnel have detailed procedures and controls in place for the unloading, handling and storing of the cyanide in a secure facility at the mine.


Cyanide that is delivered to the mine is produced at the Chemours Memphis, Tennessee plant, and is then transported by rail and truck to the mine. All portions of the Chemours production, U.S., and Mexican Supply Chain have been ICMI Cyanide Code (ICMC) compliant since 2007. The Chain of Custody Letter was found to be accurate.

The transporter is Segutal trucking company and is a part of the certified Chemours Mexico Supply Chain. There are no sub-contractors used by the producer, distributor, transporter, or other operation for transportation-related activities.

All entities involved in this supply chain from the production, to the packaging, to the transportation, to the unloading are under the direct control of either Chemours or Peñasquito and have been audited and certified to the ICMI Cyanide Code.

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Goldcorp Peñasquito Mine  
Name of Operation

  
Signature of Lead Auditor

January 25, 2016  
Date

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

**The operation is:**     **in full compliance with Practice 2.2**

*Summarize the basis for this Finding:*

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


Peñasquito purchases solid sodium cyanide only from Chemours (formerly DuPont). The master purchasing agreement between the Mine and DuPont (Chemours as of July 1, 2015) was found to be valid at the time of the audit. The conditions of the master contract include the requirement that DuPont (Chemours) will remain Signatory to the ICMI Cyanide Code and shall achieve and maintain ICMC certification for all parts of its supply chains used to provide cyanide to Peñasquito.

The Chemours manufacturing and packaging operations have been certified since 2006 and were most recently re-certified in 2013. The Chemours Mexico Supply Chain has been ICMC compliant since 2007, certified since 2010, and most recently re-certified in 2014. Chemours only uses transporters that are either ICMC-certified Signatory companies or ICMC-certified transporters through their certified Supply Chains.

All Chemours transportation partners in this supply chain (truck, rail, 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. Chemours Mexico warehouse and transloading operations were audited using the ICMC Production Protocol, which also requires that the operations have appropriate emergency response plans, response capabilities, and cyanide management practices. The Chemours Mexico transloading and warehouse operations in San Luis Potosi and Hermosillo were both re-certified in 2014.

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Goldcorp Peñasquito Mine  
Name of Operation

  
Signature of Lead Auditor

January 25, 2016  
Date

### **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 with Practice 3.1**

*Summarize the basis for this Finding:*

Peñasquito 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.

Peñasquito facilities for unloading, storing and mixing cyanide at both plants have not been modified since the initial certification audit in 2012, which at that time were found to be in compliance with the Code requirements. M3 Engineering & Technology Corp. (M3) designed both plants and a subcontractor under M3 (Sempenta) constructed the plants.


As described in the initial certification Detailed Audit Report (DAR) from 2012, the design and construction drawings were reviewed and provided adequate detail to demonstrate that the unloading, storage and mixing facilities were designed and constructed in accordance with sound and accepted engineering practices for these types of facilities.

The cyanide offload facilities are located away from other work areas and from locations where workers may congregate. These facilities are also located at a safe distance from the public. There is no surface water near the cyanide offload facilities, the climate at Peñasquito and the region is extremely arid, all surface water is ephemeral.

The entire cyanide offload areas in both the Oxide Plant and the Sulfide Plant are constructed in reinforced structural concrete which provides a competent barrier to seepage. The concrete areas were in good condition at the time of this onsite verification audit.

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Goldcorp Peñasquito Mine  
Name of Operation

  
Signature of Lead Auditor  
Page 8 of 41

January 25, 2016  
Date



In both plants at Peñasquito, the trucks carrying ISO tanks are situated entirely on a concrete pad with concrete perimeter curbing. The pads drain to a concrete sump located in an adjacent concrete containment provided for the cyanide mixing and distribution tanks.

To prevent the overflowing of cyanide storage tanks Peñasquito has level sensors installed on the cyanide mixing and distribution tanks at the offload in both plants, monitored from the plants control room. The sensor instrumentation is equipped with an audible/visual alarm system. In the case of an alarm, these two tanks are shut off manually. The day tank at the Sulfide Plant also has a level sensor set at the 90% level with an automatic shutoff.


Cyanide mixing and storage tanks are located on a concrete slab at both plants. The containment floor and tanks foundations are monolithic and the floor is thickened beneath the foundation plinths. The auditors observed that all of the concrete foundations were in good condition.

Secondary containments for cyanide storage and mixing tanks area constructed of materials that provide a competent barrier to leakage. In the Oxide Plant the entire process area, including the cyanide offload area, is contained within a reinforced concrete pad which drains to a large concrete solids pond or to a geomembrane-lined contingency pond. In the Sulfide Plant the mixing, distribution and daily tanks are located within a single secondary containment with reinforced concrete walls and floor. The concrete and geomembrane liners were in good condition at the time of this onsite verification audit.

Peñasquito does not store solid cyanide; both plants receive cyanide in ISO tanks. Additionally, other than the refinery circuit, the process circuits are located outside in an open-air environment providing adequate ventilation. The offloading areas are located within fenced areas and locked gates, all entry points are inaccessible to unauthorized people. Peñasquito does not use acids in its process, no strong oxidizers were observed. All observed process materials are compatible with cyanide.

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Goldcorp Peñasquito Mine  
Name of Operation

  
Signature of Lead Auditor

January 25, 2016  
Date

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

**The operation is:**             **in full compliance with Practice 3.2**

*Summarize the basis for this Finding:*

Peñasquito 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.

Peñasquito does not store or dispose of empty cyanide containers. All cyanide is delivered in ISO tanks. In both Plants, following cyanide offload events, the truck carrying the ISO tank leaves the site immediately and returns to the Chemours (DuPont) facility. The unloading procedure requires that the ISO tank be inspected to ensure that there are no residues on the outside of the ISO tank at the end of unloading. Per procedure, the valves are closed to secure the ISO tank before it leaves the unloading area. The auditors reviewed a checklist that includes a step for inspecting ISO tank and a step for securing the valves at the end of offloading. The entire area is covered in concrete with sufficient secondary containment to prevent spills to an area outside the containment area.

The operation has developed and implemented work procedures to prevent exposures and releases during cyanide unloading and mixing activities. Procedures for both plants provide instructions for conducting cyanide unloading and mixing activities covering safety aspects of managing the cyanide. The procedures provide specific steps related to the activity, including sequential operation of valves, hose connections, and cover leaks and failure of offload, mixing and storage facilities. The procedures provide contingency plans for responding to larger spills for both solid and liquid cyanide, require the use of proper PPE and list the specific equipment to be worn. The cyanide unloading procedure also requires that the cyanide driver and two mine operators monitor the cyanide unloading process at all times. The procedure calls for the second operator to monitor the unloading process from a safe location either in the field or remotely via video camera from the control room. During interviews with operators they demonstrated excellent knowledge and awareness of risks associated with the operation and control measures that must be taken.

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Goldcorp Peñasquito Mine  
Name of Operation

  
Signature of Lead Auditor

January 25, 2016  
Date

#### **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:  **in full compliance with Practice 4.1**

*Summarize the basis for this Finding:*

Peñasquito 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, inspection and preventive maintenance procedures.


The operation has developed written management and operating plans and procedures for cyanide facilities. The plans and procedures are maintained in a formal document control system on the Peñasquito intranet portal. Procedures cover the cyanide operations at the Oxide Plant, Heap Leach Facilities and Sulfide Plant. Peñasquito has safety work procedures for the cyanide offload areas, Merrill-Crowe Plant, leach pad, process ponds, cyanide solution pipelines and the associated containment channels, ball mills, lead flotation cells, and tailings dam at the downstream end of the Sulfide Plant. Procedures were reviewed and were found to be sufficiently detailed to enable safe operation.

The assumptions and parameters on which the facility design is based are identified in the operating documents. Peñasquito has plans and procedures that form the basis of the facility design and operation. The mine has extensive design documentation for all aspects of the design and operations. There is a design criteria document for the Oxide Plant, with the assumptions and parameters for the cyanide offload area, the Merrill-Crowe circuit and the solution ponds. There are detailed plans and procedures for the Heap Leach Facility (HLF) and water balance where critical design criteria such as freeboard, cyanide concentration, and water flow rate information are included in the detailed studies. Plans and procedures were reviewed during the audit. Interviews were held with personnel responsible for the operation and maintenance of the facility.

Peñasquito has developed and implemented work procedure (SOPs) 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 Oxides Plant, ponds, HLF and Sulfide Plant areas and all associated piping and pumps as having

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Goldcorp Peñasquito Mine  
Name of Operation

  
Signature of Lead Auditor  
Page 11 of 41

January 25, 2016  
Date

contact with cyanide. Procedures were reviewed and were found to be appropriate for the operation and to be fully implemented.

Peñasquito's Management of Change (MOC) 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, the environment, property, or product quality are minimized. Records were available to show that the necessary personnel have been trained on the MOC process.

Contingency plans and procedures are in place to safely manage cyanide operations. Procedures include step-by-step measures for stopping and starting the plant facilities, what to do in the event of a power outage, response measures for emergencies related to failures of cyanide equipment, and response plans to address upsets in the process water balance. In addition to the water balance contingency plans, the mine maintains a detailed Emergency Response Plan that addresses different types of emergencies, including spills.

Peñasquito maintains a program to inspect cyanide facilities at a frequency that was found to be sufficient to assure that the operation is safe and functioning within design parameters. Records were available for all preventive maintenance and inspections that had been done. Records included the date of inspection, the name of the inspector, any observed deficiencies and corresponding corrective actions.

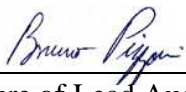
The operation cyanide related infrastructure inspections include evaluating the condition of tanks, valves, pumps, pipes, and the available freeboard in the ponds, the condition of the synthetic liner and the processing plants. Peñasquito personnel perform weekly visual inspections of the process facilities and inspect tanks for signs of corrosion and leakage, the concrete containments and geomembrane channel and ponds at both plants, and the Leak Collection and Recovery Systems (LCRS) at the double-lined process ponds. Personnel perform weekly inspections of pipelines, pumps and valves for signs of corrosion and leakage pipelines at both plants and HLF. Peñasquito performs weekly inspections of water levels in the process ponds, storm water diversion channels at HLF and the structures that divert the Arroyo Grande around the entire mine site are inspected on a regular basis by environmental personnel.

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.

Peñasquito has a documented preventive maintenance program to ensure that equipment and devices function as necessary for safe cyanide management. The preventive maintenance program

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Goldcorp Peñasquito Mine  
Name of Operation

  
Signature of Lead Auditor  
Page 12 of 41

January 25, 2016  
Date

is used to perform necessary maintenance and inspect the integrity of process equipment, piping and tanks. Schedules for maintenance activities for cyanide facilities are maintained electronically. Work orders are generated and trained maintenance personnel perform the required tasks. Maintenance personnel, instrument technicians, and maintenance supervisors were interviewed during the audit. All personnel showed excellent awareness of cyanide safety topics and the need for proper maintenance of the equipment used in the operation.

In the event of a power outage, the operation has two diesel-powered generators (2,500 kW each) located at the Oxide Plant, the power required to operate this plant is 2,200 kW for 100% capacity. During primary line power outages, both generators are operated (alternately) to power the plant, which includes the pumps at the HLF. The Sulfide Plant does not have backup generators for the reagent-grade cyanide circuit at the mill as this is a closed circuit designed to prevent backflow in the event of a power outage. The preventive maintenance program for the generators includes weekly maintenance and complete overhauls every three years by the dealer.

*Standards of Practice 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 with Practice 4.2**


*Summarize the basis for this Finding:*

Peñasquito 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.

Most cyanide use at Peñasquito is at the Oxide Plant and HLF. Peñasquito uses cyanide at the Sulfide Plant to depress pyrite rather than leach gold, where cyanide is added at the mills and the lead flotation circuit. Interviews with process personnel indicated that the cyanide concentration is monitored to regulate the optimum cyanide addition rate. The objective is to minimize the amount of cyanide to reduce the cyanide addition at the ball mills and the lead flotation circuit. Peñasquito monitors the cyanide concentration continuously as its strategy to control cyanide addition at the Sulfide Plant and records these concentration levels in the laboratory chemical database. Peñasquito measures the head grade for gold and selected metals at the onsite laboratory for each 12-hour shift at the Sulfide Plant, which represent the ore to be delivered to the mill. These

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Goldcorp Peñasquito Mine  
Name of Operation

  
Signature of Lead Auditor  
Page 13 of 41

January 25, 2016  
Date

measurements are then used to adjust the cyanide addition rate at the ball mills and the lead flotation circuit.

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

**The operation is:  in full compliance with Practice 4.3**

*Summarize the basis for this Finding:*

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


The operation has developed a water balance for the heap leach and process ponds at the Oxide Plant that is both probabilistic and comprehensive. The water balance is intended for management of the process ponds to prevent overtopping. The cyanide circuit in the Sulfide Plant between the mixing and distribution tanks, the “day tank” and the application points, is a closed system. Tailings exit the plant to the tailings facility.

As described in the 2012 certification detailed audit report (DAR), the concentrations of WAD cyanide in the tailings facility are extremely low and the tailings pond was not considered to be a cyanide facility. Confirmation was made during this audit that the WAD cyanide concentrations continue to be very low and in some cases below detection limits. WAD cyanide concentrations in the tailings pond during the re-certification period averaged approximately 0.30 mg/l, which supports the conclusion that this part of the operation is not a cyanide facility.

The water balance considers, in a reasonable manner, and as appropriate for the facilities and environment, an average application rate of cyanide solution in the HLF, the application rate can be varied in the model if needed. The process considers the design storm return, interval duration, amount of rain, and storm duration that provides a sufficient degree of probability that overtopping of the pond can be prevented during the operational life of the facility. Precipitation data from the station at the Peñasquito airstrip, the nearest to the mine, is used when making calculations. Run-on to the pad and ponds is not considered because all run-on is diverted. Effects of freezing and thawing are not considered because of the hot climate in the region. Neither area considers solution losses due to evaporation from the pad and ponds because Peñasquito intends the model to be

---

Goldcorp Peñasquito Mine  
Name of Operation

  
Signature of Lead Auditor

January 25, 2016  
Date

conservative with respect to the potential for overtopping ponds. Losses to seepage are not considered because the pad and ponds are geomembrane-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 10 meters below the geomembrane liner.

Peñasquito has developed a standard operating procedure for upset conditions in the process ponds, and a procedure for weekly inspections of ponds and the heap leach pad. Regular inspections are performed. Peñasquito also developed a weekly inspection program for the process water ditches around the heap leach pad itself. The auditors observed completed examples of inspection forms.

The auditors observed that the process ponds were being operated with the adequate freeboard and received completed examples of the inspection forms for the contingency pond. The inspection forms confirmed that freeboard was being monitored in accordance with the standard operating procedure during the audit re-certification period.

Peñasquito updates the water balance model on an annual basis with meteorological data collected from regional weather monitoring stations. The auditors observed water balance spread sheets tracking the projected pond levels on a daily basis, thereby allowing operating practices to be revised as necessary in real time.

*Standards 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 Practice 4.4**

*Summarize the basis for this Finding:*

Peñasquito 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.

Peñasquito pregnant and barren ponds with WAD cyanide concentrations above 50 mg/l, are covered with bird balls as well as netting on the solids pond and sedimentation sump, to control access by birds. Peñasquito has 3-strand barbed wire fences around the mine property, around the heap leach collection ditch and a berm around the rest of the heap leach which restricts access by

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Goldcorp Peñasquito Mine  
Name of Operation

  
Signature of Lead Auditor

January 25, 2016  
Date

cattle. Propane cannons and other deterrents are used at the active leach cells and along the collection ditch. Peñasquito has installed a 6-foot high chain link fence around all of the process ponds. In addition, a 3-foot high tight weave inner fence has been installed around the process ponds (except the contingency pond) to limit access by small animals and is constructed on top of a concrete curb to restrict access by burrowing animals.

Peñasquito WAD cyanide concentrations greater than 50 mg/l are needed because of the silver content of the ore. Given the need for the high cyanide concentrations, Peñasquito has deployed a wide range of measures to limit access by cattle, wildlife and birds as explained in the above paragraph.

The tailings pond monitoring reports show that the majority of WAD cyanide concentrations in open pond water during the re-certification period were significantly below 50 mg/l WAD cyanide. WAD cyanide concentrations in all open water tailings pond samples during the re-certification period averaged approximately 0.09 mg/l and many of these samples were below detection limits of 0.008 mg/l. This result supports the conclusion that this part of the operation is not a cyanide facility.

The operation has been successful at preventing wildlife mortality. Peñasquito maintains a formally documented wildlife protection and monitoring program. This was reviewed in detail during the audit. Personnel responsible for the program were interviewed. Daily inspections are performed to look for dead or otherwise impacted animals in the ponds area. Personnel interviewed reported that no animals have ever been found inside the fenced area.

Peñasquito has a procedure to avoid ponding on top of the HLF which contains preventive measures (e.g., cleaning sprayer heads) and corrective actions (e.g., break up encrusted layers, reduce application rate); a daily inspection form is included. The auditors did not observe any significant ponding on the cells under active leaching at the time of the site visit.


*Standards of Practice 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 with Practice 4.5**

*Summarize the basis for this Finding:*

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Goldcorp Peñasquito Mine  
Name of Operation

  
Signature of Lead Auditor  
Page 16 of 41

January 25, 2016  
Date



Peñasquito 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 Peñasquito is ephemeral, flowing only in response to rainfall; there are no perennial surface water features such as springs, rivers, or lakes. Peñasquito does not discharge to any of the dry washes in the vicinity of the mine.

Peñasquito does not indirectly discharge to surface water as there are no rivers or lakes due to the extreme aridity in the region. Nonetheless, Peñasquito annually inspects the diversions through and around the site for the presence of seeps into these normally dry channels.

*Standards of Practice 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 with Practice 4.6**

*Summarize the basis for this Finding:*

Peñasquito 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 Oxide 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 floor sloped to drain to a large concrete solids pond or to a geomembrane-lined contingency pond. Process tanks are secured to solid, reinforced concrete plinth (pedestal-type) foundations. The leach pad is constructed with a composite liner system low density polyethylene geomembrane overlying a soil liner. The overflow collection channel along the perimeter of the pad and the contingency pond has a single lined HDPE geomembrane. The pregnant solution, barren solution, and solids pond are double lined with a HDPE geomembrane. At the Sulfide Plant 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.

Peñasquito has two groundwater monitoring wells downgradient of the heap leach pad, process ponds, and Oxide Plant to sample the groundwater on a quarterly basis and analyzes the samples for WAD and total cyanide. Analytical results from samplings during the audit re-certification period showed non-detect values for both WAD and total cyanide at the two downgradient

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Goldcorp Peñasquito Mine  
Name of Operation

  
Signature of Lead Auditor

January 25, 2016  
Date

monitoring wells. Peñasquito is not required by the Mexican government to monitor groundwater downgradient of the Sulfide Plant, there are no process ponds associated with this plant.

Seepage has not caused cyanide concentrations in groundwater to rise above levels protective of beneficial use and no remedial activity is currently required.

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

**The operation is:  in full compliance with Practice 4.7**

*Summarize the basis for this Finding:*

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

Peñasquito has implemented 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 to the process water loop. Field inspections of all unloading and process areas were conducted during the audit.

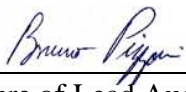
Secondary containment areas for the cyanide tanks are linked to provide sufficient containment volume for the largest tank within the linked secondary containment area, pipes that would drain back into the area, plus a significant storm event.

There is no discharge of cyanide-containing water from the secondary containment areas. Peñasquito has dedicated pumps within secondary containment collection areas that remove solutions and return them into the process circuit.

All cyanide process tanks at Peñasquito have concrete secondary containment. All cyanide process solution pipelines at both Plants are located within a concrete secondary containment area provided for the process and cyanide offload areas or with geomembrane-lined channels. No pipelines associated with the Oxides Plant and HLF cross any washes, which in any case are ephemeral. Likewise, the pipelines at the Sulfide Plant do not cross any wash and the tailings pipelines are not considered to be cyanide facilities due to the extremely low cyanide concentrations.

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Goldcorp Peñasquito Mine  
Name of Operation

  
Signature of Lead Auditor  
Page 18 of 41

January 25, 2016  
Date

Cyanide tanks and pipelines at both plants are constructed of carbon steel, stainless steel, fiberglass, HDPE and polyvinyl chloride (PVC) or other materials compatible with cyanide. Material specifications and construction material testing records for all cyanide-containing equipment were found to be complete. Minor changes, such as replacement of pipeline sections have been done due to maintenance requirements. The replacements were with materials compatible with cyanide and high pH conditions.

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Goldcorp Peñasquito Mine  
Name of Operation

  
Signature of Lead Auditor

January 25, 2016  
Date

*Standards 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 Practice 4.8**

*Summarize the basis for this Finding:*

Peñasquito 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.

Peñasquito implemented Quality Assurance and Quality Control (QA/QC) programs during construction of all cyanide facilities at the Oxide Plant, HLF and Sulfides Plant. M3 designed the Oxide Plant and Golder designed the HLF. Sempenta constructed the facilities and Dadilac conducted construction testing.

The QA/QC documentation includes appropriate testing concerning the suitability of materials, welding, concrete, adequacy of earthworks and soil compaction, and installation of geomembrane liners. The metal fabrication at the tank vendor, subgrade and concrete testing, fabrication, electrical, mechanical, instrumentation, piping, concrete, and earthworks were all assessed.

Peñasquito maintains extensive construction QA/QC files in hard copy and electronically in the document control room.

The initial certification audit DAR stated that qualified engineering companies performed the QA/QC inspections and reviews during construction and prepared the final construction reports certifying that the facilities were constructed in accordance with the design drawings and technical specifications.

M3 Engineering and Technology Corporation, a reputable company, was the general contractor with primary responsibility for implementation of the QA/QC program and commissioning of the Oxide Plant, HLF and Sulfide Plant. M3 used qualified subcontractors to provide construction and testing services. These include Dadilac, Sempenta, and Estructuras Diva.

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Goldcorp Peñasquito Mine  
Name of Operation

  
Signature of Lead Auditor

January 25, 2016  
Date

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

**The operation is:**     **in full compliance with Practice 4.9**

*Summarize the basis for this Finding:*

Peñasquito 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.

Peñasquito 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.

Wildlife monitoring and surface/groundwater sampling procedures and protocols were developed by appropriately qualified personnel. The protocols for wildlife monitoring were developed by an Agronomic Engineer specialized in wildlife management and environmental education. The protocols for groundwater sampling were developed by the Peñasquito Environment Department. ALS, the analytical laboratory in Monterrey, prepared the sampling plan. ALS is accredited by the Mexican of laboratory accreditation.

The procedure for groundwater sampling describes how samples should be taken, sample preservation, sample handling, and shipping instructions. The procedure specifies analysis for total and WAD cyanide

Wildlife monitoring reports generated by Peñasquito document the weather conditions, the presence of wildlife and cattle, field parameters, groundwater levels, and other characteristics of the water. Water sampling reports also showed sufficient detail to characterize the exact location where the water samples were taken.

Peñasquito is a zero discharge facility and does not discharge process water to any location other than the tailings pond, which due to its very low WAD cyanide concentrations is not considered to be a cyanide facility. The facility monitors groundwater quality downgradient of the heap leach pad, solution pond two, as well as one well up gradient of the facilities, to ensure that indirect discharges are not occurring. There is no surface water near the site due to the aridity of the region.

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Goldcorp Peñasquito Mine  
Name of Operation

  
Signature of Lead Auditor

January 25, 2016  
Date

Wildlife mortality monitoring and completion of a field form is part of the daily inspection procedure. Examples of completed forms were provided covering the audit re-certification period. Records showed that paper forms are filled out every day by the inspectors. The inspection records showed the name of the inspector, the date and results of the inspection.

Peñasquito conducts monitoring of groundwater quarterly and wildlife daily at frequencies adequate to characterize the surface water and groundwater quality and wildlife mortalities. Records were available for all sampling and monitoring activities covering the audit re-certification period and the frequencies of the monitoring activities were deemed to be appropriate by the audit team.

## **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 with Practice 5.1**

*Summarize the basis for this Finding:*

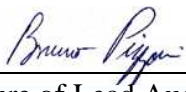
Peñasquito is in FULL COMPLIANCE with Standard Practice 5.1 requiring implementation of a plan and procedure for effective decommissioning of cyanide facilities to protect human health, wildlife and livestock.

The Peñasquito Mine Cyanide Facilities Decommissioning Plan was prepared by Goldcorp in 2012 and last updated in 2015. It covers the decommissioning of the entire mine including the cyanide facilities for the HLF and both plants. The plan includes the cyanide unloading and mixing facilities, process tanks, process piping and pumps, concrete foundations, heap leach pad and all the cyanide related process ponds.

Peñasquito has developed a Gantt Chart Implementation Schedule for the closure implementation where the major decommissioning activities for the cyanide facilities at both the Oxide Plant and

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Goldcorp Peñasquito Mine  
Name of Operation

  
Signature of Lead Auditor  
Page 22 of 41

January 25, 2016  
Date

the Sulfide Plant are included. The sequence of decommissioning activities is shown with reference to years after closure.

The Peñasquito Decommissioning Plan includes a statement indicating that Goldcorp requires all closure plans and estimated costs be reviewed and updated as needed every year. The Decommissioning Plan the auditors reviewed was prepared by Goldcorp in 2012 and last updated in 2015.

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

**The operation is:  in full compliance with Practice 5.2**

*Summarize the basis for this Finding:*

Peñasquito is in FULL COMPLIANCE with Standard Practice 5.2 requiring establishment of an assurance mechanism capable of fully funding cyanide-related decommissioning activities.


Goldcorp has developed a cost model, the Standardized Reclamation Cost Estimator (SRCE) that Peñasquito uses to estimate costs for the mine closure and includes decommissioning of cyanide facilities. The cost estimate includes the applicable cyanide facilities for heap leach, process ponds and both plants. It was last updated in 2015 and is based on rates for third party contractors and consultants. Labor and equipment rates are based on updated quotes from contractors and vendors in Mexico.

Peñasquito reviews and updates the cost estimate according to the statement in Section 1.0 of the Decommissioning Plan: “Also as part of its Asset Retirement Obligation Policy, the corporate financial accounting procedures require that mine closure liabilities be evaluated every year”. The auditors observed a 2015 version of a mine-wide closure plan, supporting the mine’s stated intent to regularly review and update the decommissioning costs.

The local government does not require financial guarantees; however Goldcorp is audited annually by a third-party financial auditing firm to confirm for stockholders that Goldcorp has the ability to fund all of its financial liabilities, including the closure of the Peñasquito Mine.

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Goldcorp Peñasquito Mine  
Name of Operation

  
Signature of Lead Auditor  
Page 23 of 41

January 25, 2016  
Date

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. Deloitte & Touche LLP, in a letter report dated 2015, confirmed that Goldcorp Inc. meets the criteria for self-guarantee.

## **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:  in full compliance with Practice 6.1**

*Summarize the basis for this Finding:*


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

Peñasquito has formally controlled procedures for operations to help minimize the possibility of worker exposure to cyanide. The procedures are located on the Peñasquito intranet documentation portal and address mixing, plant operations, entry into confined spaces and equipment decontamination. The procedures were found to be acceptable.

Peñasquito work procedures require the use of personal protective equipment (PPE) and address work inspections for cyanide related tasks. Peñasquito's general safety training program and task specific training also discusses PPE requirements. Observations during the audit confirmed that personnel were using the appropriate PPE. Pre-work inspections prior to a cyanide unload event are completed by process personnel at both process areas. Pre-work inspections are also addressed through the mine's pre-work risk assessment process performed to obtain a work permit

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Goldcorp Peñasquito Mine  
Name of Operation

  
Signature of Lead Auditor  
Page 24 of 41

January 25, 2016  
Date



Peñasquito has implemented a Management of Change (MOC) procedure (MP-PC-01) 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, environmental, property, or product quality are minimized. Proposed changes are evaluated by a multi-functional technical team and the person directly affected by the change. Records were available to show that the personnel were trained in the MOC procedure.

Peñasquito solicits and actively considers worker input into the development of health and safety procedures via direct communication between supervisors and operators, and during daily meetings conducted at the process areas. Records from daily meetings where cyanide safety issues were discussed were reviewed by the auditors. Interviews with paramedics also demonstrated that the medical staff had been instrumental in the development of the procedures.

*Standards 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 Practice 6.2**

*Summarize the basis for this Finding:*


Peñasquito 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.

At Peñasquito the operational and cyanide handling procedures recommend an operating pH greater than 12 for the mixing solution at both plants to limit the evolution of HCN gas during unloading and production activities. Interviews and a review of process settings and alarm settings confirmed the practice.

Peñasquito uses fixed and portable monitoring devices to confirm that controls are adequate to limit worker exposure to hydrogen cyanide. HCN alarms are set to visually alert operators at 4.7 ppm (preventive) and 10 ppm (evacuation). Fixed HCN monitors are located in the cyanide mixing tank, at the barren tank and in the zinc cone area at the Oxide Plant. In the Sulfide Plant fixed monitors are located in the mixing, the distribution and the day tank areas. In addition, operators use handheld HCN meters to conduct maintenance work, confined space related work, and other cyanide tasks.

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Goldcorp Peñasquito Mine  
Name of Operation

  
Signature of Lead Auditor  
Page 25 of 41

January 25, 2016  
Date

The operation has identified areas where workers may be exposed to cyanide through a HCN risk analysis conducted at both plants. The risk assessment was conducted using HCN concentration values measured with a portable HCN meter at the areas where cyanide is used. In addition, the operation undertakes periodic HCN surveys to assess operator's exposure to HCN in these areas. Results from the risk assessment conducted at both plants were reviewed.

The HCN meters are maintained, tested and calibrated as directed by the manufacturer. Those records are retained for at least one year. The stationary and personal multi-gas monitors are maintained through the mine's formal preventive maintenance program. The Instrumentation Department uses an external service provider to calibrate and maintain fixed monitors every six months or as needed. Portable monitors are calibrated by mine personnel at least every two months.

Warning signs were posted in all areas where cyanide is present. The warning signs are used to advise workers that cyanide is present, and that smoking, open flames, and eating and drinking are not allowed. PPE requirements are also posted in each area. Verification was through visual inspection of the signs located in areas where cyanide is used and unloaded.

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 prior to beginning a task that has the potential for cyanide exposure. Records were available to show that all emergency equipment is inspected and tested on a regular basis. Operations personnel visually check fire extinguishers on a weekly basis and safety personnel conduct monthly inspections of fire extinguishers. In addition, maintenance and recharge of the fire extinguishers is conducted annually or as needed. Auditors verified the presence and conditions of the shower/eye-wash stations and fire extinguishers.

All unloading and storage areas, as well as mixing and 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. Signage for confined space is also placed on cyanide tanks.

Safety Data Sheets (SDSs), first aid procedures, and a copy of Cyanide Emergency Response Plan were available in the unloading and mixing areas, control room, and in main areas of the process plants where cyanide is managed. All documents are maintained in Spanish, the language of the workforce. SDSs and medical first aid procedures are available in hard copy in the medical clinic.

Peñasquito has the incident investigation procedure Investigation of Cyanide Exposure related Accidents/Incidents and was found to be comprehensive. Procedures are in place and are implemented to investigate and evaluate all accidents and incidents, including cyanide exposure,

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Goldcorp Peñasquito Mine  
Name of Operation

  
Signature of Lead Auditor

January 25, 2016  
Date

to determine the need for changes to the process or procedure. Examples were available to show that several minor incidents had been appropriately investigated and corrective actions taken.

*Standards 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 Practice 6.3**

*Summarize the basis for this Finding:*

Peñasquito 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.

All necessary safety equipment including fresh water, oxygen, a resuscitator, antidote, radios, telephones, and alarm systems is available for use at the cyanide unloading, storage and mixing locations and throughout the operational area where cyanide is present in both plants.


Mine personnel inspect all first aid equipment regularly to ensure that it is available when needed. All antidotes were within expiration date and oxygen tanks were fully pressurized. Cyanide first aid equipment (cyanide antidotes and the oxygen) is inspected prior to a cyanide unload event, in addition, all antidotes are inspected weekly. The cyanide antidote including the oxygen located in the clinic is inspected daily. Inspections are documented; records were reviewed to verify compliance.

Peñasquito has a first aid procedure and an Emergency Response Plan (ERP) describing what is to be done in the event of a cyanide exposure. The primary emergency procedure is the first aid procedure for cyanide exposure. This procedure is available in all cyanide emergency kits, the control rooms, and process areas where cyanide is present. Specific instructions are given for treating victims who are exposed to sodium cyanide via inhalation, ingestion, and dermal routes. The ERP includes response procedures for cyanide exposures and releases. The plan addresses several cyanide exposure scenarios such as cyanide transportation incidents, spills and cyanide exposure through inhalation, absorption, skin contact and ingestion.

The operation has its own onsite capability to provide first aid or medical assistance to workers exposed to cyanide. Every shift has first responders trained to administer amyl nitrite and oxygen. Peñasquito has an onsite medical clinic staffed by a doctor, a nurse and a paramedic for each shift who are qualified to provide emergency assistance. There are 5 doctors who rotate through each

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Goldcorp Peñasquito Mine  
Name of Operation

  
Signature of Lead Auditor  
Page 27 of 41

January 25, 2016  
Date

12 hours mine shift. The medical clinic is equipped with cyanide antidotes and resuscitators. Peñasquito has two ambulances in the medical clinic and another in the mine area.


Peñasquito has developed procedures to transport workers exposed to cyanide to local hospitals for further treatment, if needed, in the procedure “Plan for Cyanide Intoxication Attention” and the ERP. The victims would be transported via the mine ambulance directly to the local hospitals. Aerial medical evacuation is also available if required. One of the doctors and the nurse would go along with a cyanide antidote, as needed.

Peñasquito has made formalized arrangements with 5 local hospitals to provide assistance to workers exposed to cyanide. The operation, together with its cyanide producer Chemours (formerly DuPont), has trained hospital staff at these hospitals in procedures for medical treatment of cyanide exposure victims during the re-certification period. Peñasquito has determined that the hospitals have adequate treatment capabilities and that they have qualified medical physicians and cyanide antidotes to respond to cyanide exposures.

Peñasquito conducts mock emergency drills based on likely cyanide release/exposure scenarios to test the response procedure, and incorporates lessons learned from the drills into its response planning. Emergency drills are held with production and maintenance personnel to ensure that they are able to respond to an emergency and that their skills remain current. Records were available for emergency response exercises held on November 12, 2013, July 11, 2014 and July 10, 2015. Extensive records, photos, sign-in sheets, and actions taken from “lessons learned” were available for review during the audit. The 2014 drill was of a simulated cyanide leak and a person suffering from cyanide intoxication. The drill from 2015 simulated a rolled over ISO tank with 40 kg of spilled cyanide on an outside road. External entities including Civil Protection and PROFEPA (an environmental agency) were invited to attend. Peñasquito identified corrective actions after both drills. A debriefing was conducted to discuss lessons learned from the drills and corrective actions to be taken. Auditors reviewed the mock drill reports and supporting documentation to verify that action items identified for the mock drills have been accomplished.

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Goldcorp Peñasquito Mine  
Name of Operation

  
Signature of Lead Auditor  
Page 28 of 41

January 25, 2016  
Date

## **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 with Practice 7.1**

*Summarize the basis for this Finding:*

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

Peñasquito maintains an Emergency Response Plan (ERP) entitled MP-MG.01 Cyanide Emergency Response Plan to address accidental releases of cyanide. The ERP addresses several cyanide exposure scenarios such as cyanide transportation incidents, spills and cyanide exposure. It also describes various procedures including decontamination, evacuation, emergency contacts, cleanup measures, and reporting requirements.


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 unloading and mixing. The ERP considers releases during fires and explosions, equipment failure (valve, pipe or tank ruptures), power outages, uncontrolled seepage, and failure of the cyanide treatment process.

Goldcorp works together with its ICMC-certified cyanide supplier Chemours (formerly DuPont) 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 Peñasquito emergency brigades, Chemours provides emergency response assistance for all of its shipments. The Chemours cyanide supply chain has been ICMC certified for many years and the certification is current. Very detailed emergency response plans that apply to the Peñasquito deliveries are on file. Peñasquito takes title and risk of loss for the cyanide upon delivery by Chemours to the mine. The transporter and ultimately Chemours have responsibility for addressing any off-site incidents.

Peñasquito's ERP describes appropriate actions to be used in the event of a cyanide spill.

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Goldcorp Peñasquito Mine  
Name of Operation

  
Signature of Lead Auditor  
Page 29 of 41

January 25, 2016  
Date

The ERP addresses the treatment procedures for personnel who may have been exposed to cyanide, the evacuation of the mine, and the process that would be used to evacuate the mine "communities". The ERP defines team member responsibilities, communication procedures for notifying outside emergency response resources, government agencies, the neighboring community, other stakeholders and the press.

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

**The operation is:  in full compliance with Practice 7.2**

*Summarize the basis for this Finding:*

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


Peñasquito has involved its workforce, stakeholders, emergency responders, representatives from hospitals, and communities through which cyanide is transported in its cyanide emergency response planning. Community meetings were held during the re-certification period. Local authorities, emergency responders and representatives from the local hospital were present. Input from those meetings was considered during the review of the ERP.

Peñasquito has made potentially affected communities aware of their risks in the unlikely event of an accidental cyanide release. The operation has conducted cyanide related workshops with the nearest communities to the mine in case there was to be uncontrolled seepage from the process facilities. Peñasquito has also implemented a program called: "Through the Peñasquito Roads" to provide information on cyanide management procedures as they relate to the environment and safety. The program also collects information regarding appropriate communication and response actions. The program was implemented through workshops with 19 communities along the cyanide transportation route.

Peñasquito involved its stakeholders and the communities through which cyanide is transported when creating its cyanide emergency response plan. Community meetings were held during the audit re-certification period. Local authorities, emergency responders and representatives from the local hospital were present. Peñasquito has provided training in cyanide use, and management and emergency response planning through training sessions for Civil Protection and local Fire Departments of Concepcion del Oro and Mazapil. The mine has formal arrangements with local

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Goldcorp Peñasquito Mine  
Name of Operation

  
Signature of Lead Auditor  
Page 30 of 41

January 25, 2016  
Date

hospitals to provide assistance to workers exposed to cyanide. Peñasquito has ensured that hospital staff members are trained to respond to cyanide exposure emergencies and that they have sufficient treatment capabilities.

Peñasquito consults with stakeholders regularly to keep their emergency response plans current. It maintains close communications with local communities such as Mazapil and Cedros to ensure that emergency planning information is maintained and is current. Peñasquito doctors are in frequent communication with the medical staff of local hospitals. The operation keeps a stakeholder contact information list in its ERP which is reviewed annually, the most recent revision was in August 2015. Peñasquito also communicates with its workforce to keep the emergency response procedures current.

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

**The operation is:  in full compliance with Practice 7.3**

*Summarize the basis for this Finding:*


Peñasquito 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. The Plan also includes procedures for alternate emergency response coordinators. The Plan identifies the Emergency Response Team and has an updated list of the team members including their names, shifts and process areas where they work. The Plan includes the training required by level of response (first aid, rescue and hazmat). The ERP includes call-out procedures and updated 24-hour contact information for their emergency response coordinators. In an emergency, communication with the ERP will be primary done by radio.

The Plan describes the responsibilities and level of authority of the emergency response coordinators for different site emergency scenarios, including responsibilities of the mine managing staff, medical personnel, and Civil Protection among others. The ERP has a list of the emergency response equipment located at process areas, the medical clinic and the ambulances. All emergency equipment and supplies are inspected weekly by process people, brigade members

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Goldcorp Peñasquito Mine  
Name of Operation

  
Signature of Lead Auditor

January 25, 2016  
Date

and paramedics. The ERP describes the role of outside responders such as Civil Protection, local hospitals, fire departments and communities.

Peñasquito consulted with outside responders through meetings and training sessions covering different cyanide related themes. These themes include cyanide use and management, the ERP. Civil Protection, the local Fire Department of Concepcion del Oro and Mazapil, the communities of Palmas Grandes and Cedros and 19 communities along the cyanide transportation route were among those consulted.

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

**The operation is:  in full compliance with Practice 7.4**


*Summarize the basis for this Finding:*

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

Procedures to notify local communities and regulatory entities are included in the ERP, the procedure “Cyanide Incident Notification”, and the procedure “Community Notification and Management of Contingencies in case of Cyanide Groundwater Contamination”. These procedures include contact information for notifying potentially affected communities of a cyanide related incident and any necessary response measures. The ERP includes procedures and contact information for communication with the media.

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Goldcorp Peñasquito Mine  
Name of Operation

  
Signature of Lead Auditor  
Page 32 of 41

January 25, 2016  
Date



*Standards of Practice 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 with Practice 7.5**

*Summarize the basis for this Finding:*

Peñasquito 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 Emergency Response Plan, the procedure Remediation of Cyanide Contaminated Soils, Characterization of Cyanide Contaminated Soils, and Community Notification and Management of Contingencies, describe the specific remediation measures for different cyanide release scenarios, recovery and neutralization of solutions and solids, decontamination of soils, management and disposal of spill clean-up debris and provision of an alternate drinking water supply.

Procedures require the use of lime, if necessary, to maintain the pH if the spilled solution is not greater than 11 for recovery cyanide spills. Cyanide solutions spills within the process plant will be returned to the process circuit. Procedures include instructions on how to neutralize contaminated soils as necessary with hypochlorite solution, and how the chemical solution is to be prepared to the appropriate concentration. The procedures also describe what final cyanide concentration will be allowed in residual soil as evidence that the release has been completely cleaned up. Contaminated soil and spill clean-up materials will be disposed of in the leach pad area. In case of cyanide groundwater contamination, procedures address the distribution of bottled water and water in trucks to the nearest communities, if needed.

Peñasquito does not consider the use of chemicals to treat cyanide released into surface waters. There are no waterways in the area near Peñasquito. This was verified by interview with environmental personnel.

The ERP requires that contaminated water and/or soils are monitored as necessary after a cyanide spill. The procedure for Characterization of Cyanide Contaminated Soils describes procedures for soil sampling including methodologies, parameters, possible sampling locations, and the final cyanide concentration that will be allowed in residual soils as evidence that the spill has been completely cleaned up. In addition, Peñasquito maintains a procedure for groundwater sampling

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Goldcorp Peñasquito Mine  
Name of Operation

  
Signature of Lead Auditor

January 25, 2016  
Date

and a documented sampling plan that include the requirements for groundwater monitoring. There are no water bodies in the area near Peñasquito.

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

**The operation is:  in full compliance with Practice 7.6**

*Summarize the basis for this Finding:*

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


The ERP is reviewed at least annually to ensure that information is kept up-to-date and that it remains appropriate for the mine. The ERP is also reviewed following a mock drill or incident as needed. Auditors reviewed previous and current versions of the ERP dated August 20, 2015.

Mock drills are held at least annually. Records were available to demonstrate that emergency response drills were held in 2013, 2014, and 2015. Records show the date, scenario tested, names of participants and the results of the drill. Several different scenarios including ISO tank roll over, environmental cyanide spill, human cyanide exposure, and process upset conditions were tested.

The ERP requires that each drill be critiqued for deficiencies and corrective actions be taken to update the ERP after all emergency response incidents, emergency drills, or as necessary.

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Goldcorp Peñasquito Mine  
Name of Operation

  
Signature of Lead Auditor  
Page 34 of 41

January 25, 2016  
Date

**8. TRAINING - Train workers and emergency response personnel to manage cyanide 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 with Practice 8.1**

*Summarize the basis for this Finding:*

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


Peñasquito trains all site personnel who may encounter cyanide in cyanide hazard recognition. All new employees and contractors are required to complete new hire training. This training covers cyanide characteristics, cyanide management and safety practices, HCN exposure first aid, medical treatment, spills and cyanide related fire. In addition, all personnel who work in a cyanide area receive training in “Good Safety Practices”. This training includes cyanide exposure first aid, use of a fire extinguisher, mock drills, use of the Self Contained Breathing Apparatus, Cardio Pulmonary Resuscitation, amyl nitrite and oxygen administration, work permits, cyanide antidote inspections, decontamination and signage. Verification was made by interviews with process and training personnel, random interviews of operators and a review of employee training records covering the re-certification audit period.

Peñasquito requires all employees to have refresher training in “Health and Safety Risk Prevention against Cyanide Releases” annually and refresher training in “Good Safety Practices” three times a year through different training sessions

Training records are retained indefinitely; records were reviewed for the audit re-certification period (2013-2015) and were found to be complete.

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Goldcorp Peñasquito Mine  
Name of Operation

  
Signature of Lead Auditor  
Page 35 of 41

January 25, 2016  
Date

Standards 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 Practice 8.2**

*Summarize the basis for this Finding:*

Peñasquito is in FULL COMPLIANCE with Standard Practice 8.2 requiring the training of appropriate personnel to operate the facility according to systems and procedures that protect human health, the community and the environment.

Formal procedures were available for review for all cyanide-related tasks including cyanide unloading, mixing, production and maintenance. Individual training is provided for each specific cyanide management related task an operator will perform. Auditors reviewed examples of training records, covering the re-certification audit period, related to confined spaces; stops for maintenance; cyanide pressurization, dissolution, unloading, transfer and distribution; rising cyanide piping and equipment, SAG mill procedures, flotation, instrumentation, filtration and process control.

Training elements for each specific job are identified in the work procedures which are used as training materials. These include the objective of the procedures, PPE, risks associated with the task, contingency plans and the individual task specific steps. Presentations, training materials, and tests were reviewed. All information was found to be complete.

Task specific training of operators is provided by various process supervisors who have several years of experience in the mine process. In addition, process supervisors have received “Cyanide Management Train-the-Trainer” training provided by Chemours (formerly DuPont). Qualified instructors include Safety Specialists, paramedics, and Chemours. External trainers are qualified trainers from Chemours or a local safety consulting firm.

Task specific training is provided prior to working with cyanide. All personnel in jobs that involve the use of cyanide receive training on how to perform their assigned tasks with minimum risk to worker health and safety. Employees complete a classroom training program prior to working with cyanide. The training includes cyanide awareness, first aid, and the proper use of PPE.

Refresher training on cyanide management is provided to all personnel who may work with cyanide every year. Topics include cyanide safe handling, first aid, and antidote application.

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Goldcorp Peñasquito Mine  
Name of Operation

  
Signature of Lead Auditor

January 25, 2016  
Date

Training records and testing records were reviewed for the re-certification audit period and were found to be complete.

Peñasquito evaluates the effectiveness of cyanide training by conducting written testing and observing on-the-job performance. Verification was by interview with training and process personnel, and review of training records.

Training records documenting the training that was received are retained throughout an individual's employment. Sample records were available for review and found to be complete. The name of the employee, the name of the trainer, the date of the training, the topics covered, and the result of the testing are maintained as part of the records.

*Standards 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 Practice 8.3**

*Summarize the basis for this Finding:*

Peñasquito 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.


Cyanide unloading, mixing, production and maintenance personnel are trained in procedures to be followed if cyanide is released. The requirements of operational procedures are covered in Module B training. The relevant cyanide management procedures, including emergency response procedures are covered during hazard and awareness training in Module A. These personnel receive training in decontamination and first aid procedures.

Emergency drills are held with production and maintenance personnel to ensure that they are able to respond to an emergency and that their skills remain current. Records were available for emergency response exercises held on November 12, 2013, July 11, 2014 and July 10, 2015.

Emergency response team members are trained through participation in mock drill exercises as well as external training programs. The emergency responders have received specialized training

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Goldcorp Peñasquito Mine  
Name of Operation

  
Signature of Lead Auditor  
Page 37 of 41

January 25, 2016  
Date

for different level of response. Training includes CPR, first aid, use of level A, B, and C PPE, collapsed structures, SCBA's, cyanide related firefighting and hazmat training. Verification included a review of training records, mock drill reports and random interviews with operators.

Peñasquito has discussed and involved cyanide response arrangements with the local Hospital, Fire Department, and Police through training sessions and meetings. Records were available from the local authorities and external responders to show their acknowledgement of the information. Peñasquito has provided training in cyanide to Civil Protection and the local fire departments of Concepcion del Oro and Mazapil. In addition, Peñasquito has conducted workshops with the communities of Palmas Grandes and with Cedros on the "Use of the Cyanide at Peñasquito" during the audit re-certification period. The workshops include cyanide exposure first aid. Many of the members of these communities are employees of the mine.

Peñasquito provides refresher training in "Health and Safety Risk Prevention against Cyanide Releases" annually, in "Good Safety Practices" 3 times a year and in task specific work procedures twice per year. Refresher training covers cyanide intoxication routes and symptoms, HCN exposure first aid, medical treatment, cyanide spills and cyanide related fire as well as the use of the cyanide emergency response equipment.

Peñasquito conducts mock emergency drills based on likely cyanide release/exposure scenarios to test the response procedure, and incorporates lessons learned from the drills into its response planning. Mock drills are conducted on a regular basis.


The emergency drills were held on July 11, 2014 with using a cyanide leak and exposure victim scenario. The drill from July 10, 2015 simulated an ISO tank rolled over with 40 kg of spilled cyanide. This drill was held on the external road external entities such as Civil Protection and PROFEPA (Environmental agency) were invited to attend.

Peñasquito periodically conducts simulated cyanide emergency drills for training purposes. They cover both worker exposures and environmental releases. Process people as well as the Emergency Response Team and the doctors have participated in the mock drills. Peñasquito evaluated the mock drills and identified corrective actions.

Emergency drills are also evaluated from a training perspective. Peñasquito evaluates the mock drills, identifies corrective actions and incorporates lessons learned from the drills into its response planning as necessary. Training deficiencies are addressed through the modification of training offered and through the scheduling of additional drills. Records of the mock drills debriefing and training sessions were reviewed.

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Goldcorp Peñasquito Mine  
Name of Operation

  
Signature of Lead Auditor

January 25, 2016  
Date

Records are retained throughout an individual's employment documenting the training they receive. The name of the employee, the name of the trainer, the date of the training, the topics covered, and the result of the testing are maintained as part of the record files.

## **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 with Practice 9.1**

*Summarize the basis for this Finding:*


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

Peñasquito provides the opportunity for stakeholders to communicate issues of concerns through its community outreach program. This program establishes a dialogue to discuss cyanide operating procedures, and provides information on cyanide management procedures related to the environment and safety. The program is implemented through workshops with 19 local communities along the cyanide transportation route. According to interviews with the Community Relations Representative, the use of cyanide and the nature of the risks and risk management programs are discussed. Peñasquito also hosts mine tours which include a discussion of the mine process where stakeholders have the opportunity to raise issues of concern. Records including tour schedules were reviewed.

Additionally, Peñasquito (Goldcorp) maintains a website that allows stakeholders to contact the company regarding any concerns or issues <http://www.goldcorp.com/English/About-Us/Corporate-Directory/default.aspx>. This site is provided with a "Contact Us" tab that allows an individual to contact the company via a Mexico City Office telephone number. Goldcorp also provides means of communication for issues regarding the Code of Conduct, which allows open communications to stakeholders to report any ethic complain by a toll-free telephone number, email, voicemail and the web portal [www.goldcorp.ethispoint.com](http://www.goldcorp.ethispoint.com).

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Goldcorp Peñasquito Mine  
Name of Operation

  
Signature of Lead Auditor  
Page 39 of 41

January 25, 2016  
Date

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

**The operation is:  in full compliance with Practice 9.2**

*Summarize the basis for this Finding:*

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

Peñasquito operates an “open door” policy and organizes workshops and visits to the site. Mine tours take place by request. Tours have included a variety of people including workers’ families, school children, students, communities and government representatives. 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.

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

**The operation is:  in full compliance with Practice 9.3**


*Summarize the basis for this Finding:*

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

Peñasquito has developed written descriptions of how their activities are conducted and how cyanide is managed. The pamphlet “Adequate Cyanide Management”, distributed to workers and local communities, describes solid and liquid cyanide characteristics and procedures in case of an incident during cyanide transportation or cyanide exposure. Information regarding the Goldcorp Management System that is used to manage environmental, safety, health, and

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Goldcorp Peñasquito Mine  
Name of Operation

  
Signature of Lead Auditor  
Page 40 of 41

January 25, 2016  
Date




community relation topics is available on the internet. Goldcorp publishes an annual Corporate Social Responsibility Report on its website. Other information specifically regarding the Peñasquito Mine operation is also available on the website. Peñasquito has also published articles about the cyanide management at the site in local newspapers.

Information is disseminated in verbal form during Peñasquito 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. Peñasquito provides information on cyanide in written and oral forms. Records of the workshops were reviewed during the audit.

No cyanide exposures, or significant on- or off-site cyanide releases have occurred at the Peñasquito Mine since the last ICMC audit in 2012. The ERP describes that the mine will report to the appropriate regulatory agencies and communities any cyanide release requiring remediation or that would result in significant adverse environmental effects. Cyanide exposures requiring medical response would also be reported to the appropriate authorities and stakeholders.

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Goldcorp Peñasquito Mine  
Name of Operation

  
Signature of Lead Auditor

January 25, 2016  
Date