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**INTERNATIONAL CYANIDE MANAGEMENT CODE  
GOLD MINING OPERATION VERIFICATION AUDIT  
MARLIN MINE, GUATEMALA**

**SUMMARY REPORT**

*Submitted to:*

*Montana Exploradora de Guatemala S.A.  
Europlaza World Business Center  
5<sup>a</sup> Avenida 5-55 Zona 14  
Torre 1, Nivel 6 Oficina 601  
Guatemala, C.A.*

*Submitted by:*

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

August 10, 2009

0632129.0011

Name of Project: Marlin Mine

Project Owner / Operator: Mina Marlin, a wholly owned subsidiary of Goldcorp Inc.

Name of Responsible Manager: Marco Meneses, General Manager

Address and Contact Information: Marlin Mine  
Montana Exploradora de Guatemala S.A.  
5 Avenida 5-55 Zona 14  
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Audit Dates: April 27 – May 1, 2009


### **Location and Description of Operation**

The Marlin Mine (Marlin) is operated by Montana Exploradora de Guatemala, S.A. (Montana), a subsidiary of Goldcorp Inc. Marlin is located in the western highlands of Guatemala at an elevation of approximately 2,300 meters above sea level, about 120 kilometers (km) west-northwest of Guatemala City. Marlin is a gold and silver mine and processing facility located in the municipalities of San Miguel and Sipacapa, in the Department of San Marcos. The mining concession is 20 km<sup>2</sup>. Marlin is a combination open pit and underground mining operation with a cyanide leach/Merrill-Crowe processing facility. Marlin has been in operation since late 2005. The mine employs 1,061 direct workers and 400 contractors. The mill throughput average is approximately 6,000 tonnes per day (tpd). Rainfall at the Marlin site is estimated to average approximately 1,000 mm/year and occurs primarily during the wet season when about 90% of the annual precipitation occurs. The average annual pan evaporation is 1,708 mm.

Mining occurs simultaneously using both underground and open pit methods. Ore is hauled approximately 2 km from the mine to the crushing and grinding facility. Fluor Daniel Inc. was the project designer for the process plant. They used sound engineering practices for the design of all cyanide unloading, storage and mixing. Marlin's cyanide circuit consists of a gravity concentrator and intensive cyanidation reactor, grinding thickener, pregnant solution storage tank, cyanide mixing tank, cyanide storage tank, process water storage tank, six leach tanks, five CCD tanks, cyanide recovery thickener and interconnection pipes. The ground ore is processed in tanks by an agitated leach in a cyanide solution. The resulting product is passed through a CCD system. Gold and silver are recovered from solution by a zinc precipitation/Merrill-Crowe system. The tailings from the CCD are treated through an INCO/SO<sub>2</sub> system to neutralize the residual WAD cyanide concentrations to approximately 0.5 mg/L prior to disposal in the Tailings Storage Facility (TSF). The TSF has a phased earth and rock fill embankment. Marlin Engineering & Consulting, L.L.C. (MEC) completed original design and provided construction oversight of the Phase 1 of the TSF. Montgomery Watson

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Harzan Americas Inc (MWH) has provided the on-going engineering and QA/QC for the additional phases of the TSF. The embankment has an inclined, low-permeability core, a grout curtain to control seepage through the embankment foundation, internal drainage and a dam seepage collection system. Marlin has a water treatment plant that treats the water from the tailings reclaim and then returns the water back to the tailings storage facility. This plant will be used to treat all water that may have to be discharged in the future. Currently Marlin operates as a zero discharge facility. Marlin has a permit to discharge water if it is needed. The current water balance predicts that treated water will not have to be discharged until 2011 if at all. The TSF has a phased earth and rock fill embankment. The embankment has an inclined, low-permeability core, a grout curtain to control seepage through the embankment foundation, internal drainage and a dam seepage collection system.

Marlin receives solid sodium cyanide from E.I. DuPont De Nemours & Co., Inc. (DuPont) delivered to the site in intermediate bulk container (IBC) plywood boxes. Sodium cyanide supply chain is managed by DuPont, a signatory company to the International Cyanide Management Code (Code) and certified as compliant with the Code. The DuPont sodium cyanide supply chain, which includes different DuPont's distributors and contract transporters, has been audited for due diligence and compliance with the Code by qualified Code auditors. The sodium cyanide box containers are stored in a secure, concrete floor and stem wall contained, aluminum wall and roofed warehouse.

Marlin has identified potential cyanide exposure scenarios and developed plans and standard operating procedures (SOPs) to eliminate, reduce and control exposure to cyanide. Operating plans and individual task specific SOPs provide details for safe storage, handling and mixing of sodium cyanide briquettes; safe operation of cyanide equipment; personal protective equipment (PPE) requirements; and inspection requirements. The cyanide mixing and storage tanks are within concrete containments with spill collection sumps. The areas have appropriate ventilation and hydrogen cyanide (HCN) monitoring, and high-level alarms to prevent overfilling. Marlin stores and manages cyanide in engineered tanks, pipelines, concrete containments, reagent storage and cyanide neutralization plant under appropriate quality control and quality assurance (QA/QC) programs. All pipelines are color coded to identify the content with the flow directions marked.

Marlin employees are trained in cyanide hazards and first aid, emergency response and specific operational tasks. Marlin has a perimeter fencing around cyanide related facilities to prevent wildlife, livestock and unauthorized personnel access to the property. Within the property, key facilities of the cyanide process areas are also fenced. Marlin employs inspection and preventive maintenance programs to assure that all cyanide equipment and facilities are functioning as designed and to monitor process solutions. Marlin has developed a comprehensive closure plan to complete the appropriate management of cyanide solutions and solids, and the decontamination of cyanide tanks, pipelines, processing equipment and structural components associated with the cyanide process.

Marlin has an emergency response team that is trained to respond to fires involving cyanide, chemical spills and decontamination, and worker exposures to cyanide. Marlin works with local community emergency responders to assure that adequate resources are available to address offsite emergencies as needed. Marlin provides information on the onsite use and management of cyanide to communities, general public and other stakeholders in written format and oral form, in both, Spanish and Mam (the dialect spoken by the nearby communities). Marlin also provides opportunities for stakeholders to communicate issues of concern regarding the cyanide use and management at the mine through its corporate website, community sessions and others.

<hr/> <p>Marlin Mine Name of Facility</p>	 Signature Lead Auditor	<hr/> <p>August 10, 2009 Date</p>
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Auditors: Pamela Stella, Lead Auditor and Gold Mining Technical Expert Auditor  
Ivón Aguinaga, Gold Mining Technical Expert Auditor

**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: **Pamela J. Stella, CEA**  
E-mail: [Pamela\\_Stella@golder.com](mailto:Pamela_Stella@golder.com)

Names and Signatures of other Auditors:

**G. Ivón Aguinaga**

<u>G. Ivón Aguinaga</u>	<u>Ivón Aguinaga C</u>	<u>August 7, 2009</u>
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 (ICMI) and that all members of the audit team meet the applicable criteria established by the International Cyanide Management Institute for Code Verification Auditors.

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

Myra y Atencio

**Notary Public**  
**State of Colorado**

**My commission expires:** 11/01/2010

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**Name of Facility**

Pamela Stella  
**Signature Lead Auditor**

08/10/09  
**Date**



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Pamela Stella  
**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**

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

not in compliance with

**Basis for Audit Finding:** Marlin has committed to only purchase cyanide from producers that are compliant with the International Cyanide Management Code (Code). Marlin has sodium cyanide supply contract with E.I. DuPont De Nemours & Co., Inc. (DuPont). DuPont is signatory to the Code and has been certified as complaint under the Code.

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

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

**in full compliance with**


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

not in compliance with

**Basis for Audit Finding:** Marlin has a sodium cyanide supply contract with Dupont, which specifies that Marlin takes ownership of the product at the time of delivery at the Quetzal Port or to the Santo Tomas de Castillo Port. However, DuPont-Brenntag is responsible for the transportation of the cyanide until it is unloaded at the warehouse at the Marlin Mine. DuPont-Brenntag has contracted Transportes Piman (Piman), the local transporter in Guatemala, to transport the containers from the port to the mine. DuPont is a signatory producer to the Code and subcontracts the supply chain transportation from Memphis, Tennessee, to the mine in Guatemala. DuPont and their contracted transporters and agents have a formal agreement with Goldcorp for the responsibility of the cyanide transportation to the Marlin Mine.

DuPont utilizes a truck transportation company (Intermodal Cartage Co. Inc. of Memphis, TN) to move the inter-modal cargo containers containing sodium cyanide to a rail yard for train transport to sea ports for international transport by ocean going ships. The Burlington-Northern-Santa Fe (BNSF) Railway takes custody of the containers at the railhead and loads them on to flatbed rail cars. The BNSF then transports the material to the Port of export of Los Angeles where custody is transferred to Maersk. DuPont has subcontracted Maersk to manage the transportation from the port in the US to the Guatemalan ports. Maersk trans-loads the containers onto its ocean vessels for

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transport to ocean ports in Guatemala. There is no interim storage at the ports. DuPont-Brenntag has contracted Transportes Piman (Piman), the local transporter in Guatemala, to transport the containers from the port to the mine. The DuPont sodium cyanide supply chain, which includes the different DuPont's distributors and contract transporters describe above, has been audited for due diligence and compliance with the Code by qualified Code auditors. According to the audits, DuPont's distributors and contract transporters are in compliance with the Code's clear lines of responsibility for safety, security, release prevention, training, and emergency response.

The transportation audit reports are:

- "ICMC Summary Audit Report, Rev. 2 for DuPont Sodium Cyanide Processing & Packaging Operations, Audit Dates: March 20-28, 2006" (Management Systems Solutions),
- "Cyanide Code Transportation Verification Audit Report Intermodal Cartage Co., Inc. Memphis, TN Audit Dates May 4 & August 2, 2007" (Management Systems Solutions),
- "Cyanide Code Transportation Verification Audit Report DuPont Management of Sodium Cyanide Transportation via Rail using the Burlington Northern and Santa Fe Railway Company (BNSF) Report Date December 29, 2007" (Management Systems Solutions),
- "Cyanide Code Transportation Verification Audit Report DuPont Management of the Ocean Transport of Solid Sodium Cyanide from the United States to International Ports using the Maersk Line Ocean Carrier Report Date May 10, 2007" (Management Systems Solutions), and
- "Cyanide Code Principle 2 Transportation Audit February 2009 (ERM).

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

**in full compliance with**

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

not in compliance with

**Basis for Audit Finding:** Goldcorp's supply contract is with DuPont and requires DuPont and its transportation personnel, distributors and contract transporters to comply with all applicable ICMI Code Principles, Standards of Practice, performance goals, audit recommendation and certification requirements applicable to the transportation to Marlin including the specific compliance matters set out in the ICMI Cyanide Transportation Verification Protocol. Dupont is a signatory company to the Code and certified as compliant with the Code. None of the transportation companies within the DuPont's supply chain are signatory to the Code. However, the entire supply chain (described in Standard of Practice 2.1) from DuPont's manufacturing plant in Memphis, Tennessee to delivery to the Marlin warehouse on site has been audited within the past three years by independent third party auditors meeting the qualifications established by the ICMI. Marlin has copies of the audit and due diligence reports for each of the individual transporters for the transportation of sodium cyanide from the manufacturing and packaging facilities in Memphis, Tennessee to the Marlin Mine. Based on the audits and due diligence reports, DuPont's supply chain is in full compliance with the Code's cyanide transportation audit requirements and have considered to the extent practical, the security, safety, training and emergency response aspects. Marlin has records documenting the ordering of cyanide as well as chain of custody documentation.

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

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

- in full compliance with**
- The operation is**  in substantial compliance with **Standard of Practice 3.1**
- not in compliance with

**Basis for Audit Finding:** The Marlin containment and fluid management systems have been constructed in accordance with the designs reviewed and approved by the Guatemalan government and to accepted engineering practices. Fluor Daniel completed Turnover Packages for the process areas and certified that the listed process systems (e.g., tanks, pumps, and related components) have been tested, inspected and considered to operationally complete.

Marlin receives solid sodium cyanide briquettes in one-ton “bag-in-box” intermediate bulk container (IBC) plywood boxes. The sodium cyanide box containers are stored in a locked, ventilated and roofed metal building with a concrete floor. The design of the solid sodium cyanide storage warehouse is based on sound and appropriate engineering practices. The warehouse is located away from people and surface waters. All personnel entering the warehouse must wear protective gear and handheld cyanide gas monitors. Cyanide mixing and storage tanks are located on concrete pads and within concrete curbed containment, which prevents seepage to the subsurface. The liquid cyanide mixing and storage tanks have locked drainage valves on the pumps and tanks. There are HCN fixed monitors and alarms at the mixing tank and the process area. The Marlin cyanide mixing and storage tanks have level indicators and high-level alarms that prevent the overfilling. The cyanide mixing and storage containment area is designed to contain 110% volume of the CCD thickener and has excess capacity to contain the catastrophic failure of the cyanide mixing and storage tanks. As-built documentation indicated that the cyanide mixing and storage tanks received a number of quality assurance tests. The design package includes foundation, concrete, and steel specifications.

Cyanide storage tanks are located on cast-in-place reinforced concrete pads and within concrete curbed secondary containment that prevents seepage to the subsurface. Cracks and other voids in the concrete are patched with epoxy or coated. Marlin has an inspection and preventative maintenance program for identification and patching of cracks. Review of the containments indicated that they are well maintained and that all cracks have been effectively patched. The cast-in-place reinforced concrete containments are competent barriers to the leakage.

Cyanide is stored within the fenced and secured boundary of the Marlin site and plant. Access to the site is controlled. The cyanide warehouse is locked. Cyanide is stored, handled and managed separately from incompatible materials.

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.*

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

**Basis for Audit Finding:** Marlin has developed and implemented a comprehensive set of procedures to prevent and control exposures and releases during unloading, mixing and storage. These procedures include: unloading of sodium cyanide briquettes, removing IBC cyanide from the warehouse, preparation of liquid cyanide 20% strength, recovery of cyanide briquettes from the preparation cabinet, procedure for the management and storage of chemicals, incineration of the cyanide boxes and sacks, and others.

The unloading procedure defines objectives, responsibilities, and task descriptions for the transportation, unloading, handling and tracking of the solid sodium cyanide product from the entrance gate to the warehouse at the Marlin Mine. DuPont is responsible for the transporter complying with all requirements of the mine, providing emergency response, and verification from the DuPont production facility to delivery at the mine. The procedure for removing the IBC from the warehouse includes requirements for the inspection of the forklift and the truck that will transport the IBC from the warehouse to the mixing area. The procedure includes handling the IBC without rupturing or puncturing them and limiting the stacking height of the IBCs.

The procedure for cyanide preparation outlines the requirements for inspection, observation, pH control, movement of IBCs and mixing of cyanide. The inspection checklist prior to mixing includes verifying that the tank extractor is operable, presence of antidote kit, radio communication, fixed HCN monitor, pumps seals, tank valves and connections, security equipment, tank level of water of preparation and storage tanks; pH (initial and final) and HCN measurement. Marlin requires personal protective equipment and having a second individual observer present during mixing. Marlin has also procedures for the management and rinsing of the cyanide bags, and disposal of the rinsed bags and wooden boxes to be incinerated. The empty containers are not used for any purpose other than holding cyanide.

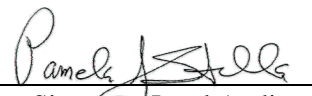
Marlin has developed written instructions for the operation of critical valves and coupling related to the addition of caustic, raw water and connection with the storage tank and mixing and transfer of the solution from the mixing to storage tank.

Marlin has written procedures that address the prompt clean up of solid cyanide in the warehouse or spills during mixing. Any liquid spills or leaks within the concrete containments are automatically pumped from the mixing area sump back into the mixing tank. Operators are trained to hose down the liquid spill areas immediately. Review of the Marlin containments indicated excellent housekeeping practices.

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

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

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

**Basis for Audit Finding:** Marlin has developed and implemented operator manuals, procedures, instructions, and forms that address protection of human health and the environment for the operation of utilities and reagents, crushing and grinding, leaching and CCD, gravity circuit, cyanide neutralization and TSF. These manuals have since been supplemented by operating plans and task specific SOPs that describe the management and operation of the cyanide facilities. The procedures detail the potential risks involved with each task and adequately describe safe work practices. The operating manuals detail the operating parameters and design capacities of the cyanide circuit facilities and the TSF. Marlin’s cyanide circuit consists of a gravity concentrator and intensive cyanidation reactor, grinding thickener, pregnant solution storage tank, cyanide mixing tank, cyanide storage tank, process water storage tank, six leach tanks, five CCD tanks, cyanide recovery thickener and interconnection pipes. The tailings are neutralized to WAD cyanide concentrations in the slurry to approximately 0.5 mg/L in an INCO/SO<sub>2</sub> system. Marlin has a water treatment plant that treats the water from the tailings reclaim water and then returns the water back to the TSF. At the time of the audit, Marlin has never discharged tailings solution from the TSF and based on the current water balance will not likely discharge until the year 2011 if at all.

The TSF was designed to operate as a water storage reservoir with the capacity to contain the 100-year, 24-hour interval storm event with a two meter freeboard. The cyanide concentration in the tailings is limited to below 50 part per million (ppm) of Weak Acid Dissociable (WAD) cyanide. Because Guatemala has no specific regulations that govern tailings impoundment design and operation, the adoption of the Mining Association of Canada (MAC) Environmental Policy and the MAC “Guide to the Management of Tailings Facilities” was used. Marlin is located in a seismically active area and the design parameters include for seismic events. All components of the TSF were designed to withstand the effects of the operational base earthquake (OBE); the peak acceleration from the OBE was used for operational design and based on a return period of 475 years. The calculated peak ground acceleration at the mine from the OBE is 0.32 g-force. The design criteria identified in World Bank/International Finance Corporation (IFC) guidance documents were considered in the development of the TSF design.

Marlin has developed a series of documents that defines the policies, procedures and responsibilities for compliance with the Code. These documents describe the standard practices necessary for the safe and environmentally sound operation of the facility including water management procedures, inspection programs and preventative maintenance (PM) programs. The PM program includes inspection and documentation of all cyanide tanks, pumps, pipelines, containments and the tailings facility. Currently weekly and monthly inspections are being completed with work requests and work orders being developed as needed. Marlin uses a computer based preventive maintenance system, Performance Management® to identify, issue work orders and document all preventive maintenance activities. Marlin has developed a Code Compliant Change Management procedure to be used when a change that can have the potential to adversely affect quality, health, safety, efficiency, community and security is proposed. Marlin has developed procedures to manage contingencies in the cyanide facilities (i.e. water balance upset, overtopping of tanks, broken pipeline, ruptured valve) including

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key scenarios and responses for upset conditions at the plant, the TSF embankment and the water balance.

Marlin has generators to supply power in case of a power outage. An Emergency Equipment Procedure details procedures for start up and a list of key equipment and their electrical requirements. The generators are tested every four months and are on the surface mine PM schedule.

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

- in full compliance with**
- The operation is**  in substantial compliance with **Standard of Practice 4.2**
- not in compliance with


**Basis for Audit Finding:** Marlin conducts routine metallurgical testing (bottle rolls and agitation tests) to evaluate addition and recovery rates. Marlin has conducted cyanide optimization studies since the original feasibility work to optimize the cyanide application with real-time adjustments to the original rate in order to account for ore variations and its leaching characteristics. Cyanide optimization studies are conducted every six months. There are two ore types (underground and surface mine) with differing sulfide and precious metals concentrations. The ores are blended to optimize recovery and minimize cyanide consumption. Samples for the optimization study were run at different cyanide concentrations. The study concluded that the optimal free cyanide concentration is 400 ppm (from a metallurgical and economic point). Test work results of the INCO system were factored into the maximum cyanide application rate in order to maintain the cyanide neutralization to meet the targeted treatment quality (below 50 ppm WAD cyanide). As part of the daily operations, Marlin samples for Free and WAD cyanide, and pH at different cyanide circuit locations. The samples are taken and analyzed every two hours. Cyanide addition is controlled by the Control Room.

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

- in full compliance with**
- The operation is**  in substantial compliance with **Standard of Practice 4.3**
- not in compliance with

**Basis for Audit Finding:** Marlin has developed a comprehensive probabilistic water balance that is tracked and updated with actual process values on a weekly basis. Marlin has implemented a comprehensive water balance model that tracks water flow throughout the site-wide engineered water management facilities, including the mill and TSF. The model uses the Goldsim® software (Version 9.60 SP3). The Goldsim® model is a dynamic systems model, which evaluates probabilistic analyses using the Monte Carlo approach. Marlin evaluates its water management on a weekly basis using the Goldsim® model and data from Marlin's on-site meteorological station. Rainfall at the Marlin site is

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estimated to average approximately 1,000 mm/year and occurs primarily during the wet season when about 90% of the annual precipitation occurs. The average annual pan evaporation is 1,708 mm.

Marlin uses the water balance simulation model to meet the following objectives: 1) predict the storage capacity of the TSF relative to mine production to determine whether, or when maximum capacity will be reached (This prediction is used to optimize planning considerations for the mine as mining processes), 2) provide an operational tool allowing facility managers to estimate and predict available water storage in the TSF which can be used as reclaim water for the mill, and 3) provide the site personnel with an analytical tool to evaluate alternative strategies for managing the operation over the life cycle of the mine and to support decision making and planning.


The water balance includes the tailing discharge rate, the annual production rate for the mill and the geotechnical properties of the tailings (i.e., tailings slurry percent solids and moisture content, consolidated tailings dry density and percent saturation, and tailings specific gravity), direct precipitation run-on to the tailings facility surface, TSF catchment runoff, TSF impoundment water depths and geometries, flow from the downgradient seepage collection tank (includes seepage through the dam plus runoff from the downstream dam face), reclaim water to the mill, meteorological data and bathymetric data. The model assumes a daily production rate of approximately 6,000 tons per day. The TSF receives pumped inflow from mine dewatering activities and from various other non-cyanide facilities. The design criterion for containment at Marlin is the 100-year/24-storm event.

The Marlin water balance models consider the stormwater runoff entering the tailings impoundment facility from any upgradient watersheds not diverted by stormwater control structures. The majority of upgradient stormwater flow is diverted around the TSF and the only excess water that enters the system during a storm event is from precipitation falling directly onto the TSF and stormwater runoff between the diversion structures and the TSF.

Marlin has inspection and monitoring activities incorporated into operating procedures to prevent overtopping of the impoundment and unplanned discharge of process solutions to the environment. The design and operation of the TSF requires the following performance monitoring:

- Mill tailings slurry and water recycle rate and quality;
- Impoundment seepage quantity and quality;
- Decant system discharge flows;
- TSF impoundment conditions (level of impoundment surface, average in-situ tailings density, density profiles and impoundment water quality);
- TSF embankment performance (survey monuments, piezometers (downstream rock shell and toe drain, low permeability core and cutoff trench, upstream rock shell), soil settlement gauges and bathymetric surveys; and
- Groundwater and surface water.

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

- in full compliance with**
- The operation is**  in substantial compliance with **Standard of Practice 4.4**
- not in compliance with

**Basis for Audit Finding:** Marlin has been successful in preventing wildlife mortality related to cyanide in the open water pond by treating the tailings slurry discharge to below 50 mg/L WAD cyanide prior to discharge to the TSF. Marlin has implemented cyanide neutralization as a primary means to maintain WAD cyanide concentrations below 50 mg/L in open waters in the tailings storage facility. Otherwise, all process solutions and slurries are in tanks and pipelines located within a fenced and guarded area. Water quality data from the neutralization tanks to the TSF was reviewed to confirm cyanide concentrations in the TSF open water are below 50 mg/L WAD cyanide. Marlin completes sampling and WAD CN analysis of samples every shift of tailings prior to discharge to the TSF. Marlin also samples and conducts WAD CN analyses every shift of the reclaim water prior to being pumped to the water treatment plant or to the cyanide recovery thickener. Marlin collects slurry discharge to the tailings storage facility and water quality in the pond. Review of data from the discharge of the neutralization tanks to the TSF indicates that WAD is below 0.5 mg/L WAD cyanide in the slurry and in the supernatant pond. Marlin conducts wildlife monitoring and no cyanide related mortalities have been reported.

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

- in full compliance with**
- The operation is**  in substantial compliance with **Standard of Practice 4.5**
- not in compliance with

**Basis for Audit Finding:** Marlin at this time and for the foreseeable future does not discharge neutralized process water to surface water. All cyanide neutralized process water is collected in the tailings storage facility for reuse in the process circuit. The facility was designed with the expectation that future operations will require the discharge of treated process water during the rainy to maintain the water balance. Currently Marlin uses an INCO SO<sub>2</sub> treatment process to treat the slurry to below 0.5 mg/L WAD cyanide. In May 2009, Marlin commissioned the operation of another treatment process that uses oxidation by hydrogen peroxide followed by clarification and carbon columns. This new treatment process will also be used to treat any water that may have to be discharged to surface drainage in the future prior to discharge. Marlin has implemented a comprehensive surface water and groundwater monitoring program downstream and downgradient of the facility. There is no indirect discharge from the facility. Review of the downstream surface water quality data indicates that cyanide is below detection at SW3 (first location for perennial water flow downstream of the TSF) on the Riachuelo Quivichil. Cyanide detection limit for WAD cyanide is <0.0100 mg/L using methodology 4500 – CN-I.

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Marlin conducts daily inspections of its cyanide facilities and the seepage collection system to verify that there is no seepage entering surface drainages. Marlin reports quarterly to the Ministry of Environment and Natural Resources (Dirección de Gestión Ambiental Ministerio de Ambiente y Recursos Naturales Gobierno de Guatemala) on surface water quality, groundwater quality and process water quality. Marlin uses a certified laboratory in the US. Handling, preservation and transportation of samples are conducted in conformance with established protocols.

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

**in full compliance with**

**The operation is**  in substantial compliance with **Standard of Practice 4.6**


not in compliance with

**Basis for Audit Finding:** Marlin has implemented solution management and seepage control systems to protect groundwater below and downgradient of the operation. The TSF is located below all the process facilities effectively serving as a final capture point for all process related impacts in the drainage. Marlin Engineering & Consulting, L.L.C. completed original design and provided construction oversight of the Phase 1 of the TSF. Montgomery Watson Harzan Americas Inc. has provided the on-going engineering and QA/QC for the additional phases of the TSF. The TSF design criteria identified in World Bank/IFC guidance documents were considered in the development of the TSF design (including the Safety of Dams Guideline (OP 4.37)). Currently, Marlin uses an INCO SO<sub>2</sub> treatment process to treat the slurry to below 5 mg/L Total and 0.5 mg/L WAD cyanide prior to deposition in the TSF. In May 2009, Marlin commissioned the operation of another treatment process that uses oxidation by hydrogen peroxide followed by clarification and carbon columns.

The TSF has a phased earth and rock fill embankment. The embankment has an inclined, low-permeability core, a grout curtain to control seepage through the embankment foundation, internal drainage and a dam seepage collection system. The TSF is constructed over a bedrock foundation. The TSF is constructed with a main dam across the drainage and a saddle berm along the eastern flank. The main dam is constructed with a compacted low permeability core keyed into bedrock with a trench. The vertical drain is connected at the base to a main drain that takes dam seepage out to a collection pond. To limit seepage beneath the embankment and through the abutments, the grout curtain was installed to intercept zones of higher permeability foundation materials. The tailings design included detailed hydrogeologic characterization before and after the grouting program to define the permeability of the foundation and grout curtain. The TSF embankment includes internal drainage to provide an engineered path to collect, route, and manage water infiltrating into, around, and through the dam.

Currently the dam is operated as a zero discharge facility with dam seepage being collected in a seepage collection pond for return to the process circuit. Future discharge would be either directly from the new water treatment plant or from the facility through a decant system constructed on the west abutment. Marlin has not caused cyanide concentrations in groundwater to rise above levels protective of beneficial use. Review of the monitoring well data for 2007, 2008 and first quarter 2009 indicates that WAD cyanide concentrations were below detection limit for all monitoring and production wells.

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There is no legal or regulatory designation of beneficial use and groundwater quality standards applicable to the Marlin Mine. However, there is a spring downgradient from the Marlin Mine that is used for drinking water in one community. Therefore, Marlin has decided to operate the mine protecting this beneficial use of groundwater and has designed the facilities to prevent groundwater impacts.

*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:** Marlin has spill prevention and containment measures for the two cyanide storage areas (warehouse for the sodium cyanide IBCs and the liquid mixing and storage tank) and process areas. The process areas include the mill and the intense cyanidation circuit, the Merrill Crowe area, the leach tanks, and the CCD. Marlin 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 area is within concrete containments with sufficient capacity to contain 110% of the largest tank. Marlin has provided verification that that the concrete secondary containments for each area can contain at least 110% of the single largest tank. Visual inspections of the secondary containments verified that there are no materials stored within the secondary containment to compromise their capacities. All Marlin cyanide process tanks and pipelines are constructed with materials compatible with high pH cyanide solutions. Marlin has constructed all pipelines with spill prevention and containment measures to collect leaks and prevent releases. Other secondary containments include pipe-in-pipe and geomembrane-lined trays. The tailings slurry conveyance from the INCO process is via an excavated trench in bedrock to the TSF. The trench drains the slurry by gravity to the impoundment. The cyanide concentrations in the tailings slurry is below 0.5 mg/L WAD cyanide. Marlin has located facilities in areas that do not pose any undue risks to surface water that would require special protection. All process facilities are located upstream of the tailings impoundment.

*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 completed during construction for cyanide facilities, including the process tanks, pipelines, concrete containments, reagent storage, tailings facility and INCO/SO<sub>2</sub> cyanide neutralization plant. Marlin retained a qualified engineering firm (Fluor) to oversee and provide construction verification documentation of the plant, mill and support facilities. The QC/QA reports are all prepared by

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qualified engineering companies and approved by Fluor. The QC/QA programs include a comprehensive series of As-Built documents that cover the QC/QA and as-built documentation for each component of the cyanide facilities. In addition to the certification reports, there are a series of QC/QA documents containing the field and laboratory information for the construction information. These reports include foundation preparation (which in general was blasting into rock and placement of structural fill), concrete works, subgrade preparation, grading, solution piping, tanks, testing and construction observations. The QC/QA documentation for the tailings facility address material conformance, installation and construction for earthworks, tailings distribution and reclaim systems, cutoff trench, low permeability core, grout curtain and earthworks. Marlin maintains copies of all QC/QA documentation.

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

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

**Basis for Audit Finding:** Marlin has implemented monitoring programs at frequencies adequate to characterize the surface water, groundwater, wildlife, and process solutions. Marlin does not discharge process water. Marlin has an environmental monitoring network both up and downgradient of the facilities. The environmental programs have been prepared and approved by qualified professionals and implemented by qualified personnel and include all appropriate sampling and analysis documentation. Marlin monitors water quality in 14 surface water locations, 14 groundwater monitoring well, eight process sampling points, three water supply wells and water quality into the water treatment plant. Marlin has developed an appropriate number of both surface and ground water monitoring locations in the surface waters downstream of the mill, process plant and tailings storage facility (Quebrada Seca and Riachuelo Quivichil). Surface water monitoring is completed either monthly during the rainy season or quarterly depending on the location. Groundwater samples are collected and analyzed on a quarterly basis. Marlin has developed written standard procedures for all water quality monitoring activities (Marlin Mine Environmental Monitoring Plan). Process solutions are monitored every two hours by Process Department, and quarterly by the Environmental Department. The wildlife monitoring is continuous while employees are working outdoors on the property. In addition, Marlin's Environmental Department conducts monthly inspections for and records the presence of wildlife and any mortality at the mill and process plant area and the tailings storage facility. Marlin has been successful in preventing wildlife mortality related to cyanide in the open water ponds by keeping the WAD cyanide concentrations in the tailings facility below 0.5 mg/L. Marlin completes inspections that include the type of fauna (snake, bird, mammal), habitat, season, state of the wildlife (good, sick, dead), inspector name and signature, date and time of inspection, possible cause of death if there is a death, what improvements could be made, and observations. No cyanide related mortalities have been identified in the records maintained by Marlin. Marlin requires any dead animal to be reported to the Environmental Department immediately upon discovery.

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

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*plans for cyanide facilities.*

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

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


**Basis for Audit Finding:** Marlin has developed a comprehensive closure plan that address decommissioning of all cyanide facilities, including a schedule for closure activities. Closure activities are scheduled in three phases: progressive closure, final closure and post closure. The plan has sufficient detail to support the Code compliance and cost estimation. The plan addresses the management of the cyanide facilities including milling, leach tanks, thickeners, cyanide neutralization tanks, cyanide mixing and storage tanks and piping, process water treatment plant, tailings management and closure, performance monitoring (surface water, groundwater, seepage, survey monuments and erosion) and long-term maintenance. Financial accounting procedures require that mine closure liabilities be externally reevaluated every year and Goldcorp internally requires the closure plan to be updated every year as part of its Asset Retirement Obligation Policy.

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:** The Marlin internal cyanide facility decommissioning cost estimate is an estimate that fully funds completion of the work by a contractor. The cost estimate provides detail on the individual tasks and is presented by major facility (milling and processing facilities, TSF dam and TSF impoundment), closure task and by year. Goldcorp requires ongoing annual review and update of the Life of Mine Plan. Marlin has established self-guarantee as the mechanism to cover the estimated costs for closure and reclamation. In support of the corporate self guarantee, Marlin provided documentation from a Chartered Accountant verifying Goldcorp Inc.'s compliance for a self-guarantee mechanism as defined in "Title 10, Code of Federal Regulations (CFR) Appendix A to Part 30 – Criteria Relating to Use of Financial Tests and Parent Company Guarantees for Providing Reasonable Assurance of Funds for Decommissioning" to cover the estimated costs for cyanide related decommissioning activities.

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**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:** Marlin has identified potential cyanide exposure scenarios and developed plans and SOPs to eliminate, reduce and control exposure to cyanide. Operating plans and individual task specific SOPs provide details for safe operation of cyanide equipment, personal protective equipment requirements and inspection requirements. Marlin solicits worker input in developing and evaluating health and safety procedures via direct communication to supervisors or during safety meetings conducted at all process areas. Daily inspections are completed by the operators in areas where cyanide is used (e.g., mill and leach areas, and tailings storage facility). Inspections include safety and environmental concerns; reagent offload and storage areas; containment area and tank integrity; valve and pipe leakage detection; eye wash stations and showers; and others. Marlin has developed a procedure to be used when a change that can have the potential to adversely affect quality, health, safety, efficiency, community and security is proposed. 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**

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

not in compliance with

**Basis for Audit Finding:** Marlin 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, in well-ventilated areas with appropriate HCN monitors. The pH is continuously monitored and maintained to prevent the formation of hydrogen cyanide gas. Cyanide mixing is performed in an area open to ambient air with adequate ventilation. The cyanide mixing and storage tanks have ventilator fans. Marlin has installed stationary HCN monitors at the areas of potential worker exposure to cyanide. Fixed HCN monitors are located in the areas of the cyanide warehouse, SAG mill discharge screen, cyclone cluster, grinding thickener, CN mix tank, leach tank #1 and neutralization plants. Marlin 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. Marlin has implemented monitoring equipment maintenance and calibration programs. Marlin also has portable HCN detectors used to monitor HCN concentration in areas where cyanide-related tasks are conducted and when required for maintenance activities (e.g., in confined space entry). Marlin has established requirements for personal protective equipment at all relevant process areas and for all cyanide-related activities. In

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addition, Marlin has developed procedures to access and take samples in areas of potential worker exposure to cyanide (e.g., in the cyclone cluster). Those procedures include the use of personal HCN monitor device, notification to control room prior to working in identified areas, and be accompanied by an observer.

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.

Marlin provides the cyanide safety information (Material Safety Data Sheets and first aid procedures) at all key process locations and on the Marlin Intranet. The instructions are in Spanish, the language of the workforce. Marlin has implemented an accident investigation process to report and investigate all cyanide related incidents.

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

**in full compliance with**

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


not in compliance with

**Basis for Audit Finding:** Marlin has developed written emergency response procedures for cyanide exposure and implemented these procedures through training and installation of emergency response equipment. Marlin has safety equipment including safety showers with eyewash stations, cyanide antidote kits (containing oxygen, amyl nitrite, sodium thiosulfate, sodium nitrite, activated carbon and first aid kit), resuscitators, emergency response vehicles, spill response equipment, Hazmat equipment and other. This equipment is regularly inspected. The Emergency Response (ER) team is trained to provide first aid for cyanide exposure including oxygen and amyl nitrite administration. Every shift has a member of the ER team at each area where cyanide is used. Cyanide antidote kits are stored at the manufacturer's recommended temperature and replaced by their expiration dates. Antidotes are located at the leach area, mill area, neutralization plant area and medical facility. Cyanide offloading, mixing and sampling operators carry a radio when they are performing their tasks to notify their supervisor or the control room, when required or in the event of an emergency. Marlin has on-site capabilities for cyanide-related fire fighting, medical emergency, and Hazmat clean-up. According to site personnel and given the location of this mine, these emergency response capabilities are the best available in the area. Marlin has, however, made formalized arrangement with the Huehuetenango Hospital to assist workers exposed to cyanide, if required. The Huehuetenango Hospital has trained doctors and staff in the necessary skills and equipment required for treating cyanide exposure. The Cyanide Emergency Response Plan (ERP) describes procedures to transport workers exposed to cyanide to the Huehuetenango Hospital and the hospital's contact information. Marlin conducts mock emergency drills based on likely cyanide release/exposure scenarios to test the response procedure and incorporates lessons learned from the mock drills into its response planning.

**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*

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*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:** Marlin has developed several plans and SOPs that address emergency response. The documents include: Cyanide ERP, Emergency Response Master Plan, Emergency Preparedness Plan (EPP) for the TSF and task-specific SOPs. These ERPs have individual chapters that pertain directly to cyanide related emergencies. These plans contain sections related to emergency response actions for: 1) catastrophic releases during unloading and handling of sodium cyanide; 2) accidents during cyanide transportation; 3) tank overtopping and pipe, valve and tank ruptures; 4) tailings dam failure; 5) cyanide-related fire fighting; and 6) power outages and pump failures. In addition the plans include cyanide spill clean-up and decontamination procedures. The ERPs are 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:** Marlin's workforce has the ability to participate in the emergency response planning process through safety meetings and mock drills. Marlin involves site personnel in mock drills and revises the emergency response procedures as needed. The implementation of new SOPs and other safety-related issues are discussed during safety meetings. Safety meeting are documented. In addition, Marlin has met with outside responders and local authorities, and communicated to them their roles in case of a cyanide-related emergency. Marlin engages in communication with the stakeholders through training and conductance of mock drills. Some members of Marlin's ERT are also citizens of local communities. Marlin in collaboration with DuPont and CONRED (Guatemalan National Coordinator for the Reduction of Disasters) has provided cyanide and Hazmat training to outside firemen along the cyanide transportation route, doctors from the Huehuetenango and Sipacapa Hospitals, Tejutla Red Cross, and others. Auditor reviewed minutes from safety meetings and training records.

*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

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**Basis for Audit Finding:** Marlin has committed, in the ERPs and 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, if needed. Marlin has an Emergency Response Team trained in cyanide-related emergency response procedures, cyanide spill response, decontamination of contaminated soils, collapse structure rescue procedures including tailings dam failure, cyanide fire fighting, hazardous materials incident response and others.

The ER Master Plan (the Plan) and the emergency call procedure describe the responsibilities and level of authority of emergency response coordinators for all site emergencies, including responsibilities of the Environmental and Safety Departments and Marlin General Manager. Marlin has an updated list of the Emergency Response Team's contact information, including on-site and outside first responders (e.g., San Miguel and Huehuetenango firemen, government agencies, local police and DuPont). Call-out procedures are described in the emergency call procedure. The Cyanide ERP contains a list of the emergency response equipment (cyanide antidote kits, shower and eyewash stations, chemical protective suits, spill recover equipment, etc.). The Plan also includes a map with the on-site location of the ER equipment. Emergency response equipment is inspected on a regular basis. The cyanide ERP and the EPP for the TSF describe the role of outside responders or communities (Huehuetenango Hospital, Salitre and Siete Platos communities and others).

*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:** Marlin's ERPs and related facility plans include procedures and contact information for notifying management, communities, governmental agencies (e.g., National Coordinator for Disaster Reduction (CONRED), the Ministry of Environment and Natural Resources (MARN), the Ministry of Energy and Mines (MEM), cyanide supplier, air evacuation services, off-site medical facilities (Huehuetenango Hospital), local police, fire departments, the media and others.

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

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

**Basis for Audit Finding:** Marlin has developed cyanide response and remediation plans that address appropriate uses and situations for cyanide treatment chemicals. The Cyanide ERP includes procedures for spill containment and clean-up, and decontamination of contaminated material. Procedures include actions for potential spill scenarios that may involve pulp, sodium cyanide

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briquettes in the storage area or during transportation, sodium cyanide briquette in water or during rain events, cyanide intoxication and fire involving cyanide.

A release from the operation cannot adversely impact Marlin's water supply source (Well MW-5) because this source is located upgradient of the mine facilities. Marlin will supply drinking water to the affected communities in case of an emergency cyanide release from Marlin that would negatively impact the drinking water supply.

The Cyanide ERP requires that contaminated water and/or soils are monitored after a cyanide spill and describes where contaminated soils and clean-up material will be disposed. The plan also describes the number of samples to be taken, and sampling methodologies. In addition, the soil monitoring procedure describes, in more detail, soil sampling methodologies, parameters, and sample location and depth. The Cyanide ERP describes the final cyanide concentration that soils must be excavated to in residual soils as evidence that the spill has been completely cleaned-up. The Plan specifically prohibits the use of chemicals in water bodies as an action to remediate a cyanide spill.

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

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

**Basis for Audit Finding:** Marlin's ERPs are revised annually or following a mock drill or incident as needed. The auditor verified that the Cyanide ERP and the ER Master Plan have been revised. Comparison of 2008 version of the Cyanide ERP with the March 2009 version indicates that additional responses specific for cyanide related incidents have been added.

Marlin conducts annual mock drills based on likely cyanide release/exposure scenarios to test the response procedure and incorporate lessons learned from the mock drills into its response planning. Marlin ERP requires that general practice mock drills will be performed quarterly. Marlin has conducted the following mock drills:

- Mock cyanide spill and worker intoxication at the process area, including containment, neutralization, decontamination, and clean-up of contaminated areas (May 2008); and
- Mock cyanide intoxication and dry spill at the process area, including emergency communication procedures and first aid procedures (February 2009).

All deficiencies identified after the two mock drills have been corrected and incorporated into SOPs, ERP and training. Verification was conducted by visual inspection and random interviews to operators.

**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.*

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**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 subcontractors who may be performing cyanide use-related tasks are required to complete cyanide training. Cyanide training program consists of 3 modules: Module 1 is for minimum potential cyanide exposure (e.g., administration people), Module 2 is for employees with medium risk of potential exposure to cyanide (e.g., subcontractors working at the TSF, sustainable development personnel, etc.) and Module 3 is for employees with potential higher risk to cyanide exposure (e.g., process plant operators, doctors, first responders, maintenance and safety personnel, subcontractors working in the process area). In addition to the general training, all employees working in process areas are required to undergo task-specific training (e.g., cyanide preparation, incineration of sodium cyanide boxes and bags, cyanide dosage in the mill, and operation of the cyanide neutralization system).

General cyanide training courses include: cyanide toxicology, cyanide handling and storage, symptoms of cyanide exposure, cyanide antidote, cyanide-related emergency response procedures, cyanide spill response, fire extinguisher use, PPE, use of emergency response equipment, decontamination of contaminated soils and others.

Marlin requires employees to have an annual refresher that includes cyanide training. Marlin's cyanide code training plan was reviewed to verify compliance with this plan. Marlin retains training records by employee. Records of the cyanide general training and task-specific training were reviewed.

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

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

**Basis for Audit Finding:** Marlin has prepared and implemented Manuals and SOP's for cyanide management tasks that detail health and safety procedures for all aspects of cyanide unloading, handling, mixing and storage, and operation of cyanide process facilities (crushing and grinding, leaching and CCD, gravity circuit, cyanide neutralization and tailings storage facility).

All personnel in work 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 related training is provided for each specific task an operator will perform related to cyanide handling and management. This task-specific training includes more detail on cyanide safety, first aid and antidote use, PPE requirements and specific work area cyanide management procedures. In addition, operators are observed by their supervisor to evaluate effectiveness of cyanide training on a regular basis. Marlin's cyanide code training program identifies the specific

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cyanide management elements that each employee must be trained in to perform that specific job properly.

All employees, with the potential to be exposed to cyanide, receive annual refresher training that includes cyanide safety. Employees working in specific cyanide management tasks also receive annual refreshers for those tasks. Marlin requires written tests to evaluate the effectiveness of cyanide training. Training records are retained by employee, 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 employee's understanding of the training materials.

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

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

**Basis for Audit Finding:** Marlin has trained all cyanide unloading, mixing, production and maintenance personnel in cyanide handling and storage, cyanide safety, cyanide contamination routes, symptoms of cyanide exposure, cyanide-related emergency response procedures, cyanide spill response (for dry and wet spills), decontamination procedures, fire extinguisher use, cyanide related PPE, use of the hand-held HCN meters, cyanide kit management, and emergency communication procedures. Marlin has an emergency response team comprised of full-time employees. In addition to the training described above, the emergency response team has received training in collapse structure rescue procedures including tailings dam failure, cyanide fire fighting, use of emergency response equipment (including appropriate use of chemical protective suits) and hazardous materials incident response. Every shift has at least a first responder trained to administer amyl nitrite and oxygen at each area where cyanide is used.

Marlin has provided cyanide-related training to the outside firemen, local authorities, on-site and off-site doctors and people from the communities. In addition, Marlin has provided training in emergency communication and evacuation procedures to the leaders of the communities that may be affected in case of a cyanide transportation accident or of a tailings dam failure.

The Cyanide ERP and SOPs define the response required by operators if a person is exposed to cyanide or if there is an environmental release. All 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.

Marlin conducts annual mock cyanide emergency response drills based on likely cyanide release/exposure scenarios to test the response procedure and incorporate lessons learned from the mock drills into its response planning. General practice mock drills are performed quarterly.

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**9. DIALOGUE:** *Engage in public consultation and disclosure.*

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

**in full compliance with**

**The operation is**  in substantial compliance with **Standard of Practice 9.1**

not in compliance with

**Basis for Audit Finding:** Marlin provides many avenues of opportunity for stakeholders to communicate issues of concern regarding the cyanide use and management at the mine. Marlin conducts community meetings at which the members of the general public are encouraged to attend and discuss issues related to the mining operation including the use of cyanide, cyanide neutralization plant and tailings storage facility. Meetings are conducted at the community sites or at the Sustainable Development Department offices (located on site, in San Martin Ixtahuacan or in Sipacapa). In addition, Marlin has provided information to a variety of stakeholders in several formats, including flyers; submittals to local agencies, community committees and regulatory agencies; tours of Marlin facilities, and Marlin's corporate website (<http://www.goldcorp.com/operations/marlin/reports/>). Marlin keeps an updated stakeholder contact information list in its ER Master Plan. Visitor records and information provided to stakeholders were reviewed.

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

**in full compliance with**

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


not in compliance with

**Basis for Audit Finding:** Marlin sponsors and conducts community sessions at which the members of the general public are encouraged to attend and discuss issues related to the mining operation including the use of cyanide, cyanide neutralization plant, and tailings storage facility. In addition, leaders of the communities that may be potentially affected in case of an accident during cyanide transportation or a tailings dam failure have been trained in emergency procedures including communication procedures and evacuation routes, in both Spanish and Mam (the dialect spoken by the nearby communities).

Marlin also provides public site tours one day a week that include a visit to the process areas, TSF and cyanide neutralization plant. Visitors have included students, technical experts, regulators (e.g., MEM, community members). Marlin has received more than 13,000 field visitors and over 65,000 persons have been informed about the project since operations started. Visitor records and information provided to visitors were reviewed.

Standard of Practice 9.3: *Make appropriate operational and environmental information*

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*regarding cyanide available to stakeholders.*

- The operation is**  **in full compliance with**  
 in substantial compliance with **Standard of Practice 9.3**  
 Not in compliance with

**Basis for Audit Finding:** Marlin provides information on cyanide in written format (i.e., flyers on “How Much We Know about Cyanide” and reports available on-line to public and at the Marlin Sustainable Development offices) and oral form (i.e., workshops provided to communities near the project). Meetings with communities are conducted in Spanish and translated into Mam (the dialect spoken by the nearby communities) as needed. Marlin has a link at its corporate website that provides access to technical reports that describe Marlin’s use and management of cyanide (<http://www.goldcorp.com/operations/marlin/reports/>).

Marlin will notify local and regional authorities if the following occurs: 1) a significant incident or accident involving a hazardous substance that occurs outside of the mine boundary; 2) spill or leak of a hazardous substance that occurs within the mine boundary but migrates or is likely to migrate off-site; and 3) spill that occurs on-site, but exceeds the United States Environmental Protection reportable quantity for cyanide. Marlin’s reporting categories effectively cover the release and exposure scenarios identified in the Code. Marlin will inform the applicable Municipalities and voluntary fire units, the National Coordinator for Disaster Reduction, the Ministry of Environment and Natural Resources and the Ministry of Energy and Mines, as needed. The information from MARN and MEM is available to the public.

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