INTERNATIONAL CYANIDE MANAGEMENT CODE
GOLD MINING OPERATION VERIFICATION AUDIT
YANACOCHA MINE, PERU

SUMMARY REPORT

Submitted to:

Minera Yanacocha S.R.L.
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and

International Cyanide Management Institute
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Submitted by:

Golder Associates Inc.
44 Union Boulevard, Suite 300
Lakewood, Colorado 80228

March 19, 2008

053-2280.0321
Name of Project: Yanacocha Mine

Project Owner / Operator: Minera Yanacocha S.R.L., a joint venture project owned by Newmont Mining Corporation (51.35%), Compañía de Minas Buenaventura S.A.A owning 43.65%, and the International Finance Corporation (IFC), an arm of the World Bank, holds the remaining 5%.

Name of Responsible Manager: Dave Schummer, Operations Manager

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Audit Dates: September 24-28, 2007

Location and Description of Operation

Minera Yanacocha (Yanacocha) is the largest gold producer in South America and its’ mining and processing operations are located at elevations ranging from 3,500 to 4,100 meters in the Andes Mountains, 48 kilometers (30 miles) north of the city of Cajamarca, and 603 kilometers (375 miles) north of Lima. Yanacocha is within the Province and Department of Cajamarca. Newmont Mining Corporation holds a 51.35% ownership interest, with the Peruvian mining firm, Compañía de Minas Buenaventura S.A.A owning 43.65%. The International Finance Corporation (IFC), an arm of the World Bank, holds the remaining 5%. Newmont began exploring in Peru in 1982 and identified the first of many deposits at Yanacocha in 1986. Gold production began in late 1993.

The Yanacocha operations are comprised of six open pit mines, five waste rock storage areas, four areas of geomembrane-lined heap leaching facilities, four cyanide unloading and storage facilities, comprehensive storm water channel and sedimentation pond network, administration building, acid rock drainage treatment plant, seven reverse osmosis modules at Yanacocha (250 m³/h each one) and five excess water treatment plants (two in Carachugo and three in Yanacocha), two carbon plant precious metals recovery plants, and two Merrill Crowe processing plants. The auxiliary facilities required for the mining operation include administration offices and buildings, laboratories, warehouses, maintenance shops, emergency facilities, electric power distribution, water supply, roads, fuel and reagent storage tanks, drainage structures, and explosive storage areas.
The open pits have been developed by conventional mining methods using trucks and loaders to extract gold-bearing ore. The waste is transported by trucks to adjacent waste rock storage areas designed specifically for this purpose. Ore is blended with lime and placed on the heap leach facilities by truck. Dilute cyanide solution (ranging from 30 to 50 mg/L Free cyanide) is applied through drip and spray irrigation to the heap leach surface.

The Yanacocha operations are divided into four major areas known as (from west to east) La Quinua, Yanacocha Norte, Pampa Larga (the leach facilities adjacent to the Pampa Larga process facilities are referred to as the Carachugo pad), and Maqui Maqui. The four heap leach facilities at Yanacocha are all constructed with similar components including the fully lined geomembrane heap leach pads, operational ponds for collection of pregnant leach solution (PLS), two minor event ponds to collect and store storm water related to a 100-year, 24-hour storm. All the heap leach facilities are constructed with underdrain systems to collect and convey shallow groundwater. The underdrain flows are collected in sumps for identification and control of any process solution leak. The operations ponds at each heap leach facility are constructed with triple geomembrane liners with two leak collection and recovery systems (LCRS). The operation ponds contain PLS with WAD cyanide concentrations below levels toxic to wildlife and livestock.

Understanding and managing the process water balance is a critical function at Yanacocha because of the relatively high precipitation occurring in a well-defined rainy season. Yanacocha has integrated the water management process between the four separate operating units by interconnecting the different operational process ponds and processing plants with pipelines. Yanacocha has a state-of-practice water monitoring system that includes real-time automated flow and level monitoring and telemetry to report the information on an hourly basis to the Water Management Group within the
Process Department. The system allows real time data collection from process ponds, leach rates, recirculation rates, inter-operational pump flow rates, and climatic data from the four weather stations. The system is monitored and evaluated by a full time Water Management Group within the Process Department that notifies any potential changes required in water management. All changes in process water flow rates must be reviewed by the Water Management Group to prevent the potential for overtopping. Yanacocha has the ability to convey process solutions between all four operations enabling them to more effectively balance their water use. Operators have information from the operations plan related to response actions required as the pond levels rise.

Yanacocha has developed and implemented a comprehensive process water balance program that includes monitoring and regular updates to track and plan water management activities. To manage the positive water balance during the rainy season, Yanacocha operates five Excess Water Treatment Plants (EWTPs) to destroy cyanide and remove metals. The plants are located at Yanacocha Norte (three) and Pampa Larga (two). The treated water is conveyed to the Buffer Pond located at Pampa Larga for monitoring prior to discharge to the Quebrada Honda, Quebrada Ocuchomachay or San Jose Reservoir. The EWTPs use a multiple step treatment system including alkaline chlorination for cyanide destruction, hydrogen sulfide for metals precipitation, and ferric chloride addition for polishing. Reverse osmosis works as an independent system from the EWTPs, where only additional chlorination is needed to neutralize CN concentrations. Yanacocha Norte also has an acid water treatment plant to manage acidic drainage from mine water facilities.

Yanacocha operates three separate recovery systems: 1) a Carbon Plant at La Quinua; 2) a Carbon Plant and a Merrill Crowe Plant at Yanacocha Norte; and 3) a Merrill Crowe plant at Pampa Larga to recover the gold and silver from the pregnant leach solution. Yanacocha receives solid sodium cyanide briquettes in both one-ton “bag-in-box” composite Intermediate Bulk Containers (IBCs) and IsoTanks for onsite sparging of the solid sodium cyanide. The IBC containers are stored in four locations on the Yanacocha mine property in secure, concrete lined pads with curbing and with roofs. The solid sodium cyanide storage facilities are all aluminum warehouse buildings secured by locked fence gates and doors. At each of the four areas, both mixing tanks and storage tanks are present. Maqui Maqui and La Quinua are the only cyanide storage and handling area that uses the IBC containers exclusively. The other two facilities (Yanacocha Norte and Pampa Larga) use IBC containers for contingency storage of cyanide only and the IsoTanks as the primary delivery method. The IsoTanks use a sparging system to unload the cyanide directly into mix and storage tanks.

Yanacocha has developed and implemented a number of operational procedures for the safe storage, handling and mixing of solid sodium cyanide briquettes as well as the sparging into high-strength cyanide solution. The cyanide sparging, mixing and storage tanks are located within concrete containments with spill collection sumps. The areas have appropriate ventilation and hydrogen cyanide (HCN) monitoring, and high-level alarms to prevent overfilling. Yanacocha stores and manages sodium cyanide in engineered tanks, pipelines and lined ponds constructed under appropriate quality control and quality assurance programs. All pipelines are color coded to identify the content with the flow directions marked.

Yanacocha employees are trained in cyanide hazards and first aid, first response, emergency response, and specific operational tasks. Yanacocha has a perimeter fencing around facilities to prevent wildlife, livestock and unauthorized personnel access to the property. Within the property, key facilities are fenced to preclude wildlife and livestock from entering cyanide process areas.

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Yanacocha Mine ICMC Audit

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<th>Name of Facility</th>
<th>Signature Lead Auditor</th>
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Golder Associates

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Yanacocha employs comprehensive inspection and preventive maintenance programs to assure that all cyanide equipment and facilities are functioning as designed and to monitor process solutions. Yanacocha has developed closure and reclamation plans and procedures to complete the appropriate management of cyanide solutions and solids, and the decontamination of cyanide tanks, pipelines, liners and equipment.

Yanacocha receives solid sodium cyanide from Orica Australia Pty Ltd (Orica) delivered to the site in the original sea containers and as IsoTanks. The Orica sodium cyanide supply chain has been audited for due diligence and compliance with the Cyanide Code by qualified Code auditors. The sodium cyanide supply chain is managed by Orica, a signatory company to the Code and certified as compliant with the Code by third-party auditors. Yanacocha has sufficient warehouse storage capacity to limit the number of cyanide deliveries during the rainy season. Yanacocha has an emergency response team that is trained to respond to onsite fires, chemical spills and worker exposures to cyanide. Yanacocha works with local community emergency responders to assure that adequate resources are available to address both offsite and onsite emergencies.

Audit Dates: September 24-28, 2007

Auditors: Scott Miller, Lead Auditor
Pamela Stella, Gold Mining Technical Expert Auditor
Gisella Aguinaga, Gold Mining Technical Support
SUMMARY AUDIT REPORT
Yanacocha Mine ICMC Audit

☒ in full compliance with

The operation is ☐ in substantial compliance with All Code Principles
☐ not in compliance with

Audit Company: Golder Associates Inc.
Audit Team Leader: Scott H. Miller, CEA
E-mail: Scott_Miller@golder.com

Names and Signatures of Other Auditors:
Pamela J. Stella, CEA
Pamela J. Stella ____________________________ Mar. 19, 2008
Name of Auditor Signature of Auditor Date

Gisella I. Aguinaga
Gisella Aguinaga ____________________________ Mar. 19, 2008
Name of Auditor Signature of Auditor Date

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

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

Yanacocha Mine
Name of Facility ____________________________ Mar. 19, 2008

Signature Lead Auditor

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

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

☒ in full compliance with
☐ in substantial compliance with Standard of Practice 1.1
☐ not in compliance with

Basis for Audit Finding: Minera Yanacocha S.R.L. (Yanacocha) has committed to only purchase cyanide from producers that are compliant with the International Cyanide Management Code (ICMC). Yanacocha has a supply contract with Orica Australia Pty. Ltd., Inc. (Orica) to provide sodium cyanide at Yanacocha. Orica is signatory to the ICMC and has been audited by third-party independent auditors and certified as compliant under the ICMC.

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

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

☒ in full compliance with
☐ in substantial compliance with Standard of Practice 2.1
☐ not in compliance with

Basis for Audit Finding: Yanacocha has a sodium cyanide supply contract with Orica, which specifies that the operation take ownership of the cyanide at the time of delivery. Orica is by contract solely responsible for the production and transport of sodium cyanide to the delivery point at Yanacocha. Orica is a signatory producer to the ICMC and subcontracts the supply chain transportation from Gladstone in Queensland, Australia to the mine. The supply chain is comprised of truck and rail transportation from Orica’s production facility to the Port of Brisbane. From Brisbane, the sodium cyanide is shipped to the Port of Callao in Peru. An agent representing Orica in Peru manages the logistics for moving the sodium cyanide through customs. Orica subcontracts a trucking transportation company to move the sodium cyanide to the mine site. None of the supply chain subcontractors are signatory to the ICMC; however all subcontractors have been subject of a formal audit or a less formal due diligence by ICMI-qualified auditors. According to these third-party audit and due diligence reports the transportation subcontractors are compliant or at least consistent with the ICMC with clear lines of responsibility for safety, security, release prevention, training, and emergency response.
Standard of Practice 2.2: Require that cyanide transporters implement appropriate emergency response plans and capabilities and employ adequate measures for cyanide management.

- [x] in full compliance with

The operation is
- [ ] in substantial compliance with Standard of Practice 2.2
- [ ] not in compliance with

Basis for Audit Finding: Orica is by contract solely responsible for the production and transport of cyanide to the delivery point at Yanacocha. The supply chain is comprised of truck and rail transportation to the Port of Brisbane, Queensland. Orica loads intermediate bulk container (IBC) plywood boxes into sea cargo containers. Toll Resources handles the truck transportation of these sea containers for transportation to a rail yard for transportation by the Queensland Rail National to the port. Toll Resources, while not signatory nor certified by ICMI as compliant with the ICMC, has undergone a third-party audit by an ICMI approved auditor and has been described as fully compliant. The rail company is also not signatory, nor certified by ICMI, but an ICMI certified third-party auditor indicates that Orica has done appropriate due diligence associated with the rail transportation segment to ensure that the cyanide is transported in a “manner consistent with the requirements of the Cyanide Code Transportation Protocol”. The sea containers are delivered to the Port of Brisbane and stored at the Brisbane Multimodal Terminal (BMT) Facilities managed by the Port of Brisbane Corporation. The BMT facilities were also included as part of the due diligence investigation performed by Golder Associates Pty Ltd. in March 2007 (Cyanide Transportation (Northern Territory, Queensland and New South Wales) Audit Report). From Brisbane, the sodium cyanide is shipped to Callao, Peru. Orica uses either Maersk SeaFreight or Mediterranean Shipping Company S.A. for this segment of the supply chain. The shipping companies are also not signatory, nor certified by ICMI, but an ICMI certified third-party auditor indicates that Orica has done appropriate due diligence associated with the CN transportation segment to ensure that the cyanide is transported in a manner consistent with the requirements of the Cyanide Code Transportation Protocol. Orica uses Transaltisa S.A, a truck transportation company, to provide transportation from the Port of Callao directly to the mine as IBCs or to Orica’s Storage and Filling Facility in Callao. Transaltisa S.A provides transportation of IsoTanks from Orica’s Storage and Filling Facility to the mine. Transaltisa S.A, while not signatory nor certified by ICMI as compliant with the ICMC, has undergone a third-party audit by an ICMI approved auditor and has been described as fully compliant.

Orica is a signatory producer to the ICMC and has conducted audits and due diligence by qualified third-party independent auditors on the transportation security, safety, training and emergency response aspects within the last three years. None of the supply chain subcontractors are signatory to the ICMC; however all subcontractors have been subject of a formal audit or a less formal due diligence by an ICMI qualified auditor. According to these third-party audit and due diligence reports the transportation subcontractors are compliant or at least consistent with the ICMC with clear lines of responsibility for safety, security, release prevention, training, and emergency response.
3. HANDLING AND STORAGE:  

Protect workers and the environment during cyanide handling and storage.

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

☑  in full compliance with

☐  in substantial compliance with  

☐  not in compliance with

*Basis for Audit Finding:* Yanacocha has four separate secure solid sodium cyanide warehouses (La Quinua, Yanacocha Norte, Pampa Larga, and Maqui Maqui) where one-ton “bag-in-box” IBC containers are located away from people and surface waters. Yanacocha Norte and Pampa Larga each have cyanide sparging facilities for cyanide delivery in IsoTanks, in addition to the solid sodium cyanide storage. Liquid cyanide is mixed and stored in secure tanks at each of the four areas. The process facilities are located away from surface water bodies. The solid sodium cyanide briquettes are mixed with barren solution in cyanide mixing and storage tanks at each of the four facilities. The design and construction of the cyanide warehouse, sparging tanks, mixing and storage facilities have been completed appropriately as documented in final design and construction drawings prepared by qualified Professional Engineers. The cyanide warehouse, mixing and storage facility quality control and assurance procedures and documentation include construction level drawings with detailed specifications noting foundation compaction and concrete reinforcement, and piping and tankage materials. The cyanide mixing and storage tanks each have level indicators and alarms to prevent overfilling. The solid cyanide warehouses all have adequate ventilation, and are located within secure and roof-covered buildings. The cyanide sparging and mixing and storage areas are all located outside with adequate ventilation to prevent the concentration of hydrogen cyanide gas. During sparging and unloading of cyanide boxes at all sites, traffic and access is controlled by the operators with warning cones. The cyanide warehouses, sparging areas and the mixing and storage areas are all within concrete containments sized to contain releases and precipitation that may contact cyanide. As also covered under Standard of Practice 4.7, the mixing and liquid storage containment area is constructed for spill prevention and the containments sized to contain 110% of largest tank volume. Both the warehouse and the mixing / storage area are locked and security personnel must provide permission for entry.
**Standard of Practice 3.2:** Operate unloading, storage and mixing facilities using inspections, preventive maintenance and contingency plans to prevent or contain releases and control and respond to worker exposures.

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

**Basis for Audit Finding:** Yanacocha has developed and implemented a comprehensive set of procedures to prevent and control exposures and releases during unloading, mixing and storage. These include:

- **Preparacion de Solucion Cianurada - Método Cajas** (Preparation of Liquid Cyanide from Solid Product)
- **Preparacion de Solucion Cianurada - Sistema Sparge** (Preparation of Liquid Cyanide using the Sparging System)
- **Descarga de Cianuro De Sodio** (Sodium Cyanide Unloading)

Yanacocha has also developed “Plan General para el Manejo de Cianuro” that addresses the mine’s and transportation company’s responsibilities for all aspects of the transportation, handling, labeling, communication, and unloading from the port stores to the mine. Other supporting procedures include “Plan de Emergencia en Caso de Fallas en la Operacion del Sistema Sparge” (Emergency Plan for Failure of the Operation of the Sparge System) and “Manejo de Derrames” (Management of Spills). These procedures define objectives, responsibilities, and task descriptions for the transportation, unloading, handling and tracking of the solid sodium cyanide product to the storage area at the Yanacocha Mine. This procedure includes a number of inspection forms that fully document the process including truck convoy inspection (noting Personal Protective Equipment (PPE) and emergency response equipment), task specific risk assessment, and unloading inspections.

The Yanacocha procedures include detailed information on the operation of valves and couplings during the mixing. The procedures require that cyanide boxes be stacked no more than three high during unloading of trucks or within the warehouse. The procedures also require that all cyanide mixing be completed by qualified operators with a minimum of two operators present. PPE requirements during cyanide box movement or cyanide mixing include a Tyvek® suit, hardhat, full-face dust mask, rubber boots, and gloves. Yanacocha thoroughly rinses the bags and then disposes of the bags in the heap leach facilities. The boxes are disposed of in an approved landfill at the mine. Strict controls are in place to prevent other uses of these materials. Yanacocha uses inspection forms and a computer database preventative maintenance program that identifies and tracks all maintenance activities at the cyanide storage warehouse, sparging, mixing and storage tank areas. As also covered under Standard of Practice 4.1, Yanacocha has an inspection program that includes daily shift and monthly inspections. Findings are entered into work orders when required. Contingency planning documents have been developed and implemented to address power failure, and extreme rainfall management.
4. OPERATIONS: Manage cyanide process solutions and waste streams to protect human health and the environment.

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

☒ in full compliance with

☐ in substantial compliance with Standard of Practice 4.1

☐ not in compliance with

Basis for Audit Finding: Yanacocha has developed and implemented operator Manuals, Procedures, Instructions, and Forms that address protection of human health and the environment for the operation of the carbon columns and Merrill Crowe processing facilities. In addition, Yanacocha has developed Manuals, Procedures, Instructions, and Forms that describe all aspects of the heap leach, water balance and water treatment operations. These Manuals, Procedures, Instructions, and Forms were found to have adequate contingency planning, routine inspections, and fully describe the preventive maintenance program. Procedures and Instructions address all the cyanide management tasks such as unloading and storage of cyanide boxes, mixing of liquid cyanide, cleaning and disposal of cyanide bags and boxes, management of the ore placement and heap leach operations, and operation of the cyanide destruct circuit. Contingency planning documents (Loss Prevention Manual and Fluid Management Plan) have been developed and implemented to support the process solution and pond management, control of solution inventory during power failure, and extreme rainfall events. Yanacocha has backup generators at each of the heap leach and processing area to ensure that essential process equipment and systems continue to operate during power failures and conducts inspections that include regular testing of the backup power generator. Yanacocha has a Change Management procedure (“Gestion Del Cambio”) that requires any proposed changes in process operations and cyanide management be formally evaluated with the area supervisors prior to implementation. Yanacocha uses a computer based preventive maintenance system, Ellipse®, to identify, issue work orders and document all preventive maintenance and repair activities.

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

☒ in full compliance with

☐ in substantial compliance with Standard of Practice 4.2

☐ not in compliance with

Basis for Audit Finding: Yanacocha is a heap leach operation and does not currently generate or dispose of mill tailings.
**Standard of Practice 4.3:** Implement a comprehensive water management program to protect against unintentional releases.

- [x] in full compliance with
- [ ] in substantial compliance with
- [ ] not in compliance with

**Basis for Audit Finding:** Yanacocha has developed a comprehensive water balance that addresses the uncertainty and variability of climatic data to prevent overtopping of the heap leach facilities and process ponds. Yanacocha has a state-of-practice water monitoring system that includes real time monitoring and telemetry to report the information on an hourly basis to the Water Management Group within the Process Department. The system allows real time data collection from process ponds, leach rates, recirculation rates, inter-operational pump flow rates, and climatic data from the four onsite meteorological stations. The system is monitored and evaluated by a full time Water Management Group that notifies any potential changes required in water management. All changes in process water flow rates must be reviewed by the Water Management Group to prevent the potential for overtopping. Yanacocha’s operating philosophy is defined in the Fluid Management Plan. The water balance includes simulations of rainy season containment of the 100-year, 24-hour storm along with 2-hour draindown. The water balance utilizes regional climatic information as well as an eight year record of high quality site-specific data.

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

- [x] in full compliance with
- [ ] in substantial compliance with
- [ ] not in compliance with

**Basis for Audit Finding:** Yanacocha’s primary measure to protect birds, other wildlife and livestock is keeping all solution in process ponds and sumps below 50 mg/L WAD cyanide. Yanacocha’s other wildlife and livestock protection measures include a perimeter fence around all process facilities and ponds and wildlife training for all employees. During periods of high rainfall, ponding on the surface of the heap leach facility is controlled by the fluffing the heap with an excavator, reduction of solution application or by shutting down solution application in the ponding areas.
Standard of Practice 4.5: Implement measures to protect fish and wildlife from direct and indirect discharges of cyanide process solutions to surface water.

☒ in full compliance with

The operation is ☐ in substantial compliance with ☐ not in compliance with

Basis for Audit Finding: Yanacocha is designed and operated for zero-discharge of process fluids unless treated for discharge under Peruvian regulations. Yanacocha conducts weekly water quality monitoring at eight Ministry of Energy and Mines (MEM) compliance points (DCP1 to DCP8). In addition to 22 other routine downstream monitoring points. Yanacocha discharges treated process water as required in response to the season rainfall conditions from two excess water treatment plants (EWTPs). Yanacocha, according to MEM standards, discharges treated water from the Buffer Pond at or below 0.2 mg/L WAD cyanide. Review of discharge data from DCP1 indicates that the maximum WAD cyanide value from October 2003 through February 2007 was 0.0650 mg/L with most values below detection (<0.02 or <0.004 mg/L depending on method detection limit). Review of the operation performance history, design criteria and the project water balance indicate that facilities operation is consistent with the water quality requirements. Monitoring information indicates there is no cyanide-related impact to beneficial use of surface water from the heap leach operations and processing facilities. Spill prevention and emergency response plans have been developed and implemented in response to incidents to comply with the zero-discharge operating requirements.

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

☒ in full compliance with

The operation is ☐ in substantial compliance with ☐ not in compliance with

Basis for Audit Finding: Yanacocha employs a number of specific water management and control measures to protect beneficial use of groundwater. These measures include composite soil (300 mm compacted low permeability compacted soil) and geomembrane (80-mil Low Linear Density Poly Ethylene LLDPE) liners under the cyanide heap leach facilities. The Operational Ponds are constructed with triple High Density Poly Ethylene (HDPE) liners with two interlayered LCRS. All of the heap leach facilities and ponds are constructed with underdrains to collect and manage shallow groundwater. The collected underdrain and LCRS waters are contained in sumps and conveyed back into the process. Concrete containments have been constructed in all other process areas to protect the beneficial groundwater use. Yanacocha completes weekly water quality monitoring of the leak detection systems and quarterly water quality sampling and analysis of a groundwater monitoring network. Monthly and Quarterly Groundwater monitoring data demonstrate that the operation has not impacted the groundwater compliance points or downgradient of the operation, and that the operation is protective of the designated beneficial use of groundwater. Yanacocha compares its groundwater monitoring results for cyanide to the Peruvian surface water numerical standards for Class III (0.1
mg/L for WAD cyanide in water for irrigation of vegetables and livestock) as a reference. Peru has established a Class VI (Aquatic life standard) of 0.022 mg/L for Free cyanide. The 2006 and 2007 groundwater quality data for 28 monitoring wells was reviewed as part of this audit. WAD cyanide concentrations recorded at the 28 monitoring wells located in Yanacocha Norte, La Quinua, Pampa Larga (Carachugo) and Maqui Maqui range from below 0.004 (lab detection limit) to a maximum of 0.1 mg/L. All sample results for free cyanide were below 0.004 mg/L, the lab detection limit.

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

- in full compliance with

**The operation is**

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

**Basis for Audit Finding:** Yanacocha has spill prevention and containment measures for the cyanide unload, mixing and sparging areas, the associated storage tanks, and process areas. Yanacocha has automated pumps within the containments to pump collected solutions into the process circuit. The containments are constructed of cast-in-place reinforced concrete. The storage tank and process tank areas are within concrete containments with sufficient capacity to contain 110% of the largest tank or to overflow into adjacent Operations Ponds. Operating Manuals and Procedures have been developed to address management of spill response and clean-up within the containments. Review of the operation indicates that all tanks, piping and containments are constructed of materials appropriate for handling high pH cyanide solutions. Yanacocha has evaluated the four major drainage basins around the facilities (Quebrada Honda, Rio Rejo, Rio Porcon, and Rio Chonta) for special risks. Yanacocha has identified drainages that are used as canal intake points, presence of fish and compliance points to evaluate special needs. All of the process pipelines at Yanacocha have secondary containment, within HDPE lined conveyance channels with regular inspection and maintenance.

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

- in full compliance with

**The operation is**

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

**Basis for Audit Finding:** Quality control and quality assurance (QC/QA) programs have been required during construction for cyanide facilities, including the cyanide storage facilities, pipelines, conveyance ditches, process ponds, and heap leach facility. The QC/QA include a series of reports including quality assurance oversight by the owner’s representative including daily descriptions of work, construction verification tests, and photographs; the individual contractor’s quality control documentation including testing documentation and construction as-built information; and final as-built topography or construction drawings. Yanacocha has implemented QC/QA programs for all earthworks projects related to tank foundations, compacted subgrades, clay liners, geomembrane
liners for ponds and heap leach facilities. These QC/QA reports include information on subgrade preparation, grading, soil liner material properties and compaction characteristics, underdrain construction, LCRS construction, solution collection piping, geomembrane liner seams and testing. The reports include copies of the field inspection reports, lab and field data, construction observations, and photographs. Yanacocha maintains both digital and hard copies of all QC/QA documentation in the Projects Document Control Department. This department has a supervisor and 3 full time employees working on the organization and archiving of documents. All documents are assigned a document control number and description for entering into Access® database.

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

☐ in full compliance with

☐ in substantial compliance with Standard of Practice 4.9

☐ not in compliance with

**Basis for Audit Finding:** Yanacocha has environmental monitoring programs developed to evaluate the performance of the cyanide management systems on wildlife, and surface and groundwater quality. The environmental programs have been prepared, approved and implemented by qualified professionals and include all appropriate sampling and analysis documentation. Review of field sampling forms, chain of custody and quality assurance data was completed. Yanacocha has a comprehensive sampling program to monitor for cyanide in treated discharge water to surface and in downgradient groundwater. Yanacocha monitors eight MEM compliance points in addition 22 quarterly surface water monitoring points and 34 quarterly groundwater monitoring wells for WAD, Free and Total cyanide.

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

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

☒ in full compliance with

☐ in substantial compliance with Standard of Practice 5.1

☐ not in compliance with

**Basis for Audit Finding:** Yanacocha has developed written closure plans and cost estimates that address decommissioning of all cyanide equipment, pipelines and facilities including management of heap leach draindown solution. Yanacocha has developed an implementation schedule that considers three stages: Progressive Closure; Final Closure and Post-Closure. The closure plans appropriately address treatment and management of all process solution, detoxification and rinsing of equipment, and removal and decommissioning of ponds and other containments. Yanacocha is required to update the closure plan and estimated costs on an annual basis per Newmont’s internal requirements.
Standard of Practice 5.2: Establish an assurance mechanism capable of fully funding cyanide related decommissioning activities.

☐ in full compliance with

The operation is ☐ in substantial compliance with Standard of Practice 5.2

☐ not in compliance with

Basis for Audit Finding: Yanacocha has prepared an estimate of the costs required to fully fund a third party implemented closure. Cost estimates included sufficient detail for the full closure of the cyanide-related facilities and activities. Minera Yanacocha S.R.L is providing a corporate self guarantee to cover the full cost of cyanide facility decommissioning at Yanacocha. In support of the corporate self guarantee, Yanacocha provided audited financial statements for Minera Yanacocha S.R.L and a report from qualified financial auditors that evaluated Minera Yanacocha S.R.L audited financial records for their ability to meet financial tests for financial self guarantee for its cyanide-related decommissioning activities using 40 CFR 264.143(f), 30 CRF 800.23, and 10 CFR 30, and in accordance with accounting standards established by the American Institute of Certified Public Accountants.

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

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

☒ in full compliance with

The operation is ☐ in substantial compliance with Standard of Practice 6.1

☐ not in compliance with

Basis for Audit Finding: Yanacocha has identified potential cyanide exposure scenarios and developed procedures and plans to eliminate, reduce and control exposure. Yanacocha operating plans and individual task specific SOPs provide details for safe operation of cyanide equipment, personal protective equipment requirements and inspection requirements. Yanacocha solicits worker input in developing and evaluating health and safety procedures via direct communication to supervisors or during daily meetings. Health and safety issues are discussed during daily meetings at all process areas of the mine. Daily meeting records about cyanide management and the potential for intoxication conducted at Pampa Larga were reviewed. In addition, monthly meetings are scheduled to discuss health and safety issues related to new task-specific change. Yanacocha has a Change Management procedure (“Gestion Del Cambio”) that requires any proposed changes in process operations and cyanide management be formally evaluated with the area supervisors prior to implementation. All changes are communicated to the workforce and training requirements updated.
Standard of Practice 6.2: Operate and monitor cyanide facilities to protect worker health and safety and periodically evaluate the effectiveness of health and safety measures.

☒ in full compliance with

☐ in substantial compliance with

☐ not in compliance with

Basis for Audit Finding: Yanacocha has developed Manuals and Procedures for the cyanide usage areas designed to prevent the generation of hydrogen cyanide (HCN) gas and has located key cyanide process facilities outside or in well-ventilated buildings with appropriate HCN monitors. Yanacocha has defined process equipment and standard operational plans for control of cyanide, caustic, pH, and the treatment of cyanide solutions. There are HCN sensors and alarms located at the cyanide mixing and storage tanks. Yanacocha has developed extensive HCN monitoring information for all operator tasks using mobile HCN detectors. Yanacocha also has mobile HCN detectors for use in confined space entry. Yanacocha has established requirements for personal protective equipment at all relevant process areas and for all cyanide-related activities. Yanacocha has implemented monitoring equipment maintenance and calibration programs. Yanacocha has installed safety showers with eyewash stations and non-acidic fire extinguishers at relevant cyanide usage areas. Eye wash stations operate on reduced pressure to prevent contaminants from being forced into the eye. Yanacocha provides the cyanide safety information (Material Safety Data Sheets and first aid procedures) at all key process locations and on the Yanacocha Intranet. Yanacocha has implemented an accident investigation process to report and investigate all cyanide related incidents.

Warning signs are located in areas of cyanide usage to alert workers that cyanide is in use and include the use of PPE. Unloading, storage, mixing and process tanks and piping containing cyanide are color coded to alert workers of their contents, and the direction of cyanide flow in pipes is designated.

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

☒ in full compliance with

☐ in substantial compliance with

☐ not in compliance with

Basis for Audit Finding: Yanacocha has developed an Emergency Response Plan and implemented the Plan through training and installation of emergency response equipment. Yanacocha has safety equipment including safety showers with eyewash stations, first aid equipment (amyl nitrite, medical oxygen, and resuscitators), emergency response vehicles, and employee first aid training. Yanacocha has an Emergency Response Team for all shifts at each facility. The teams are trained to provide first aid for cyanide exposure including oxygen and amyl nitrite administration. Yanacocha has a program to store and replace cyanide exposure antidotes in accordance with the manufacturer’s requirements at several locations on the property. In the event of a worker exposure, Yanacocha will provide onsite first aid. Yanacocha has four onsite medical facilities that are always staffed by at least one physician. The onsite medical physicians will provide intravenous cyanide antidote for
treatment of the patient if required. Yanacocha also has a contract with private contractor for evacuation service and on-site medical service. Yanacocha maintains a contract with the Cajamarca Regional Hospital to assist a worker exposed to cyanide. Yanacocha has determined that the Cajamarca Regional Hospital has adequate, qualified staff, equipment and expertise to respond to cyanide exposures. Yanacocha has conducted two mock cyanide exposure drills, and tests of the relevant emergency procedures during 2007.

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

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

☑ in full compliance with

The operation is ☐ in substantial compliance with Standard of Practice 7.1
☐ not in compliance with

Basis for Audit Finding: Yanacocha has developed several plans and manuals that address emergency response. The documents include: Loss Prevention Manual (LPM), Contingency Plan of Solution Management, Emergency Response Plan (ERP), and Emergency Response Plan for the Overflow of Cyanide Solutions 2007 and General Plan of Cyanide Management that address potential cyanide releases including containment plans and analysis of potential scenarios. The emergency response plans will be evaluated and updated at least annually or as needed by the results of mock drills or actual events.

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

☑ in full compliance with

The operation is ☐ in substantial compliance with Standard of Practice 7.2
☐ not in compliance with

Basis for Audit Finding: The ERP has been designed to be implemented entirely by trained, onsite personnel. Yanacocha has onsite fire fighting capabilities, a fully equipped emergency response vehicle, a HAZMAT vehicle and trained First Responders, firefighters and HAZMAT personnel. Yanacocha emergency response teams are trained to respond to all potential cyanide incidents at the site. Yanacocha’s Emergency Response Plan has been developed with the involvement and input of its workforce. Yanacocha’s workforce has the ability to participate in the emergency response planning process through weekly safety meetings and mock drills. Yanacocha involves site personnel in mock drills and revises the emergency response procedures as needed. Yanacocha does not designate any responsibilities to off-site responders and communities with the exception of the clinics in Cajamarca. Yanacocha communicates with its workforce to keep the ERP current. Auditor reviewed minutes from weekly safety meetings that described the ICMC and its requirements.
Standard of Practice 7.3: Designate appropriate personnel and commit necessary equipment and resources for emergency response.

☒ in full compliance with

The operation is ☐ in substantial compliance with Standard of Practice 7.3

☐ Not in compliance with

Basis for Audit Finding: Yanacocha has committed, in the ERP and training SOPs, the necessary emergency response equipment and first aid to manage all cyanide incidents at the operation and to coordinate transportation to the nearest medical facilities. Yanacocha has certified First Responders, firefighters and HAZMAT personnel. Yanacocha’s ERP defines the primary and alternative response coordinators for the Incident Command Team (ICT). The ICT is commanded by an Incident Commander Leader, who is trained for emergencies in that department. The ERP has a list of potential team members and Commanders in the event that the Department Supervisor is not available. The Incident Commander and ICT are responsible for the overall management of the emergency (human resources, equipment, material and supplies, communication, production and decisions) at the site. The ERP contains a list of onsite emergency responders, the ambulance service and the local medical providers. Yanacocha requires training and certification for First Responders, including administering first aid to personnel exposed to cyanide, administering amyl nitrite, locations of cyanide antidote kits, hazard awareness associated with sodium cyanide and HCN gas, and victim and rescuer decontamination procedures. The ERP includes radio channel, office and 24-hour cell phone telephone numbers for the Emergency Response Team and Commanders. The ERP has a section describing Yanacocha Personnel Duties and Responsibilities for the Incident Commander. All emergency equipment and supplies are inspected monthly by the Safety Department.

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

☒ in full compliance with

The operation is ☐ in substantial compliance with Standard of Practice 7.4

☐ not in compliance with

Basis for Audit Finding: Yanacocha’s Emergency Response Plan and related facility plans detail the procedures (including current contact telephone numbers) for internal and external emergency notification and reporting.
**Standard of Practice 7.5:** Incorporate into response plans and remediation measures monitoring elements that account for the additional hazards of using cyanide treatment chemicals.

- **☑** in full compliance with
- **☐** in substantial compliance with
- **☐** not in compliance with

**Basis for Audit Finding:** Yanacocha has prepared cyanide response and remediation plans that address appropriate uses and situations for cyanide treatment chemicals. Yanacocha has developed a monitoring plan for water and soils that includes immediate response actions consisting of investigating the migration of the release, having trained personnel stop the release when safe to do so, and collection of a sample of the release to determine concentrations; treatment, clean up and remediation; and collection of analytical information on released material and confirmation samples from the clean up. The plan describes where samples should be obtained, proper sampling methodologies and parameters. All contaminated soils are to be excavated, loaded, hauled and disposed of in the nearest heap leach facility. Liquid spills are to be contained by perimeter berms and pumped into containers for return to the process facilities. Sodium hypochlorite is only to be used in cases where the solution is fully contained on site and will not encounter aquatic life.

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

- **☑** in full compliance with
- **☐** in substantial compliance with
- **☐** not in compliance with

**Basis for Audit Finding:** Yanacocha has committed to annual evaluation and update of the Emergency Response Plan, if needed based on review of the incidents and drills. Additionally, at least once per year Yanacocha will conduct HAZMAT emergency response drills. Yanacocha conducts mock emergency drills based on likely release/exposure scenarios to test the response procedure, and incorporates lessons learned from the drills into its response planning. Yanacocha conducted the following mock drills:

- Emergency evacuation at La Quinua (January 2005);
- Cyanide intoxication at the Pampa Larga processing plant (April 2005);
- Evacuation of an injured person from La Quinua cyanide mixing area – HAZMAT (February 2006);
- Spill from a cyanide delivery truck at Ciudad de Dios (July 2007); and
- Cyanide spill at the Pampa Larga processing plant (August 2007).
8. TRAINING:  

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

**Standard of Practice 8.1:** 

Train workers to understand the hazards associated with cyanide use.

- [x] in full compliance with

The operation is

- [ ] in substantial compliance with Standard of Practice 8.1
- [ ] not in compliance with

**Basis for Audit Finding:** All new employees and contractors who may be performing cyanide use-related tasks are required to complete new hire training, including cyanide training. Training courses include: first aid, hazardous materials, sodium cyanide management, personnel protective equipment (PPE), cyanide-related emergency response, cyanide manual, general cyanide management plan and cyanide kit management. Training materials describe routes of cyanide entry, symptoms of cyanide exposure, emergency equipment locations and first aid procedures. In addition to the general training, all employees working in process areas are required to undergo task-specific training (e.g. cyanide preparation procedure).

Yanacocha requires employees to have an annual refresher that includes cyanide training. The 2006-2007 Yanacocha training plan was also reviewed to verify compliance with this plan. Yanacocha retains employee training records using the Ellipse system.

**Standard of Practice 8.2:** 

Train appropriate personnel to operate the facility according to systems and procedures that protect human health, the community and the environment.

- [x] in full compliance with

The operation is

- [ ] in substantial compliance with Standard of Practice 8.2
- [ ] not in compliance with

**Basis for Audit Finding:** Yanacocha has prepared and implemented Manuals and Procedures for cyanide management tasks that detail health and safety procedures for all aspects of cyanide unloading, handling, mixing and storage, heap leach operations, Carbon Plant, Merrill Crowe operations, and excess water treatment plant systems.

All personnel in job positions that involve the use of cyanide and cyanide management receive training on how to perform their assigned tasks with minimum risk to worker health and safety. Individual training is provided for each specific task an operator will perform related to cyanide management. The operator will be observed by his supervisor, who evaluates his work performance. The work-specific training includes more detail on cyanide safety, first aid and antidote use, PPE requirements and specific work area cyanide management procedures. The procedure training is task specific training provided by employee supervisors covering cyanide handling and mixing, heap leach operations, Merrill Crowe plant operation, and cyanide destruction system operation. Yanacocha’s training program identifies the specific cyanide management elements that each employee must be
trained in to perform that specific job properly. All Yanacocha employees, with the potential to be exposed to cyanide, receive annual refresher training that includes cyanide safety. Yanacocha employees working in specific cyanide management tasks receive annual refreshers for those tasks. Yanacocha requires written tests to evaluate the effectiveness of cyanide training and those training records are retained throughout an individual’s employment, documenting the training received. The records include the name of the employee and the trainer, the date of training; the topics covered, and test results demonstrating an understanding of the training materials.

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

☒ in full compliance with

☐ in substantial compliance with Standard of Practice 8.3

☐ not in compliance with

**Basis for Audit Finding:** Yanacocha has provided training in response to cyanide releases for all production and maintenance personnel and developed a First Responder Team. Personnel responsible for supervising cyanide off-loading, cyanide mixing, processing, heap leach operations and maintenance is trained in procedures to follow if cyanide is released. Task specific Manuals and Procedures, environmental management plans, overflow management plan and ERP describe release response procedures for cyanide release incidents. The Emergency Response Plan and procedures define the response required by operators if a person is exposed to cyanide or if there is an environmental release. All Yanacocha employees, with the potential to be exposed to cyanide, receive annual refresher training that includes cyanide safety, cyanide hazards recognition, first aid, and incident response. All training records by individual employee are retained.

Yanacocha has an Emergency Response Team comprised of full-time employees trained in first aid and use of resuscitation equipment. Yanacocha has conducted mock cyanide emergency response drills per year that include both human exposure and environmental release. The drills are analyzed and improvements made to training procedures and the emergency response plan as required by the drill results. Yanacocha is committed to conduct one mock drill per year.

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

- [ ] in full compliance with
- [ ] in substantial compliance with
- [x] not in compliance with

**Basis for Audit Finding:** Yanacocha provides the opportunity to communicate issues of concern with the public through contact with the local stakeholders during regular sponsored sessions. Yanacocha sponsors and conducts community communication sessions where the members of the general public and government leaders are encouraged to attend and discuss issues related to the mining operation including the use of cyanide. Sessions are conducted at communities or at the Yanacocha Information Center located in Cajamarca. The Yanacocha Information Center is an office specifically created for public service, where people can review environmental impact assessment reports, printed publications, and cyanide-related materials at the library, have free internet access, and communicate issues of concern related to the operation: [http://www.yanacocha.com.pe/comunicandonos/cinfo01.htm](http://www.yanacocha.com.pe/comunicandonos/cinfo01.htm).

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

- [x] in full compliance with
- [ ] in substantial compliance with
- [ ] not in compliance with

**Basis for Audit Finding:** Yanacocha has a number of programs where they initiate dialogue with the communities related to cyanide management procedures. Yanacocha sponsors and conducts community communication sessions where the members of the general public and government leaders are encouraged to attend and discuss issues related to the mining operation including the use of cyanide. The public had the opportunity to comment on the Yanacocha Mine Closure Plan and Environmental Impact Assessments prepared for the mine. Yanacocha provides public site tours that include a visit to the process areas, environmental labs, Rio Rejo dam and water treatment plants. Visitors receive information on the mine production process (including the use of cyanide), environmental management and social responsibility (e.g., visitor’s booklet).
Standard of Practice 9.3: Make appropriate operational and environmental information regarding cyanide available to stakeholders.

☒ in full compliance with

☐ in substantial compliance with Standard of Practice 9.3

☐ Not in compliance with

Basis for Audit Finding: Yanacocha is required by Peruvian regulations to provide operational and environmental information related to cyanide exposures and emergencies, spills, and offsite releases of cyanide on a quarterly basis. These quarterly reports are available on request from the Peruvian Ministry of Energy and Mines. The Ministry also makes information available on the mines on their website (http://www.minem.gob.pe/mineria/pub_informe_fiscaliza.asp). Yanacocha has a link at its website that provides access to technical reports that describe Yanacocha’s gold production and the use of cyanide in its process. The link includes information on the cyanide solution strength required for the leaching process at the mine. Documents that are publicly available with mine and process operations and management include: report on gold production in Yanacocha prepared in September 2006, report on water management in Yanacocha, and the 2004 and 2005 Now & Beyond reports on the Yanacocha Mine (safety, social and environment performance reports available on-line at the Newmont’s corporate website) (http://www.yanacocha.com.pe/publicaciones/folletos.htm and http://www.newmont.com/en/pdf/nowandbeyond/NB2004-Yanacocha.pdf).