

**SUMMARY AUDIT REPORT**  
for the February 2011  
International Cyanide Management Code Recertification Audit



**Prepared for:**  
Fairbanks Gold Mining, Inc.  
Fairbanks, Alaska  
and Kinross Gold Corporation

**Submitted to:**  
**International Cyanide Management Institute**  
1200 "G" Street NW, Suite 800  
Washington, D.C. 20005

**FINAL**  
August 24, 2011

**ENVIRON International Corp.**  
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**ENVIRON**

## SUMMARY AUDIT REPORT

**Name of Operation:** Ft. Knox Mine

**Operation Owner:** Kinross Gold Corporation

**Operation Operator:** Fairbanks Gold Mining, Inc. (FGMI)

**Name of Responsible Manager:** Dan Snodgrass, Vice President and General Manager

**Address and Contact Information:**

Fairbanks Gold Mining, Inc.  
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**Location and Description of Operation:**

The Fort Knox Mine is a conventional open-pit gold mine approximately 26 miles northeast of Fairbanks, Alaska. The mine was originally permitted in 1994 and is operated by Fairbanks Gold Mining Inc. (FGMI), a wholly owned subsidiary of Kinross Gold, and in its current configuration produces about 370,000 ounces of gold annually.

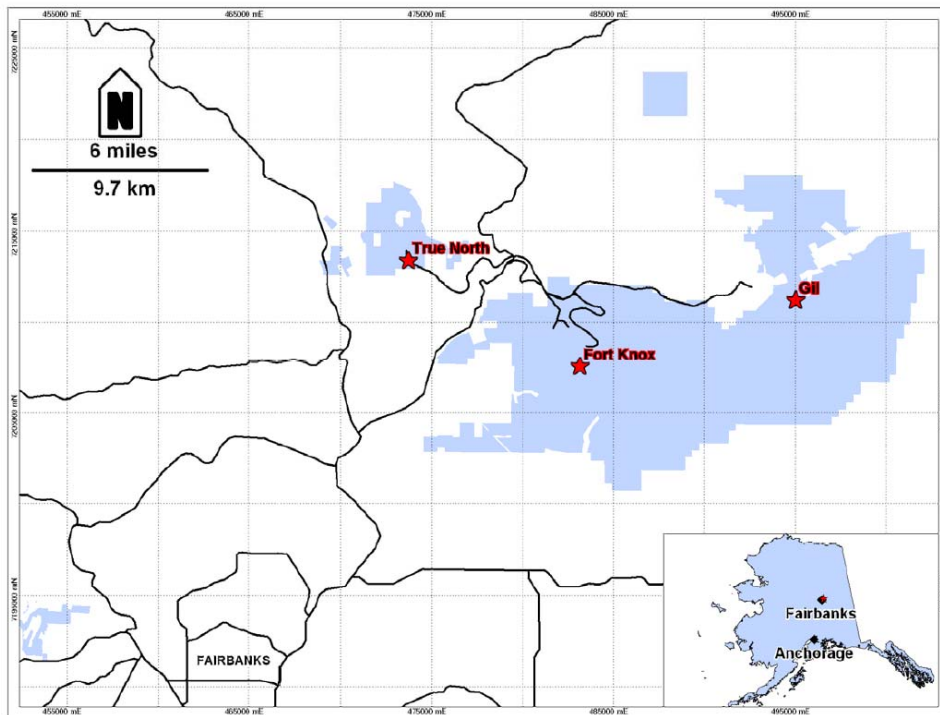
Ore processed through a crushing and grinding circuit and appropriately sized material then flows into a high-rate thickener and then into a carbon-in-pulp (CIP) cyanide leach circuit. After carbon stripping and electrowinning, the extracted gold and silver is melted into doré ingots. The mill was originally designed to incorporate an INCO copper sulfate/ammonium bisulfate detoxification circuit to reduce weak acid dissociable (WAD) cyanide concentrations to acceptable values prior to tailings deposition. However, in 2002 a tailings wash thickener was installed; cyanide is recovered and cycled back into the mineral separation process, substantially reducing WAD concentrations in tailings as well as reducing the amount of cyanide and other reagents required. The detoxification circuit is held in reserve and activated as necessary to address process fluctuations.

Tailings are routed to a tailings storage facility, comprised of a deposition area, decant pond, earth-filled containment dam, and a seepage interception, collection, and pump-back system. Water from the decant pond is recycled back to the mill, thereby minimizing the need for fresh makeup water.

In 2008, Kinross initiated the engineering and construction of a heap leach facility and expansion of the open pit mine, which will enable the stockpiling and processing of low-grade ore and is expected to extend the projected mine life to about 2018. The heap leach

pad is a valley fill design, located in a drainage basin upstream from the tailings storage facility. The facility was designed with a single-lined side hill pad; a double lined linear low density polyethylene (LLDPE) liner with high density polyethylene (HDPE) collection piping beneath an in-heap storage pond; underdrains; and an underdrain leak detection system. Pumping stations and pipelines for pregnant and barren solution were also constructed, along with a new Carbon in Column (CIC) plant in the mill complex. The CIC plant began operation in 2010.

Mine location is shown in the following Figure:



**SUMMARY AUDIT REPORT**

***Auditors' Findings***

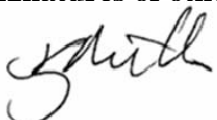
**The operation is:**      **■ in full compliance**  
                                  **in substantial compliance**  
                                  **not in compliance**

**with the *International Cyanide Management Code*.**

**Audit Company:**      **ENVIRON International Corp.**  
                                  605 First Avenue, Suite 300  
                                  Seattle, Washington 98104  
                                  USA

**Audit Team Leader:** John Lambert    **e-mail:** [jlambert@environcorp.com](mailto:jlambert@environcorp.com)

**Names and Signatures of other Auditors**

Glenn Mills 

**Date(s) of Audit:** February 7 through February 11, 2011

I attest that I meet the criteria for knowledge, experience and conflict of interest for ICMC 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 ICMC 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 ICMC Verification Protocol for Gold Mine Operations* and using standard and accepted practices for health, safety, and environmental audits.

This operation has experienced compliance problems during the previous three-year audit cycle which are discussed in this report under Standard(s) of Practice 4.7.

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## SUMMARY AUDIT REPORT

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

#### *Standard of Practice*

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

The operation is:           ■ in full compliance  
                                  in substantial compliance  
                                  not in compliance...with Standard of Practice 1.1

#### *Discuss the basis for this Finding/Deficiencies Identified:*

Review of current contract documents and discussion with Kinross corporate and FGMI contracts personnel indicates that FGMI continues to purchase cyanide exclusively from E.I. du Pont de Nemours and Company (DuPont); FGMI is identified as an “added party” under a 2008 contract originally established between Kinross’s Kupol mine and DuPont. Section 5 of the contract commits the Buyer and Seller (i.e., Kupol plus FGMI as an added party) to maintaining ICMC certification and signatory status. DuPont’s ICMC certification was verified as current. FGMI’s current contract (i.e., “counterpart execution”) was signed in January 1, 2011, and extends through December 31, 2012.

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

#### *Standards of Practice*

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

The operation is:           ■ in full compliance  
                                  in substantial compliance  
                                  not in compliance...with Standard of Practice 2.1.

#### *Discuss the basis for the Finding/Deficiencies Identified:*

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Review of Schedule E of the current DuPont Contract indicates that DuPont is responsible for cyanide production as well as all aspects of transportation of cyanide to the FGMI site. DuPont is contractually responsible for all aspects of cyanide safety and spill response during transport. Contractual requirements for ICMC compliance extend to DuPont's entire transportation chain, which has been identified in correspondence to Kinross and FGMI as follows:

- Intermodal Cartage Company, Memphis, Tennessee (DuPont's Memphis production facility to the Memphis railhead);
- Union Pacific railroad (Memphis railhead to the Alaska Marine Lines rail-barge loading facility in Seattle);
- Alaska Marine Lines (Seattle rail-barge loading facility to the port of Whittier, Alaska)
- Alaska Railroad Company (Port of Whittier by rail to the Fairbanks rail terminal)
- Alaska Express (truck to the Ft. Knox mine).

All links in the transportation chain have been certified to ICMC requirements. FGMI takes formal possession of the cyanide as it is unloaded from the intermodal container by forklift.

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

The operation is:  in full compliance  
 in substantial compliance  
 not in compliance...with Standard of Practice 2.2.

***Discuss the basis for the Finding/Deficiencies Identified:***

The current contract indicates that DuPont is responsible for all aspects of transportation of cyanide to the FGMI site, as well as cyanide production. Section 5 of the contract commits the Buyer and Seller (FGMI is specifically identified as an "added party" to the contract) to maintaining ICMC certification and signatory status.

The ICMI website and documentation provided to Kinross and FGMI by DuPont confirm that all transportation contractors have been certified to the ICMC. Shipping papers provided by Alaska Express to FGMI document chain of custody from the point that containers are offloaded from rail cars in the Alaska Railroad Company terminal in Fairbanks, to the point of delivery at the Ft. Knox mine. Records from 2008, 2009, and 2010 indicate that this practice has remained constant since the date of the original certification audit. Upstream chain of custody documentation prior to offloading of

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intermodal containers in Fairbanks is not provided to Alaska Express. However, all potential transporters involved in the transport of cyanide from DuPont's Memphis facility to the Ft. Knox mine have been identified and certification to the ICMC has been confirmed. Maintenance of chain of custody records within each other transportation segment is addressed as an element of each of the corresponding ICMC supplier audit reports), and was examined and found to be acceptable in each of the Summary Audit Reports (SARs) posted on the ICMI website for the noted audits. This audit item is therefore considered to be acceptable.

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

*Standards of Practice*

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

The operation is:  in full compliance  
 in substantial compliance  
 not in compliance...with Standard of Practice 3.1.

***Discuss the basis for this Finding/Deficiencies Identified:***

The cyanide receiving dock/storage building and mixing and storage tank arrangements are identical to those observed in the 2007 audit. However, inspection of the cyanide mixing bay tanks and equipment noted a number of situations in which reagent tank drain valves had not been properly locked or secured with blind flanges. Flange bolts were also missing on a number of flanged connections involving cyanide process solution. Subsequent to the audit, but prior to the submittal of this report, FGMI secured all blind flanges in the mixing area, and revised preventive maintenance (PM) routers to ensure that all flanged connections for process solution piping system components have the requisite number of secured nuts and bolts. The banded concrete impoundments for the mixing and storage tanks are subject to daily inspections to monitor for any leakage and as the containments were substantially sound, it is the auditor's judgment that the conditions leading to the noted corrections did not pose an immediate or substantial risk to the environment or to human health and safety.

It also should be noted that cyanide is delivered either 1) in nylon supersacks overpacked with a polyethylene moisture barrier and a cardboard-lined, palletized plywood crate, or 2) DuPont's "EcoBulk" containers. The latter delivery form has been introduced since

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the 2007 audit, and according to FGMI and Kinross management staff will likely replace the plywood arrangement over time. The EcoBulk containers are Department of Transportation (DOT) and United Nations (UN) approved and have the same overall dimensions and capacity as a plywood crates, so can be used without any modifications to the hoppers, bag cutting, and bag rinsing devices on the mixing tank. The mill complex and cyanide receiving/storage building are centrally located, well within the security perimeter of the mine site, and several thousand feet away from the nearest surface water. Cyanide is received and stored in a dedicated loading dock building adjacent to the mixing bay in the mill. It is access controlled, secure from wind and weather, well ventilated, has appropriate signage, and is constructed with a banded concrete floor. The plant interior is sloped towards internal sumps that prevent water buildup outside the door to the loading dock/storage building. No other materials are permitted to be stored in the building, and the loading bay door is locked when not in use.

A high-level alarm and level indicator are located on the working deck of the mixing tank, and can be remotely monitored from the mill control room. A number of foundation cracks and/or areas with cracked concrete berm joint caulking were observed in the mixing area containment, along with a significant area of spalling/deterioration under the NaOH storage tank pump. FGMI subsequently patched the foundation cracks associated with foundation tiedown bolts, and re-caulked the joints between the containment walls and containment floor. Spalled/deteriorated concrete areas near NaOH tank pump foundations were also repaired and sealed. Since the mixing and storage tanks were within a substantially sound containment and were subject to daily monitoring, it is the auditor's judgment that the conditions leading to the noted corrections did not pose an immediate or substantial risk to the environment or to human health and safety.

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

The operation is:                   ■ in full compliance  
  in substantial compliance  
  not in compliance...with Standard of Practice 3.2.

***Discuss the basis for this Finding/Deficiencies Identified:***

Plans and procedures for managing empty containers are similar to those reviewed in the 2007 audit. Observation of a mixing operation confirmed that sacks are triple-rinsed with automatic spray device located inside the hopper on top of the mixing tank. The rinse water was entirely contained by the hopper and drained into the mixing tank. The enclosed bags are disposed of in a permitted onsite landfill. Plywood crates are routed to a permitted burn pit and incinerated.

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Plans and procedures for prevention of exposures and releases during cyanide unloading and mixing are virtually identical to those reviewed in the 2007 audit. They contain specific directions on unloading, handling, storage, and disposal of palletized plywood crates, plastic bags, and empty supersacks. They also provide specific direction for cleanup of spills in the mixing area; the facility is designed to capture any such spills in the bermed containment, and pumping back to the mixing or storage tank. The procedure also requires mixing activities to be performed by two operators. Both workers used appropriate personal protective gear (raingear, face shields, hard hats, steel toed rubber boots, rubber gloves, and half-face respirators). The auditors did note that the operators used stacked wooden pallets as temporary steps in accessing the interior of the containment for sampling and valve operation purposes. This was flagged during the audit as a potential safety hazard, and FGMI subsequently installed a metal stile or ladder over the containment wall to provide safer ingress/egress to the containment area. As all mixing operations were conducted by two operators using the “buddy” system, and there were other means of ingress and egress into the banded area, it is the auditor’s judgment that the conditions leading to the noted corrections represented a potential human health and safety risk, but the risk was not immediate or substantial.

In addition, although ultrasonic testing (UT) is reportedly performed by FGMI maintenance staff in support of weld repairs made in response to observed leaks, no regular UT-based shell thickness monitoring program was in effect that would permit the early detection of corrosive conditions that could compromise tank integrity. Subsequent to the audit, however, FGMI initiated a PM router requiring periodic UT testing for shell thickness of all cyanide solution tanks.

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

*Standards of Practice*

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

The operation is:                   ■ in full compliance  
  in substantial compliance  
  not in compliance...with Standard of Practice 4.1.

***Discuss the basis for the Finding/Deficiencies Identified:***

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FGMI has established a series of plans and standard operating procedures for the routine operation of all cyanide facilities. The greater portion of these documents (specifically excluding those that apply to the management of the heap leach facility, construction of which began in 2007) were in effect at the time of the initial certification audit. Some SOPs are assigned multiple numbers, as hard-copy SOP manuals have been assembled for separate operational areas that share a number of the same procedures. The design parameters for the major cyanide management facility components are stated within governing permit documents; the auditors confirmed that copies of the *State of Alaska Waste Management Permit and Final Plan of Operations*, the final USACE permit for the Walter Creek leach facility, and all supporting plans and procedures remain on file.

The FGMI preventive maintenance program has undergone a significant revision and upgrade since 2007. In 2009, FGMI became one of the first Kinross sites to implement the “Kinross Way – Managing Maintenance Program.” As noted in “Kinross Way – Managing Maintenance Program, Business Process Guideline,” Version 32 (Fall, 2009), this management initiative is focused on improving the effectiveness of the preventive maintenance programs at all Kinross mine sites by aligning the use of software tools (JD Edwards Version 9.0) and maintenance data standards. The initiative has been supported by the assignment of trained system “champions” who have been provided the time and budgetary resources to ensure effective adoption by the maintenance workforce. The system involves the automated entry, logical organization, and approval of all work orders, which are linked to applicable facility areas, equipment families, and/or equipment items and associated maintenance, repair, or replacement procedures. The system also has an archiving feature that permits the generation of maintenance histories, maintenance procedures, and other specialized reports that provide a robust record of overall maintenance requirements and actions taken.

FGMI manages changes to cyanide processes and site operating practices at three levels:

- Major facility changes involving capital expenditures for design, engineering, construction, construction management, quality assurance/quality control (QA/QC), and other contracted services, all of which involve the Kinross Authorization for Expenditure (AFE) process;
- Changes to Standard Operating Procedures (SOPs); and
- Communication of operational process or process control changes in the mill and/or TSF as deemed necessary by Mill management.

FGMI is required to use the AFE process to initiate the engineering and construction projects. All AFEs require review and approval by the FGMI Environmental Manager and Health and Safety Manager prior to submittal for additional FGMI management and

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Kinross Corporate authorizations. Review of records indicated that these environmental and health and safety reviews were guided by a detailed checklist, but the checklist did not specifically cite requirements for considering ICMC compliance requirements as part of the review. Moreover, in the evaluation of the AFE records for CIC design and construction, it was unclear if technical requirements specifically related to maintaining ICMC compliance (e.g., cyanide-compatible material & equipment selection, signage, provisions for the protection of operators’ health and safety, secondary containment, and minimum secondary containment volume) were properly identified and relayed to the design, construction, and construction management contractors. Since operational issues and design weaknesses associated with the commissioning of the CIC may have contributed to a reportable spill of process solution in May 2010 [see Section 4.7], the current AFE/procurement process did not adequately address the requirements of this Section. Subsequent to the audit, Kinross revised the corporate AFE procedures and re-reviewed all AFEs currently in process for the design, construction, or modification of any cyanide facilities, against the requirements of the updated AFE/procurement procedures with the intent of undertaking modifications as necessary to prevent or forestall any specific ICMC compliance or operational issues. It should be noted that although FGMI has been requested to properly exercise their updated procedures by a *pro forma* review all open AFEs for potential ICMC compliance or operational issues, review of open AFE subjects in a current progress tracking report provided by Kinross Corporate did not indicate any major cyanide management infrastructure changes or modifications pending except for the construction of a raise in the tailings dam that will take place over the next three years. Major earthworks design, construction, and construction QA/QC protocols for this project were reviewed during the audit, are virtually identical to the control that have been in place for previous earthworks, and involve the same design and construction contractors. In the auditor’s judgment there is no risk that the conditions noted in review of the AFE process for CIC construction could be repeated in the implementation of the AFE process for the major earthworks construction effort now in progress.

With respect to the management of changes in SOPs, the mill department had developed a standard procedure for SOP generation and revision. Although provisions included identifying potential safety and environmental impacts, decisions on identifying these were left to the employee originating the SOP development or modification request. It appeared that all SOPs are approved by the Supervisor and Department General Foreman without direct input or approval from health and safety or environmental staff. FGMI subsequently modified the procedure to specifically require technical review and signature approval by the Health and Safety Manager and Environmental Manager or their designees prior to submitting to the affected Supervisor and Department General Foreman for approval. Training records for affected staff were also provided for review. Operators are required to log report any deviations from established operating levels or standards to their supervisors and foremen for evaluation by the Mill Foreman and

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General Superintendent. The Mill General Foreman keeps an electronic log of all operator reports and management responses that dated back to 2007. All process or control changes are reviewed by mill management through a management of change communication process whereby changes are relayed to Operations and Maintenance Managers, foremen, and individual operators or maintenance crews through combination of morning planning meetings, company e-mail, and communications. Changes requiring specific maintenance actions trigger maintenance requests managed through the JD Edwards maintenance planning system. Health and Safety or Environmental Department staff are engaged with these changes during interdepartmental meetings that are held on at least a weekly basis. Interdepartmental meetings also provide a forum by which SOP generation or modification requests, Operational & Maintenance (O&M) Manual modifications, or AFE requests can be originated. Subsequent to the audit, the procedure was revised to discuss the use of weekly interdepartmental meetings to relay general information on operational process or process control changes in a forum that permits the Environmental and Health and Safety Managers to monitor the significance of such changes with respect to maintaining compliance with regulations, the requirements of the ICMC, and corporate EHS policies.

The *Emergency Response Plan* describes the contingency actions to be taken in response to process solution spills or releases within the mill complex. The *TSF Emergency Action Plan* has been rewritten (October 2010) to apply to all impoundments, i.e., the water supply dam and reservoir, the TSF tailings dam, the Walter Creek heap leach pad dam, and the Pearl Creek Causeway (a modification that divides the TMF into northern and southern sections and provides FGMI greater flexibility in managing tailings deposition and the boundaries of the supernatant pond while TSF dam raise construction is in progress. The *Fort Knox Water Balance Standard Operating Procedures* establishes basic requirements of maintaining the FGMI water balance using a probabilistic model developed using the GoldSim™ platform. The new model was put into use January 1, 2009, and was operated concurrently with the older, Excel-based system 1/1/2009 until its functionality and reliability could be confirmed.

FGMI maintains a suite of O&M Manuals and SOPs that govern routine daily inspections of cyanide facilities. Over the last two years, this documentation has been expanded to also guide inspections of the Walter Creed the heap leach facility, as well as the CIC, leachate collection system, and associated solution lines. Examples of records of routine inspections of major facilities for 2008, 2009, and 2010 were reviewed for the TSF embankment, CIL/CIP plant, detox plant, cyanide mixing/storage area, tailings barge, and the tailings/decant water return pipeline. All mixing, storage, and process tanks are subject to daily visual inspections for structural integrity.

All secondary containments in the Mill, CIP/CIL, CIC and are subject to daily inspections to ensure their structural integrity and adequacy of containment capacity;

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none of the containments observed had valved drains or other openings to the surrounding land surface. As one of the corrective actions resulting from the May 2010 spill event, the CIC containment has been fitted with an emergency overflow sump and a large diameter drain line reporting to the CIP/CIL impoundment. The CIP/CIL area contains 13 large solution tanks and is open to the weather, but drains to additional containment areas beneath the tails thickener and detoxification tanks, in the basement of the detoxification plant building. Under normal operating conditions this combined containment provides substantial reserve capacity. The CIP/CIL containment itself is cleared of ice/snow debris buildup at least once a year (spring). Also, when the CIP/CIL tanks experience periodic process upsets and occasional overflows due to operational problems in maintaining appropriate density characteristics in the process solution actions to clear the CIP/CIL containment of accumulated solution and regain full capacity are initiated on an as-needed basis. Because of the substantial reserve capacity in the detoxification plant containments, there is usually no pressing operational need to clear the CIP/CIL containment because of a potential lack of capacity.

However, inadequate containment caused by backup of solids and process solution in the CIP/CIL and detoxification building basement containments was found to be a prime contributor in the May 2010 CIC process spill. Root cause investigation records indicated that the backup of solids and process solution was the result of the failure of the area supervisor to ensure that individual operators properly monitored the function of air spargers designed to prevent “sanding” and subsequent spillage of the CIL and CIP tanks. The investigation showed that despite having been trained in proper procedures, operators had not recorded any sparger readings during a three month period prior to the incident, and no corrective measures had been initiated by the area supervisor. Existing procedures were confirmed to be adequate for the safe operation of the CIL/CIP; the issue appears to have been entirely related to lack of compliance with procedures by trained operators and their supervisor. The employees involved were reprimanded and formal corrective action reports placed in the employees’ personnel files. Discussions with FGMI management confirm that the action taken has so far proved effective in preventing a repeat of the sanding condition.

Review of a sample of inspection records from 2009 and 2010 indicates that monitoring well and surface water sampling inspections are conducted daily downgradient of the TMF dam and from the underdrain monitoring wells at the new Walter Creek heap leach facility. All cyanide solution piping system components in the Mill, CIC, CIP/CIL, detoxification plant, leachate recovery system, and tailings/reclaim water pipelines are subject to daily inspections as well as periodic preventive maintenance schedules.

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

The operation is:           ■ in full compliance  
                                  in substantial compliance  
                                  not in compliance...with Standard of Practice 4.2.

***Discuss the basis for this Finding/Deficiencies Identified:***

Ore characteristics at the FGMI operation are such that significant variations in cyanide use do not occur. Cyanide addition rates are monitored using a manual titration process, conducted on samples collected by mill personnel every 2 hrs or 6 hrs, depending on the leach tank. Sampling and analysis in each tank is also undertaken monthly by the laboratory to profile cyanide levels. In addition, cyanide is continually monitored and adjusted as required from the control room using the TAC1000 Cyanide Controller located on Tank L-1. The operation attempts to maintain cyanide concentrations between 0.12 lb/ton and 0.18 lb/ton for the ore being processed. This has been found to optimize recovery and minimize cyanide consumption. Reviews of randomly sampled operator logs completed during the past 3 years indicate that concentrations were generally maintained within the set points. In addition to optimizing the use of cyanide, FGMI also minimizes the concentrations of cyanide in the mill tailings through introduction of reclaim water into the tails thickener to dilute the solution. Cyanide addition is therefore minimized by recycling unused cyanide present in overflow from the thickener back into the process water.

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

The operation is:           ■ in full compliance  
                                  in substantial compliance  
                                  not in compliance...with Standard of Practice 4.3.

***Discuss the basis for the Finding/Deficiencies Identified:***

FGMI upgraded its operational water balance model from the spreadsheet-based system that was in use during the 2007 certification audit, to a system based on the GoldSim™ probabilistic modeling platform. The system was brought online in January 2009, and was run concurrently with the previous Excel-based system for a period of time to verify that it was yielding acceptable results. The new model is currently maintained by a contractor, although FGMI has recently hired an environmental specialist with substantial modeling experience whose time is largely dedicated to water balance management

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issues. The contractor is also responsible for development of a second model focused on predicted water management considerations during site reclamation and closure.

The overall capabilities of the operational phase water balance are described in *Ft. Knox Gold Mine GoldSim Operational Model Description* (Schlumberger Water Services, 12/10/2010). It is focused on: the continued safe operation of the TSF as a no-discharge facility, with freeboard maintained at or above the requirements of the governing permit; prediction of water needs and supplies in support of mining operations; identification of proactive operational measures that the mine can take in anticipation of periods of water deficit or surplus; and the tracking of water levels at various site locations to support site construction needs (e.g., modification or construction of mine roadways or the TSF causeway). As currently configured, the water balance includes both historic and predicted tailings surface geometry and operational characteristics. On at least a quarterly basis, the model is updated and calibrated using recorded water levels, site pumping records, and actual precipitation and other meteorological data, in order that the water level predictions accurately reflect actual conditions. The model is comprehensive, and incorporates inputs, outputs, and interrelationships between and among:

- the pit lake and pit dewatering wells;
- the Water Creek heap leach facility;
- the Mill;
- the fresh water reservoir;
- the TSF; and
- the TSF interceptor wells and seepage return system.

The TSF is operated to maintain the 3.7 ft. freeboard required by the operating permit. The water balance model is updated and calibrated at least quarterly; such calibration allows the model to be continually refined to represent more realistic and accurate site conditions. The volume of solution pumped to the heap leach facility and the volume of tailings pumped to the TSF are measured both daily and weekly. The estimated design storm event and return interval has not changed since 2007; the design storm event considered in the water balance model is a 100 yr., 24 hr storm, plus an average 30-day spring breakup, plus the snowmelt from a 10-yr snow pack, plus containment for a 24 hr. power outage. FGMI has maintained precipitation and evaporation data since 1992. The data are collated and reported annually; the model also uses data from the University of Alaska meteorological station at the Fairbanks Airport. These data are used to periodically recalibrate the probabilistic climate model. The model estimates inflows from the upgradient watersheds for both the TSF and heap leach facility. It accounts for run-on throughout the mine site, as well as percolation of surface water to subsurface systems, for freezing and thawing conditions, snowmelt, and an allowance for an average spring breakup period. The model also accounts for three discrete melt phases; each year the ice melt period is adjusted, and the model refined accordingly. Evaporation and

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infiltration losses are also considered. Ice formation is also measured when conditions allow. No discharges are made to surface water; the TSF dam is designed with a seepage collection and return system. Review of the October 2010 calibration runs indicates close correspondence between predicted and measured TSF elevations.

The model also accounts for consolidation of tailings, the evacuation of decant water back to the mill, and various other parameters. The updated bathymetric survey process is also capable of estimating the volume of ice on top of the decant pod, as well as the volume of any tailings deposited on top of the ice. Water from the TSF decant is continually pumped to the mill during mill operation, and the system is inspected daily. Instantaneous total flow is recorded, and can be accessed via the model's user interface.

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

The operation is:                   ■ in full compliance  
  in substantial compliance  
  not in compliance...with Standard of Practice 4.4.

***Discuss the basis for the Finding/Deficiencies Identified:***

The operation does not have any open solution ponds with WAD cyanide concentrations exceeding 50 mg/L. The only open water containing cyanide is located at the TSF. Waste Management Permit limits the discharge concentration of WAD cyanide in the tailings going to the facility to a maximum of 25 mg/l, and a monthly average maximum of 10mg/l. To ensure regulatory requirements are met, the tailings discharge is sampled every 2 hours and a composited sample for each shift then analyzed for WAD cyanide. The results allow the process to be adjusted as appropriate to maintain concentrations within the permit limits. Where the results indicate that permit limits may be exceeded, the INCO<sup>®</sup> Cyanide Destruct process would be activated.

Results of quarterly analysis of decant water from the TSF covering 2007 through 2010 show WAD cyanide concentrations in the decant pond varied between 0.009 mg/l and 4.33 mg/l WAD cyanide. The TSF is a closed system; any seepage occurring down-gradient of the tailings dam is collected in an interceptor drain and pumped back.

There are no open ponds associated with the heap leach facility as the operation utilizes an in-heap pregnant solution pond, as opposed to an open solution pond. In the winter months cyanide solution emitter lines are buried beneath 3 feet of crushed material and therefore ponding is not an issue on the leach pad during this time. In the summer months the emitter lines are laid on the surface of the pad and operations procedures require daily inspections and corrective action to prevent ponding.

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All FGMI personnel receive environmental awareness training during which they are instructed to report any wildlife mortalities and environmental, maintenance, ore processing and mine operations personnel have specific responsibility to thoroughly inspect and report wildlife mortalities and terrestrial animals mired in unconsolidated tailing. Records show that there were four wildlife mortalities during the past three years. None of these were cyanide related. Specific procedures are followed in the event of a wildlife mortality being discovered which includes sampling solution in the proximity of the carcass if cyanide is a suspected cause.

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

The operation is:           ■ in full compliance  
  in substantial compliance  
  not in compliance...with Standard of Practice 4.5.

*Discuss the basis for the Finding/Deficiencies Identified:*

As noted in the 2007 certification audit, this Standard of Practice is not applicable; FGMI does not make any direct discharge to surface water. The TSF is managed as a zero discharge facility, and the TSF dam is designed with a seepage collection and return system. Surface water and groundwater monitoring records for 2008, 2009, and 2010 show that the TSF seepage collection/ return system is effective in preventing discharges.

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

The operation is:           ■ in full compliance  
  in substantial compliance  
  not in compliance...with Standard of Practice 4.6.

*Discuss the basis for the Finding/Deficiencies Identified:*

FGMI protects the beneficial uses of groundwater through a combination of containment of process water and groundwater monitoring to ensure zero discharge is maintained.

The heap leach pad and in-heap storage pond is a zero discharge facility and is constructed of a double lined system consisting of a low permeability prepared sub base overlain by a double-sided textured Liner Low Density Polyethylene (LLDPE) secondary geomembrane liner, then a leachate collection and recovery system (LCRS), a double-sided textured LLDPE primary geomembrane and finally an overliner with a solution collection pipe network. The composite liner above the in-heap pond consists of a low

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permeable prepared sub base overlain by a double-sided textured LLDPE primary geomembrane liner. The facility is monitored for potential leakage by measuring head pressure between the liners; and weekly analysis of fluid collected from between the liners, and of groundwater collected from under-drain flow through the sub-base layer.

To ensure zero discharge from the TSF, a seepage control system located at the toe of the dam collects subsurface flow and returns it to the tailing impoundment. A series of twelve groundwater interceptor wells are located down gradient of the seepage control system collect a combination of groundwater and seepage. Production is pumped to the tailing seepage sump and subsequently to the tailing impoundment. Four additional groundwater quality monitoring wells are installed downstream of the interceptor wells.

A quarterly groundwater monitoring program is conducted by FGMI and reported to ADEC quarterly. Groundwater records covering the past 3 years indicate that the facilities have operated as designed and cyanide as not been detected in the under drain beneath the Heap Leach Facility or down-gradient of the TSF. WAD cyanide concentrations are below the State of Alaska ground water criterion of 0.0052 mg/L. We understand that cyanide has never been detected above regulatory limits in any of the monitoring wells or surface water sampling stations downstream of the TSF.

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

The operation is:                   ■ in full compliance  
  in substantial compliance  
  not in compliance...with Standard of Practice 4.7.

***Discuss the basis for the Finding/Deficiencies Identified:***

The cyanide mixing and storage tanks and all solution tanks in the CIP/CIL and detoxification circuits are located in a fully bermed concrete impoundment sized to contain 110% of the volume of the largest tank in the impoundment; volume calculations remain on file. Solution tanks in the new CIC building are also located within a bermed concrete area. The original design of the CIC did not require containment sizing at 110% of the volume of the largest tank in the impoundment; however, a large (~24") diameter emergency interconnector had been installed between the CIC containment and the containment for the CIP/CIL tanks which provides ample reserve containment in the event of a CIC spill. In addition, it should be noted that the entire mill complex is upgradient of the tailings management facility.

No drawings were available that describe the ring foundation design for the 13 CIP/CIL tanks; FGMI management is of the opinion that there is no impervious containment

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within each ring. Each ring is fitted with a drainage tube, however, that permits regular monitoring for the detection of cyanide solution leaks. Subsequent to the audit, a PM router was modified to require weekly visual inspection for drainage, and testing of any detected drainage for CN content, with appropriate alerts for initiating immediate tank repair and spill response actions if drainage of CN solution were to be detected. Evaluation of several weeks testing results prior to the submittal of this report did not indicate the presence of any leakage. As the CIL/CIP area is inspected daily and has substantial secondary containment provisions, and as regular inspections conducted since the issue of the new PM router do not indicate any leakage, in the auditor's judgment, the conditions leading to the noted corrections did not pose an immediate or substantial risk to the environment or to human health and safety.

Adequacy of secondary containment volumes for the mixing and storage tanks, CIP/CIL process tanks, cyanide detoxification tanks, and the tails wash thickener were confirmed by review of a 2005 PE study in the 2007 certification audit; the containment calculations were confirmed to still be on file. As noted in the 2007 audit, accumulation of solution or contaminated water in any of the site's secondary containment system is typically pumped back to the process. However, in 2010, the site experienced a discharge of about 35,000 gallons of process solution from the newly commissioned CIC. The ICMI was notified pursuant to Kinross's ICMC signatory obligations.

FGMI immediately reported the spill to the National Response Center and the Alaska Department of Environmental Conservation (ADEC), and initiated site cleanup and corrective action investigations. Areas with solution-contaminated soils were delineated via a third-party cleanup contract, and were excavated and placed in the heap leach facility in accordance with ADEC requirements. Root causes for the CIC issues were found to be linked to a number of operational control design deficiencies; corrective actions included the installation of two remote cameras to permit visual monitoring of the CIC tank areas; replacement of dysfunctional bypass valves, replacement of the defective breaker, installation of an AC power loss alarm, installation of a redundant high level alarm operating off of a separate PLC circuit, and installation of a 24" bypass pipe directly into the CIL/CIP containment, which will provide substantial additional reserve containment in the event of a CIC spill. As previously noted in Section 4.1, the root cause investigation partially attributes the size of the CIC spill to the failure of the area supervisor to ensure that individual operators properly monitored the function of air spargers designed to prevent "sanding" and subsequent spillage from the CIL and CIP tanks into secondary containment. A separate, independent engineering risk analysis was also done to identify other potential issues that could lead to similar spill scenarios or other negative consequences.

In the auditor's judgment, the suite of corrective actions taken in response to the spill appear to have been effective in returning the CIC and CIL/CIP areas to an operational

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state that is protective of human health and the environment. Additional preventive measures were also required in the management of change process, as noted in Section 4.1(4) in order to ensure that future cyanide facility changes and modifications are more effectively reviewed for environmental, health and safety, and ICMC considerations prior to design, construction, and commissioning.

As noted in the 2007 certification audit, all process solution pipelines associated with the Mill, CIP/CIL tanks, detoxification plant, and tails wash thickener are provided with concrete secondary containments in association with the major tanks that they serve. Containment spills are routinely pumped back to the process. The new CIC facility has a concrete secondary containment and an emergency interconnection to the CIP/CIL containment, as previously noted. The tailings pipeline is protected by an overhead carrier pipe as it exits the detox facility basement wall, by culverts as it passes under roadways, and is instrumented to detect blockages or leaks. Cutoff valves are installed along the pipeline that would permit the isolation and repair/replacement of a leaking section of pipeline. Any tailings pipeline spillage would report to, and be contained by, the TSF. No cyanide pipelines represent a direct risk to surface water; the nearest surface water is associated with a series of constructed wetland projects downgradient from the tailings dam. A seepage collection and return system has been installed on the face and toe of the dam, and a series of series of downgradient wells has been installed in order to monitor the effectiveness of the seepage return system.

Tailings deposition pipelines and the reclaim water return line are all positioned so that any leakage would drain to the tailings facility; as noted in the 2007, these pipelines are fitted with pressure sensors and flow meters capable of detecting blockage or leaks. Cutoff valves are also installed to facilitate the isolation and repair or replacement of any leaking pipeline sections. All cyanide mixing, storage, and process tanks are constructed of coated carbon steel; solution pipelines are constructed of steel or HDPE.

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

The operation is:                   ■ in full compliance  
  in substantial compliance  
  not in compliance...with Standard of Practice 4.8.

***Describe the basis for the Finding/Deficiencies Identified:***

As noted in the 2007 DAFR, FGMI had arranged for an independent engineering review to address cyanide mixing, storage and other cyanide management infrastructure for

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which QA/QC records were not available. This review was performed by a licensed professional engineer. Retention of the engineer's report was confirmed. With respect to the TSF, Knight Piésold provided design engineering and construction quality assurance (CQA) services for the original (1996) project and all subsequent modifications to the TSF and additional cyanide management infrastructure (i.e., the Walter Creek heap leach facility). The auditors verified that all original QA/QC data for the construction of the TSF that were available and reviewed in the 2007 audit are still retained, including records of modifications to control seepage at the south abutment. These data included a separate CQA/QC Plan which had been issued for construction.

In addition to the completion of modifications to control seepage at the south abutment of the TSF, a number of cyanide management facilities have been constructed or modified since 2007 to accommodate the development of the Walter Creek heap leach facility. Appropriate QA/QC records have been retained on file that demonstrate completion of:

- Seepage repairs to the south abutment of the TSF;
- TSF expansion, base working platform [the first element of a phased expansion that includes construction of a base working platform (completed in 2010) for raises to be conducted in 2011 and 2013];
- Walter Creek Heap Leach Facility, Stage 1, in-heap storage pond;
- Walter Creek Heap Leach Facility, Stage 1, valley fill heap leach facility; and
- Walter Creek Heap Leach Facility, Stage 2, valley fill heap leach facility.

With respect to the new Carbon in Column (CIC) plant and Pregnant Solution Recovery and Pumping System construction, subcontract documents from FGMI's construction management consultant indicate that all work was subject to inspections by the owner's agent (Merit) in order to determine "...compliance or non-compliance with the Specifications, Drawings and other contract documents." Although a detailed "Handover Procedures" document was apparently drafted by Kinross Corporate and provided to the construction management contractor, only partial evidence could be provided that the handover process was completed as planned. Several QA reports were retained that seem to indicate the construction was performed to generally acceptable commercial standards, however, complete engineering sign-off and QA/QC documentation was not available. Subsequent to the audit, FGMI arranged for an independent review of the as-built CIC and Pregnant Solution Recovery and Pumping Station, by a licensed Professional Engineer (PE). Review of the PE's report indicates that an appropriate evaluation of the available as-built drawings, subcontractor inspection and test plans, QA/QC data

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submittals, and/or “Handover Procedures” package were made, along with a determination that the facilities can be safely operated according to existing procedures.

All QA/QC records for the TSF and the engineering report provided in the 2007 audit have been retained on file. QA/QC records for all major earthworks conducted since 2007 address the inspection of soil/substrate prior to placement of synthetic membranes, as well as testing of liner welds and associated drains, underdrains, and interconnecting HDPE pipelines. No soil compaction/foundation preparation inspection report could be located for the construction of the CIL. This was independently evaluated and accepted as part of the PE’s evaluation, however, as previously noted.

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

The operation is:                   ■ in full compliance  
  in substantial compliance  
  not in compliance...with Standard of Practice 4.9.

*Describe the basis for the Finding/Deficiencies Identified:*

A written monitoring protocol (Fort Knox Monitoring Plan, January 2011) was adopted to address surface and ground water monitoring at the site as required under Waste Management Permit 2006-DB004, Fort Knox Mine. The Plan addresses: monitoring for operations, corrective actions, and temporary and permanent closure. In addition to water quality, the Plan also addresses monitoring requirements for solid waste facilities at the site, TSF recycle, geochemical monitoring of developed rock and overburden, and the Heap Leach facility. The Plan also provided monitoring and reporting requirements for wildlife mortalities. This Plan was reviewed and approved by the Alaska Department of Environment and Conservation and forms an integral part of the Waste Management Permit. FGMI also developed a Quality Assurance Project Plan (QAPP) that describes all required collection, prevention and analytical procedures as well as modified limits and reporting requirements consist with EPA procedures, and a Field Procedures Manual (last updated may 2009) that provides detailed procedures on sample collection, labeling, preservation, shipping, chain-of-custody, field documentation, equipment calibration, decontamination, data review and reporting. Qualified personnel in the FGMI Environmental Department are responsible for all monitoring programs, including developing and updating the Monitoring Plan, QA/QC and field procedures.

The operation is managed as a zero-discharge site, and monitors surface and ground water for potential unplanned discharges of process water. Records show no detectable concentrations of cyanide have been measured outside the “primary containment area” boundary limit since the project began operations in 1994. All FGMI personnel receive

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environmental awareness training during which they are instructed to report any wildlife mortalities. The heap leach daily inspection form includes wild life mortality as an inspection item. If there is a potential that the mortality is associated with cyanide solution, a procedure requires that a solution sample is collected close to where the carcass was discovered. All mortalities are reported to the applicable government agencies. There have been four wildlife mortalities reported since 2008, none of which were cyanide related.

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

*Standards of Practice*

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

The operation is:           ■ in full compliance  
  in substantial compliance  
  not in compliance...with Standard of 5.1.

***Describe the basis for the Finding/Deficiencies Identified:***

FGMI is required under Alaskan law to prepare a detailed reclamation and closure plan, which must be updated at least every five years. FGMI has recently submitted the latest iteration of the *Fort Knox Mine Reclamation and Closure Plan* for regulatory approval. The *Fort Knox Mine Reclamation and Closure Plan* contains conceptual procedures for decommissioning and closure of all cyanide management facilities as well as the heap leach pad. Conceptual procedures for the monitoring of the closed tailings impoundment and long-term maintenance and monitoring are also included. It is understood from discussions with the Environmental Manager that the level of detail in the conceptual discussions in the latest approved version of the *Fort Knox Mine Reclamation and Closure Plan* will be developed into more detailed SOPs as necessary to manage activities at the actual time of closure.

The current iteration of the *Fort Knox Mine Reclamation and Closure Plan* also includes a general schedule for site reclamation and closure. The Environmental Department has also developed a significantly more detailed version for advance planning purposes.

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

The operation is:           ■ in full compliance  
                                  in substantial compliance  
                                  not in compliance...with Standard of Practice 5.2.

***Describe the basis for this Finding/Deficiencies Identified:***

State of Alaska regulations require an annually updated decommissioning and closure cost estimate and mining reclamation bond; updated bonds are submitted to ADNR and ADEC for review and approval. Review of the latest iteration of the *Fort Knox Mine Reclamation and Closure Plan* indicates that decommissioning cost estimates are based on third-party assumptions; details are provided to ADNR and are publicly available on the ADNR website. The decommissioning and closure cost estimate is also used to support discussions of reclamation costs and bonding requirements in Section 9 of the Closure Plan; the Closure Plan is updated at least every 5 years.

Discussions with the Environmental Manager indicate that FGMI typically provides a letter of credit, the amount of which is reviewed and adjusted on an annual basis. However, due to technical complexities in the development of the mine, FGMI was delayed in the update of its *Closure Plan* and associated bond amount in 2008 and 2009. As an interim measure, FGMI entered negotiations with ADNR to adjust the required financial assurance package upward in keeping with increases in the current Consumer Price Index. This strategy was approved by ADNR in May 2009. FGMI submitted a second annual adjustment request based on this strategy in February 2010. This request was approved by ADNR, also in February 2010, and an updated letter of credit was issued to FGMI.

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

***Standards of Practice***

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

The operation is:           ■ in full compliance  
                                  in substantial compliance  
                                  not in compliance...with Standard of Practice 6.1.

***Describe the basis for the Finding/Deficiencies Identified:***

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Controlled copies of documented operating procedures that address cyanide are located on FMGI's internet portal which is accessible to all employees. Procedures address cyanide delivery and unloading, mixing, plant operations, entry into confined spaces and equipment decontamination, as well as information on HCN monitor awareness, and use of portable HCN monitors and personal protective equipment program. The procedures list the personal protective equipment required for the task and include requirements pre-work inspections.

FGMI manages changes to cyanide processes and operating practices at three levels:

- Major facility changes involving capital expenditures for design, engineering, construction, construction management, quality assurance/quality control (QA/QC), and other contracted services, all of which involve the Kinross Authorization for Expenditure (AFE) process;
- Changes to Standard Operating Procedures (SOPs), which are managed in accordance with FGMI EHS-LCH397, "Standard Procedure Generating and Revision"; and
- Communication of operational process or process control changes in the mill and/or TSF as deemed necessary by Mill management; such changes are managed in accordance with FGMI EHS-LCH387, "Management of Change Communication for Fort Knox Mill & TSF."

Further detail is provided in Section 4.1; Kinross has revised corporate AFE procedures and FGMI has re-reviewed AFEs currently in process for the design, construction, or modification of any cyanide facilities, against the requirements of the updated AFE/procurement procedures, with the intention of undertaking modifications if necessary to prevent or forestall any specific ICMC compliance or operational issues. However, it should be noted that although FGMI properly exercised their updated procedures by a *pro forma* review all open AFEs for potential ICMC compliance or operational issues, review of open AFE subjects in a current progress tracking report provided by Kinross Corporate does not indicate any major cyanide management infrastructure changes or modifications pending except for the construction of a raise in the tailings dam that will take place over the next three years. Major earthworks design, construction, and construction QA/QC protocols for this project were reviewed during the audit, are virtually identical to the control that have been in place for previous earthworks, and involve the same design and construction contractors. In the auditor's judgment there is no risk that the conditions noted in review of the AFE process for CIC construction could be repeated in the implementation of the AFE process for the major earthworks construction effort now in progress.

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It should also be noted that employees are encouraged to provide input to health and safety improvement during scheduled health and safety meetings, shift meetings and during development and revision of operating procedures. Also, through a program managed by the Continuous Improvement Manager, employees are encouraged to submit suggestions which are then formally reviewed. Employees are rewarded for those that suggestions that are implemented. Work task reviews provide another opportunity for workers to discuss improvements that could be made to work tasks.

**6.2 Operate and monitor cyanide facilities to protect worker health and safety and periodically evaluate the effectiveness of health and safety measures.**

The operation is:           ■ in full compliance  
                                      in substantial compliance  
                                      not in compliance...with Standard of Practice 6.2.

*Describe the basis for the Finding/Deficiencies Identified:*

Operating procedures require that pH is maintained above 10 in the leach circuit both to ensure efficient leaching and to prevent the generation of hydrogen cyanide gas (HCN). The pH is controlled through frequent monitoring at Leach Tank L-1 and addition of lime as required to the SAG mill feed. In the CIC circuit pH is maintained through application of lime to the heap leach pad. Records through 2010 showed pH levels were generally maintained above 10.2 in the leach circuit and 11.3 in the CIC circuit. During the cyanide mix procedure where strong cyanide solutions are handled, procedures require that the pH is maintained above 12.0. Cyanide safety training materials specify pH targets of 10.2 for process solutions and 12.0 for reagent in the mixing/storage tanks.

Fixed HCN gas monitoring units are located in ten areas of the mill where HCN generation is a potential risk. Each unit has audio and a two light (amber and red) visual alarm that activates if the concentration of HCN reaches 4.7 ppm and 10 ppm. The HCN concentration monitored at each alarm reports to the console in the main control room. When an alarm indicates concentrations of greater than 4.7 ppm, procedure requires that a portable monitor be carried in the area until the cause of the alarm is determined and corrected. Evacuation of the area is required if concentrations exceed 10 ppm. There are four hand held ITX portable HCN meters available for use in areas or on where there is a potential for HCN exposure. The Safety Department also has two ITX units, equipped with HCN sensors. Respirators with dust filters are required to be worn during cyanide mixing. Workers complete annual refresher training in the use and fitting of respirators.

Preventive maintenance actions are performed on the fixed and portable HCN monitors monthly and calibration records are maintained for one year. A summary of calibration

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work orders for the fixed monitors are also maintained for previous years (2008 and 2009). The calibration and maintenance schedule meets or exceeds the manufacturer's recommendation for maintenance of these units.

Placement of warning signage was observed to be generally good in the process plant, except for the grinding area. Cyanide warning signs are posted on the doors of the leach plant, cyanide storage warehouse, carbon plant, mix area and CIC plant, and on piping and vessels inside and outside of these areas. Piping containing cyanide was also well marked to identify contents (i.e., barren, pregnant, process water) and flow direction. Signs were clean, clear and posted in visible places. "No Smoking" and "No Beverages or Food" signage was observed throughout the plant. In addition employees are trained to not smoke, drink or eat in areas where cyanide is present. Also no cyanide warning signage was noted in the area of the recently commissioned heap leach area.

Subsequent to the field component of the Recertification Audit FGMI revised operating procedures OPG029 – Mill Water System, and OPG05 – Decontamination Procedure to include warning statements that the process water used in the grinding circuit contains cyanide and practice of personnel hygiene is essential. In addition, cyanide warning signage was posted at strategic locations in the grinding mill and heap leach area.

Showers and eye-wash stations are located at strategic areas of the mill where cyanide and other chemicals are used. In addition, there are several eyewash stations in the mill and elsewhere where bottles (two to four 32 oz containers) of eye wash solution or wall mounted eyewash units are located and maintained in the event of an emergency. The shower/eyewash units are checked each shift during safety inspections. Operators also check the showers in the cyanide mix area before performing a cyanide mix. Security conducts monthly inspections of eye-wash stations and is responsible for replacing solutions when used or become outdated.

During the site inspection shower/eye wash stations were tested and confirmed to be operating, although the pressure gauges on the unit near the solution test bench in the carbon strip building and the unit within the cyanide mix tank containment showed high water pressure and the pressure gauge at one station was broken. Subsequent to the field component of the audit the defective pressure gauge was replaced and the pressure within water supply line feeding the shower/eyewash stations adjusted to deliver water at 30 to 40 psi. The operation has also incorporated checks of the shower station pressure gauges as part of the "Act of Safety" program.

Fire extinguishers have check tags attached and are marked to document monthly checks. The extinguishers in cyanide areas of the mill are all dry ABC units. The units are inspected monthly by security.

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Cyanide warning signage is prominently displayed at entrances to areas where cyanide is present. Piping and tanks in the mixing and process areas are labeled to identify cyanide, and flow directions are indicated on piping. MSDS training is provided to all new hires and to employees during annual refresher. Employees also receive hazardous materials training specific to their work area as part of MSHA 5000-23. MSDS are all accessed through MSDS E3 Online, an online system that is managed through an outside contractor, which is available through all computer terminals at FGMI. In addition to MSDS, cyanide hazard information is documented in the Cyanide Solutions procedure. FGMI employees receive personal copies of a DuPont-produced cyanide hazard awareness card. All the information is in English, the language used by mine workers.

FGMI's incident investigation procedure documents and investigates all incidents that occur at the mine. All incidents and near misses are required to be reported into an online database immediately upon occurrence. Root Cause investigation is undertaken using a KATTAR form. There has not been a cyanide safety related incident at the mine site since operations began. However, a cyanide release occurred in May 2010 that resulted in the spill of approximately 35,000 gallons of process solution from the CIC plant and detoxification plant sump onto roadways and adjacent employee parking areas. The spill was promptly reported to regulatory authorities as required by the FGMI *Crisis Management Plan* and *Emergency Response Plan*. Review of records associated with this incident confirmed that a root cause investigation was undertaken to establish the cause of the incident and corrective actions implemented to prevent such an event occurring in the future

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

The operation is:             in full compliance  
    in substantial compliance  
    not in compliance...with Standard of Practice 6.3.

*Describe the basis for this Finding/Deficiencies Identified:*

Cyanide antidote kits located at ten strategic locations around the cyanide facilities in small refrigerator units that maintain the kits within the temperature range recommended by the manufacturer. Oxygen resuscitator kits are kept in the mill control room and in the ambulance located at the administration building. There are also nine escape rescue breathing apparatus stations located at strategic areas of the plant.

Showers and eye-wash stations are located at strategic areas of the mill where cyanide and other chemicals are used. In addition, there were several eyewash stations in the mill

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and elsewhere where bottles (two to four 32 oz containers) of eye wash solution or wall mounted eyewash units are maintained in the event of an emergency.

As discussed in Section 6.2 there are HCN alarms located in the plants to provide visual and audible warning in the event of an emergency. Radio communications are provided in most mobile equipment, and to supervisors and select personnel. All mill workers are equipped with hand-held radios. There is also a GAI-Tronics speaker system in the mill that provides an additional avenue for communication.

Security Officers perform monthly checks on emergency response equipment including first aid stations, shower and eye-wash stations, escape rescue breathing apparatus stations and amyl nitrite stations. They also maintain the eye-wash stations and notify safety when amyl nitrite is nearing its expiration date and requires replacement. In addition mill operators conduct safety inspections each shift that include inspection of shower/eyewash stations.

Emergency Response Plan (ERP) was last updated on 12 January 2011. The Plan describes the standard procedures to be followed in the event of an emergency and provides procedures on communication, roles and responsibilities, emergency resources, and contacts. Section 5.10 addresses cyanide related and includes procedures on initial response, first aid, and spill response for possible emergency scenarios.

FGMI has a fully staffed emergency response team available 24hr/day. The team is currently made up of 24 members of which 14 are certified under National or State of Alaska as Emergency Medical Technicians (EMT) and three as certified Emergency Trauma Technicians (ETT). In addition, all employees are trained in cyanide first aid response, including the application of amyl nitrite. All employees take annual refresher cyanide awareness training which includes cyanide exposure recognition and first aid.

FGMI have an ambulance bay at the administration building which is used for staging patients during inclement weather conditions. The ambulance is used to transport patient(s) to the staging area. The EMT members are trained to stabilize the scene, perform rescue, and package the patient(s) for transport. The mine has a Mutual Aid agreement with Steese Ambulance and Volunteer Fire Department (SAVFD) to provide ambulance service as required. This agreement was reaffirmed during a meeting between the Health and Safety Manager and SAVFD in February 2010. FGMI also has a relationship with the Military Assistance to Safety and Traffic (MAST) to provide air evacuation services if required; however, since the previous ICMI audit the military have temporarily stopped this service while all its resources have been deployed in Afghanistan.

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Since the initial certification audit FGMI has continued relations with Fairbanks Memorial Hospital (FMH), SAVFD. FGMI met with SAVFD in February 2010 to review and continue the formalized agreement for assistance dated February 2007. In April 2010 the Environmental Coordinator met with FMH regarding emergency response and capabilities for treatment of cyanide exposure cases.

ERT members participate in monthly emergency response training sessions. This training includes one or two sessions each year related to cyanide exposure and first aid. In addition, mock drills are conducted periodically to test the effectiveness of FGMI'S ERP. A mock drill involving cyanide exposure was completed on 25 August 2010. Recommendations for improvement included placement of an ITX HCN monitor in the ambulance so it is available for every emergency; and training responders in responder safety, airway and breathing care; and scene safety.

During the recertification audit, although evidence was available to show that mock drills were being conducted, mock drill records were found to be poorly maintained, not clearly documented, and did not include a clear action plan showing roles and responsibilities, and completion of recommended actions from lessons learned. Subsequent to the field component of the recertification audit, FGMI developed and implemented a written procedure for conducting and documenting mock drills and tracking recommended actions items to completion.

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

*Standards of Practice*

**7.1 Prepare detailed emergency response plans for potential cyanide releases.**

The operation is:           ■ in full compliance  
                                      in substantial compliance  
                                      not in compliance...with Standard of Practice 7.1.

***Describe the basis for the Finding/Deficiencies Identified:***

The Emergency Response Plan addresses standard emergency response procedures for the entire mine site, including unplanned releases of cyanide from its operations. The plan includes initial response, first aid, spill response for possible emergency, and spill control and clean-up. Section 5.10 of the plan focuses on cyanide related emergencies.. The plan indicates that the following failure scenarios were considered: transportation accidents; releases during unloading; releases during fires and explosions; pipe, valve and

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tank ruptures; overtopping of ponds; power outages and pump failures; uncontrolled seepage; failure of cyanide treatment, destruction or recovery systems; and failure of tailings impoundments. A Tailings Storage Facility Emergency Action Plan (Draft, December 2009) provides additional guidance on responses to unusual events, inspections, and initiation or required notifications to respond to potential emergencies including dam leaks, overtopping and/or failures. The area is a Level 3 seismic zone, and earthquake emergencies have also been considered in the development of the response procedures.

Subsequent to the 2007 certification audit FGMI decided to discontinue maintaining self-contained breathing apparatus (SCBA) capability and rely instead on the ability of effective extraction fans to clear toxic gases from a building in an emergency rather using SCBA to enter a toxic environment. In the event that SCBA was required the Steese HAZMAT team would be able to respond in about 20 to 30 minutes. At the time of the recertification audit FGMI had not conducted a detailed analysis of whether, without SCBA, an adequate response to a man down scenario in a building could be provided.

Subsequent to the field component of the recertification audit FMGI completed a risk analysis on the uncontrolled release of hydrogen cyanide gas (HCN) during ore processing activities in the mill complex. The risk assessments considered the probability of a process upset and the severity, should an upset occur. For each of the areas evaluated, the overall level of risk of a process upset causing an uncontrolled release of HCN was classified as low. The ventilation fans in the carbon strip building and the CIC building are able to provide a complete air exchange in either facility in less than about 8 minutes and the detoxification building would be ventilated by opening the two large shop doors as this building has no fans. Notwithstanding the results of the risk assessment, FGMI proceeded to augment building ventilation procedures by linking the ventilation fans to the Distributed Control System (DCS) and fixed HCN monitoring stations and fitting outside door switches. SCBA capability was also reestablished through the purchase of seven SCBA units and retraining responders to improve emergency response time in the event of a HCN release. As policies and procedures were in place to manage cyanide, the buildings were fitted with HCN alarms and emergency escape respirators, workers were trained to evacuate the buildings when HCN concentrations exceed 10 ppm, and provisions were in place to ventilate the buildings in the event that elevated levels of HCN detected, it is the auditors judgment that the conditions in place prior to FGMI reestablishing SCBA response capability did not present an immediate or substantial risk to human health and safety.

FGMI takes ownership of cyanide shipments at the point the cyanide container is unloaded from the transport container, although FGMI would respond to any transport emergency occurring with the mine property. Although off-site transport emergencies

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are the responsibility of DuPont, FGMI would also provide support emergency response to off-site incidents if requested.

The Emergency Response Plan addresses various response scenarios for cyanide leaks or spills. All employees are trained in emergency communication and evaluation procedures. Plan provides roles and responsibilities for the various emergency management team members and locations of cyanide response equipment. In the event of a cyanide exposure, Section 5.10.2 of the Plan details first aid procedures. The Plan also details response to mill solution and reagent spills, including reporting requirements, clean-up procedures, and sampling and closure methods. In the event that a spill has a potential for affecting communities, the Emergency Management Team, in consultation with local EMS, State and Federal regulators will notify affected parties in local communities. Procedures for notifying outside agencies are provided in the FGMI Crisis Communication Manual. The TSF Action Plan provides additional instruction and guidance on responding potential emergencies associated with dam seepage, overtopping or potential dam failure.

**7.2 Involve site personnel and stakeholders in the planning process.**

The operation is:                   ■ in full compliance  
  in substantial compliance  
  not in compliance...with Standard of Practice 7.2.

***Describe the basis for the Finding/Deficiencies Identified:***

The formalized Mutual Aid Agreement that FGMI has had with SAVFD since February 2007 is still in place. FGMI has periodic meetings and communications with SAVFD regarding emergency response planning; the last meeting was in February 2010. An updated copy of the ERP is forwarded to them at least annually. FGMI also periodically communicates with Fairbanks Memorial Hospital. A meeting held in April 2010 included discussion on cyanide treatment capability and opportunity for the hospital to participate in mock drill exercises. FGMI also undertakes substantial community outreach efforts with the local communities and provides information on cyanide in response to stakeholder requests.

The Community/Government Affairs Manager remains the primary point of contact for all external enquiries regarding cyanide-related issues, however, inquiries on cyanide use are extremely rare; the only known inquiry since the initial audit was from a reporter from *Petroleum News* inquiring about the May 2010 spill.

FGMI continues to offer mine tours to primary and secondary schools, universities, community groups, politicians and political candidates, peer mining companies, Native

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American organizations and corporations, and other special-interest groups, and is involved in many different community outreach efforts. In all of these situations, general information about the use of cyanide is made available, along with opportunities for further inquiries or information requests regarding FGMI's use of cyanide.

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

The operation is:           ■ in full compliance  
                                  in substantial compliance  
                                  not in compliance...with Standard of Practice 7.3.

*Describe the basis for the Finding/Deficiencies Identified:*

The ERP designates primary and alternative emergency management team members and identifies the emergency response team (ERT) members, the crew to which they are assigned and their contact information. Emergency contact information is also provided for emergency management team members and Kinross corporate contacts. The current ERT includes 24 members, of which 14 are emergency medical technicians (EMTs) and three are emergency trauma technicians (ETTs).

An emergency response equipment list is provided in the ERP. The cyanide emergency response equipment is checked monthly by security and records are retained for a minimum of 3 years. Other emergency response equipment is checked and replaced as it is used during monthly ERT training sessions.

The role of outside responders is provided in the ERP. FGMI security calls Steese EMS response that dispatches the emergency and continues to monitor the SAVFD response. MAST is currently not available to provide air evaluation because of military commitments. However, they remain in the ERP in the event that their service will be reinstated in the near future. As MAST was the only air evacuation capability in the region, all emergency evacuations currently have to be undertaken by ambulance through SAVFD.

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

The operation is:           ■ in full compliance  
                                  in substantial compliance  
                                  not in compliance...with Standard of Practice 7.4.

*Describe the basis for the Finding/Deficiencies Identified:*

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The ERP sets out communication procedures in the event of an emergency. As described in the plan the discoverer broadcasts “Mayday” over the radio and contacts security to provide prescribed information. Security then implements a set of emergency actions including advising radio silence; broadcasting emergency, location and assistance required; requesting equipment required, calling Steese EMS Response, etc. The ERT team confirms that they are responding and requests outside response assistance if required.

The emergency management team members also have specific communication roles. The emergency manager is responsible for briefing other emergency team members and notifying Kinross Corporate personnel; the public relations coordinator responds to media enquiries; the human resources coordinator communicates with employee families in the event of an injury; the environmental coordinator is responsible for notifying the regulators when reporting is required; and the health and safety coordinator is responsible for contacting MSHA.

Procedures for notifying outside agencies and the media are provided in the FGMI Crisis Communication Manual. The Emergency Management Team, in consultation with Steese EMS Response, and State and Federal regulators will notify affected parties in local communities as necessary.

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

The operation is:                   ■ in full compliance  
  in substantial compliance  
  not in compliance...with Standard of Practice 7.5.

*Describe the basis for the Finding/Deficiencies Identified:*

The ERP and Spill Reporting and Sampling procedure address recovery of cyanide and remediation of impacted areas in the event of a cyanide release. These prescribe that spills of solid cyanide will be cleaned up with brooms and shovels and placed in appropriate containers for return to the mill circuit or TSF. Soil exposed to cyanide solution will be sampled for WAD cyanide and anything greater than 10 ppm will be excavated. Sodium hypochlorite is available for neutralizing spills; however, FGMI’s preference is to over excavate rather than using treatment chemicals and their use is prohibited without the prior approval of the Environmental Department.

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Minor spills of process solution are managed by the mill operators under the direction of the Environmental Department. The procedures provide guidance on mapping the location and extent of the spill, the number of samples to collect for a given size of spill and the laboratory analysis method. The Environmental Department would manage the characterization and remediation of larger spills and is responsible for reporting spills to the regulatory agencies. The Fort Knox Monitoring Plan includes an enhanced surface water and groundwater sampling and regulatory reporting program that must be initiated in the event that cyanide is detected downstream of the dam.

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

The operation is:           ■ in full compliance  
                                      in substantial compliance  
                                      not in compliance...with Standard of Practice 7.6.

*Describe the basis for the Finding/Deficiencies Identified:*

The Emergency Response Plan is considered a living document that can be updated as required. The Health and Safety Manager is responsible for ensuring that the ERP is reviewed at least annually and response procedures are adequate. The current Plan was last updated on 12 January 2011 and has been updated twelve times since March 2007. In addition to physically updating the Plan, an updated contact list of the ERT is kept by the ERT members and security. The Plan designated two emergency control centers to be equipped with up-to-date maps and plans of the site, and up-to-date contact information and copy of the ERP.

Since the initial certification audit in 2007 FGMI has conducted a number of mock drills to test the effective of the ERP and response team. The drill undertaken in August 2010 involved cyanide exposure. The drills were evaluated and recommendations were implemented as appropriate.

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

*Standards of Practice*

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

The operation is:           ■ in full compliance  
                                      in substantial compliance  
                                      not in compliance...with Standard of Practice 8.1.

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***Describe the basis for the Finding/Deficiencies Identified:***

New-hire and annual cyanide hazard recognition training is provided by the Mill Trainer. All new hires attend 24 hrs of orientation training of which 16 hrs is dedicated to health and safety training and 8 hrs to respective department training. Employees that work in the mill department are also provided with general training that includes cyanide rescue, pH in the process, HCN monitors, respirator fit tests and MSDS. New employees are assigned to a supervisor and provided with a development plan which includes additional specific training pertinent to their assigned work area. The plan is reviewed every 6 months. Annual refresher training in cyanide hazard recognition is undertaken annually by all employees. The training is given by the Mill Trainer and records are also maintained and tracked by him through process area specific Excel® matrices. In 2010 that tracking system was reconciled against actual training records and was found to be substantially accurate.

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

The operation is:                   ■ in full compliance  
  in substantial compliance  
  not in compliance...with Standard of Practice 8.2.

***Describe the basis for the Finding/Deficiencies Identified:***

New workers receive 24 hrs of basic orientation training comprised of health and safety training and workplace orientation. For Ore Processing Department workers this training includes cyanide awareness and response, mill process, HCN monitoring and alarms and location and use of cyanide exposure safety equipment. Mill workers are then trained in operating procedures for their respective work areas. This task training includes a number of general procedures that apply to all areas and other procedures that are specific to their work area.

Training in operating procedures for respective work areas is provided by the responsible area supervisor with the assistance of the Mill Trainer and Mill Safety Training Coordinator. The area supervisors are qualified on the basis of experience with the process elements that they are responsible. The standard operating procedure serves as the training record and has to be signed by the Supervisor that provided the training, the trainee, and the Mill Trainer that training has been satisfactorily provided. The Training status of workers is documented in process area-specific matrices maintained by the Mill Trainer. Safety training, including cyanide awareness and response is provided by the

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Mill Trainer and Mill Safety Training Coordinator. Operational SOP changes, when they occur, are reviewed and discussed with the workforce during shift safety meetings. Training on SOP changes is recorded on a SOP Generation/Revision Acknowledgement Form and retained by the Mill Trainer. Records of training are maintained throughout an individual's employment

The effectiveness of task training is monitored by routine supervisory oversight as well as the formal task observations. The task observation program requires each crew supervisor to complete one task observation per month. Task observations are tracked by the Mill Trainer. Records of task observation were available for the past 3 years. At the time of the recertification audit task observations were limited to ore processing operations in the mill. FGMI is considering expanding the scope of task observations to include the new heap leach operation. On completion of new hire and cyanide refresher training employees are required to complete a written questionnaire to demonstrate their understanding of the training material.

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

The operation is:                   ■ in full compliance  
  in substantial compliance  
  not in compliance...with Standard of Practice 8.3.

***Describe the basis for the Finding/Deficiencies Identified:***

All new hires complete cyanide awareness training that includes instruction on emergency response and first aid procedures in the event of cyanide exposure. In addition all Ore Processing Department workers complete general task training which includes instruction of decontamination and first aid.

The emergency response team members attend monthly emergency response training sessions which periodically include HAZMAT and cyanide related first aid. Mock drills are also periodically undertaken; the August 2010 drill involved a cyanide exposure emergency. This drill also involved the SAVFD ambulance service. Debriefing meetings and evaluations are conducted after these exercises. Response deficiencies are recorded and future training exercises are planned to re-evaluate the emergency response team's performance to ensure that these deficiencies have been corrected.

During the recertification audit, the mock drill records were found to be poorly maintained, not clearly documented, and did not include a clear action plan showing roles and responsibilities, and schedule and sign-off for completion of recommendations for improvement. Although records showed that mock drills were being conducted, it was

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difficult for FGMI to demonstrate that lessons learned from the drills were being incorporated into response planning. FGMI was therefore requested to develop a written procedure for conducting and documenting mock drills and following recommended actions items to completion. Subsequent to the field component of the recertification audit FGMI developed and implemented procedure EHS-HS120B - Emergency Response and Drill for use with future mock drills.

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

*Standards of Practice*

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

The operation is:           ■ in full compliance  
                                  in substantial compliance  
                                  not in compliance...with Standard of Practice 9.1.

*Describe the basis for the Finding/Deficiencies Identified:*

The Community/Government Affairs Manager remains the primary point of contact for all external inquiries regarding cyanide-related issues. In the years since the initial certification audit, the need for the logging of inquiries related to cyanide management has proved to be a moot point. Discussions with the Community/Government Affairs Manager indicated that inquiries on cyanide use are extremely rare; the only known inquiry since the initial audit was from a reporter from *Petroleum News* inquiring about the May 2010 spill.

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

The operation is:           ■ in full compliance  
                                  in substantial compliance  
                                  not in compliance...with Standard of Practice 9.2.

*Describe the basis for the Finding/Deficiencies Identified:*

FGMI continues to offer mine tours to primary and secondary schools, universities, community groups, politicians and political candidates, peer mining companies, Native American organizations and corporations, and other special-interest groups, and is involved in many different community outreach efforts. In all of these situations, general

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information about the use of cyanide is made available, along with opportunities for further inquiries or information requests regarding FGMI's use of cyanide.

In all of these situations, general information about the use of cyanide is made available, and they offer opportunities for further inquiries or information requests regarding FGMI's use of cyanide. In addition, the FGMI Emergency *Response Plan* and *Crisis Management Plan* specifically require interacting with regulatory authorities in event of a cyanide spill. Records review and discussions with the FGMI Environmental Manager and other management staff demonstrate that substantial information about the May 2010 spill was provided to the appropriate ADEC, Department of Natural Resources (DNR), and National (Spill) Response Center authorities, as required by governing regulations. ADEC was fully engaged in the review and approval of the work plan for site cleanup as well as the approval of the final cleanup reports.

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

The operation is:           ■ in full compliance  
                                      in substantial compliance  
                                      not in compliance...with Standard of Practice 9.3.

*Describe the basis for the Finding/Deficiencies Identified:*

FGMI has created a range of age- and background-appropriate literature (literacy is not an issue) that is freely disseminated to visitor in mine tours and public meetings. These documents include a brochure that provides a very general discussion on the chemical leaching process, and brief note about the purposes of the ICMC and the certification of the FGMI site; and a detailed 20+ page "Fact Book" that includes a brief discussion of all major elements of cyanide management infrastructure, including the new heap leach facility and CIC, plus a separate paragraph on the overall topic of cyanide management and Kinross/FGMI commitments to ICMC compliance.

In addition to the written material, FGMI has recently updated a site safety video presentation that is required to be viewed by all site visitors; it notes that cyanide is used and identifies appropriate health and safety precautions. General guidance is also provided for the process discussions to be made by school tour guides. A video presentation is also in production that will be intended for open distribution.

All employees receive copies of a DuPont-produced pocket card describing 1) symptoms of cyanide poisoning; 2) appropriate rescue procedures for cyanide poisoning and 3) first aid for cyanide poisoning. A separate pocket-sized DuPont publication ("The Facts about

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Sodium Cyanide”) and FGMI-produced spill reporting and response handbook [*Spill Reporting Procedures & Waste Disposal* (January 2011)] are also provided.

FGMI has had one reportable release since first being certified (May 2010), but the release was quickly controlled; did not impact human health, wildlife, or other aspects of the environment; and did not extend beyond the boundaries of the mine site. The spill was immediately reported to ADEC, DNR and the US interagency National Response Center. ADEC monitored the cleanup and published photographs and other spill reporting and cleanup information on its public website. See [http://www.dec.state.ak.us/spar/perp/response/sum\\_fy10/100504301/100504301\\_index.htm](http://www.dec.state.ak.us/spar/perp/response/sum_fy10/100504301/100504301_index.htm).

Photographs and other information items were made available to the public via the ADEC website. It may be noted that the spill was also self-reported to ICMI via e-mail and fax transmission, pursuant to the signatory requirements defined in item 6, page 2 of the *Signatory Application Form for the International Cyanide Management Code* (see [http://www.cyanidecode.org/pdf/1\\_SignatoryApplication.pdf](http://www.cyanidecode.org/pdf/1_SignatoryApplication.pdf)).

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