# SUMMARY AUDIT REPORT

for the March 2013
International Cyanide Management Code Recertification Audit

**Prepared for:**
CJSC Chukotka Mining and Geological Company
Kinross Gold Corporation/ Kupol Project

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

**FINAL**
November 11, 2013

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# SUMMARY AUDIT REPORT

**Name of Mine:** Kupol Mine

**Name of Mine Owner:** Kinross Gold Corporation

**Name of Mine Operator:** CJSC Chukotka Mining and Geological Company

**Name of Responsible Manager**: Claude Schimper, General Manager

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**Location details and description of operation**:

The Kupol Mine is located in a remote area of the Chukotka Autonomous Okrug (AO), Russian Federation. The mine is operated by a wholly-owned subsidiary, CSJC Chukotka Mining and Geological Company (CMGC). The Kupol deposit is presently mined using underground methods, and in 2012 produced over 578,000 ounces of gold. Another new underground operation has been developed at Dvoinoye, a site 100 km due north of Kupol;, and ore from this operation will be processed in the Kupol mill beginning in 2013. The Kupol and Dvoinoye mine locations are shown in **Figure 1**.

Chukotka AO is very sparsely populated; the Kupol site is about 75 km from the nearest village (Ilirney) and over 200 km from the nearest major town (Bilibino). CMGC maintains administrative and governmental liaison offices in Magadan, as well as a logistics/public relations presence in Bilibino and the port of Pevek, 400 km due north of the mine. The climate is harsh, with long cold winters and brief summers. Cyanide, fuel, and other bulk supplies must be delivered by mid-winter truck convoys on an annually constructed ice road connecting the mine to the port of Pevek. The southernmost 100 km of the ice road route is planned to be replaced in 2013 by a permanent gravel road beginning at the Dvoinoye mine, as Dvoinoye ore will be delivered to Kupol by haul truck.

**Figure 1: Location of Kupol Mine and Dvoinoye Mine, Chukotka Autonomous Okrug, Russian Federation**[1]

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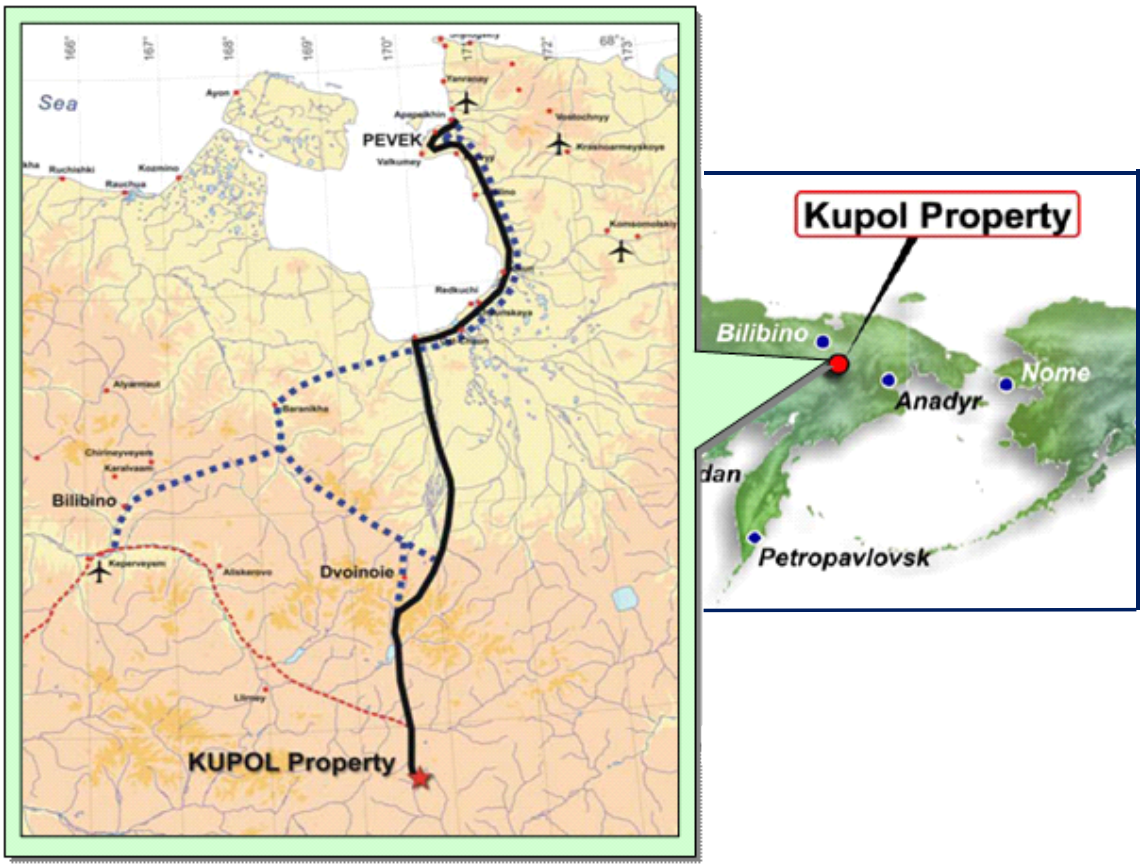


The Kupol and Dvoinoye sites both have modern, self-contained man-camps, with a total combined workforce ranging from 550 to 800. There have been no significant changes to the cyanide transportation, storage, and handling protocols or the basic mineral extraction process since the mine was first certified to the International Cyanide Management Code (ICMC) in December 2009. The Kupol mill is comprised of a conventional cyanide leach plant, a counter-current decantation (CCD) circuit, a Merrill-Crowe precipitation circuit, and a cyanide detoxification circuit, discharging to an impermeable, zero-discharge rockfill tailings impoundment with seepage collection and reclaim water systems. The operation is currently undergoing a program to expand processing capacity to accommodate the addition of ore from the Dvoinoye mine. Cyanide is purchased exclusively in briquette form, packaged in standard polypropylene "supersacks" and polyethylene-lined plywood crates, delivered to the site in sealed steel intermodal shipping containers. CMGC maintains a secure facility 21 km southeast of the port of Pevek for storage of cyanide containers and other bulk supplies pending annual ice road construction and delivery to the project site via secure truck convoy.

[1] Source: Kupol Mine, Russian Federation, NI 43-101 Technical Report (Henderson, May 2011).

# SUMMARY AUDIT REPORT

***Auditors' Finding***

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

with the *International Cyanide Management Code,* and has maintained full compliance throughout the previous three-year audit cycle and has not experienced any cyanide incidents or compliance issues during this period.

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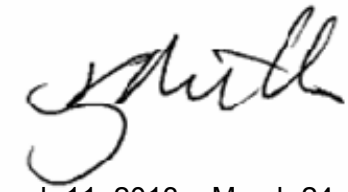
**Names and Signatures of Other Auditors**

Glenn Mills 

**Date(s) of Audit:** March 11, 2013 – March 24, 2013

I attest that I meet the criteria for knowledge, experience and conflict of interest for Code Verification Audit Team Leader, established by the International Cyanide Management Institute and that all members of the audit team meet the applicable criteria established by the *International Cyanide Management Institute* for Code Verification Auditors. I further attest that the verification audit was conducted in a professional manner in accordance with the latest version of the *International Cyanide Management Code Verification Protocol for Gold Mine Operations* and using standard and accepted practices for health, safety and environmental audits.

| Kupol Mine |  | November 11, 2013 |
|---|---|---|
| Name of Mine | Signature of Lead Auditor | Date |

# SUMMARY AUDIT REPORT

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

***Standard of Practice***

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

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

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

In the years since the original 2009 ICMC certification audit, CMGC has continued to purchase cyanide from the E.I. DuPont de Nemours and Company (DuPont) Memphis, Tennessee production plant. At the time of the audit it was confirmed that no producer other than DuPont has been under contract for delivery of cyanide since the site was first certified, and all cyanide currently stored at the site was purchased from DuPont.

In January of 2008 CMGC established a master contractual agreement with DuPont that includes specific language that committed both parties to achieving and maintaining compliance with the ICMC. Annex A to the master agreement with DuPont is a purchase order containing the specific requirements for an annual delivery. Additional annexes/purchase orders have been issued for each successive operational year (2010, 2011, and 2012). All cyanide currently stored on site was delivered in 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:***

CMGC is currently operating using stores of cyanide that were delivered under essentially the same transportation chain and the same written agreements that were evaluated in the 2009 certification audit. The only change observed in the supply chain in this period is the addition of Sakhalin Shipping Company (SASCO) as an alternate ocean transporter between the Port of Everett and Port of Pevek. Far Eastern Shipping Company (FESCO) and SASCO are reportedly the only ocean carriers which can both call on US Ports and discharge cyanide at the Port of Pevek, and as the Port is only operational for a few months a year, having two carriers under contract was deemed necessary to reduce the delivery risk.

The major components of the supply chain that has been used over the last several years consist of three major components, which are described as follows:

DuPont Production Facility to Port of Everett: DuPont has been responsible for the shipment of cyanide from its Memphis, TN production facility to the Port of Everett, WA, using Intermodal Cartage Company (truck transport from DuPont's Memphis production facility to the railhead); Union Pacific Railroad (Memphis railhead to the Seattle, Washington railyard); and Bridge Terminal Transport (BTT; Seattle railyard to the Port of Everett).

DuPont was initially responsible for demonstrating ICMC code compliance for each contracted leg via ICMC audits, due-diligence audits, or third-party, ICMC-equivalent non-certification audits. In August, 2010, DuPont conducted ICMC consignor audits of all portions of the supply chain except for BTT. BTT's ICMC approval status expired 3 years after the due-diligence review-based approval date, or September 18, 2012. However, delivery information provided by Kinross indicates that the last cyanide provided to CMGC at the Port of Everett under the DuPont contract was received on August 7, 2012, prior to the expiration of BTT's approval status. This shipment was received at the Port of Pevek on October 1, 2012. It should be noted that DuPont has since replaced BTT with Alaska West Express in its US/Canada Rail and Barge Supply Chain.

Port of Everett to Port of Pevek: CMGC has maintained the same tenant agreement with the Port of Everett observed in the initial certification audit, under which the Port provides a secure storage area, ship loading services, and assumes all emergency response responsibilities for any accident or spill of CMGC-owned cyanide. Kinross had conducted a due-diligence audit of the Port of Everett on behalf of CMGC that was reviewed and approved by an ICMI-approved lead auditor. CMGC has chartered FESCO to deliver intermodal containers of cyanide and other supplies to the Port of Pevek, Chukotka AO, using certified ice-hardened container transport vessels. Kinross

had conducted a due-diligence audit of FESCO that was also reviewed and approved by an ICMI-approved lead auditor. As previously noted, Kinross has also contracted with SASCO to provide the same ocean transport services; a due-diligence review was also conducted and reviewed and approved by an ICMI-approved lead auditor.

Port of Pevek to Temporary Storage (KM 21) and Final Storage at Kupol Mine Site:
CMGC has maintained its contract with the Port of Pevek to provide docking and unloading services for both FESCO and SACO vessels. CMGC's Transportation Group is obliged to remove all cyanide containers within 24 hours of arrival. Containers of cyanide are loaded onto CMGC-contracted trucks and transported to the KM 21 secure storage facility southeast of the port. Cyanide containers are transported from the KM 21 facility via an annually constructed ice road, and are unloaded by CMGC personnel at a secure storage facility approximately 6 kilometers north of the Kupol mine. Container seals remain intact pending transfer of the containers to the cyanide mixing area at the mill.

Kinross has established a separate "Russia Supply Chain" certification that includes all transport activities from both DuPont and Cyanco production facilities to the Kupol site. The supply chain includes:

- DuPont's US/Canada Rail and Barge Supply Chain;
- Cyanco's Western US Rail, Barge, and Truck Supply Chain;
- the Port of Everett;
- FESCO and SASCO;
- the Port of Pevek;
- the CMGC Transportation Group.

Audits of all of these links were underway at the time of the Kupol recertification audit, and ICMI accepted the entire Kinross Russia Supply Chain prior to the submittal date of this report.

The DuPont Master Agreement requires DuPont to produce documentation demonstrating that all subcontracted transportation services also comply with ICMC requirements. CMGC has also maintained its tenant agreement with the Port of Everett, under which CMGC rents space and purchases the Port's wharfage and handling services. The written agreement between CMGC and FESCO observed in the 2009 audit and the new agreement with SASCO are chartering agreements that apply to the use of specific arctic service-rated (ice-hardened) vessels. The agreement between CMGC and the Port of Pevek has likewise not been altered and is limited to wharfage and handling services. Any handling accidents while under hook are CMGC's responsibility with respect to emergency response and cleanup.

**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 DuPont contract clearly states that the Seller is responsible for transport from the Memphis TN production facility to the Port of Everett, and for demonstrating ICMC code compliance for each subcontractor in the transportation chain.

Kinross has established a separate "Russia Supply Chain" certification that includes all transport activities from both DuPont and Cyanco production facilities to the Kupol site. The supply chain includes:

- DuPont's US/Canada Rail and Barge Supply Chain;
- Cyanco's Western US Rail, Barge, and Truck Supply Chain;
- the Port of Everett;
- FESCO and SASCO;
- the Port of Pevek;
- the CMGC Transportation Group.

Audits of all of these links were underway at the time of the Kupol recertification audit, and ICMI accepted the entire Kinross Russia Supply Chain prior to the submittal date of this report.

As noted in the 2009 audit, all transporter links associated with all cyanide currently delivered to the site are certified under the ICMC or have undergone due diligence or third-party audits to ICMC requirements. CMGC has maintained copies of (or maintains online access to) audit reports for:

- DuPont Sodium Cyanide Operations (Memphis, TN plant), March 2006 ICMC certification audit and August 2010 ICMC consigner supply chain audit;

- Union Pacific Railroad (shipment from Memphis rail transfer yard to Seattle, Washington railyard), May 2007 due diligence audits (by MSS) and ICMI supply chain audit conducted by MSS in August, 2010;

- Bridge Terminal Transport (BTT); truck transporter, Seattle railyard to Port of Everett; ICMC certification audit conducted in 2009 by MSS [noting that BTT's

certification expired after delivery of last DuPont cyanide shipped to the site in 2012, as discussed in Section 2.2.(1)(a) above];

- Kinross due diligence audits of the Port of Everett and FESCO, with independent reviews reports by MSS for both reports (approved in August 2009), and

- November 2009 ICMC certification audit for the CMGC Transportation Group.

Multiple examples of cyanide delivery records were reviewed for 2010, 2011, and 2012. Containers delivered to the site can be traced back to specific delivery convoys from the KM 21 storage area, a specific ocean voyage with a specific vessel, and specific consignments received from DuPont at the Port of Everett. Sea containers were sealed at the point of origin (DuPont Memphis, TN facility), and remain intact until opened indoors, in a delivery bay adjacent to the cyanide mixing area at the Kupol mill complex.

***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:***

No substantive changes have been made to CMGC's cyanide unloading, storing, and mixing facilities since the 2009 certification audit. Kinross's Corporate Environmental, Health and Safety (EHS) program is now part of an overarching Corporate Responsibility Management System, but corporate EHS standards for design and change control have not changed and still require that all project components involving cyanide be engineered to meet the applicable requirements of the ICMC. The Russian "Rostekhnadzor" (RTN) agency also requires the preparation and retention of construction certification packages for all aspects of the constructed facility, including those that involve cyanide. The process ensures that all constructed elements have been verified and meet the intent of the approved engineering design.

A number of minor facility improvements in various parts of the cyanide storage and mixing areas were noted. The storage area has been provided an upgraded lighting

system and a new security fence since the last audit, and a high-density polyethylene (HDPE) ventilation and exhaust line has been installed adjacent to the bag rinsing cabinet inside the mixing area. The new ventilation line is powered by the same exhaust system that is used for the storage tank, which is vented outside of the mixing area building wall. Minor cracks and corrosion in the secondary containment were seen to have been repaired with epoxy compound, and high-strength solution valves are fitted with lockout devices. Prior to the submittal of this report, additional minor corrosion and concrete repairs were completed and a new video camera was also installed that permits security to monitoring mixing activities; it is understood that a second monitor is planned to be installed in the central operational control room.

Cyanide containers are stored in a secure open storage approximately 6 km north of the mill complex. Apart from the man camp (0.5 km from the mill), the nearest permanent settlement or village (Ilirney) is approximately 65-70 km distant, between Kupol and the town of Bilibino. During summer months, there are no surface waters within several hundred meters of the storage area, and the temperature is well below freezing 8 to 9 months out of the year.

The secure storage area has not been changed substantially since 2009, and consists of a rectangular gravel pad underlain by a layer of impermeable HDPE that drains to a sump. Sealed intermodal containers of cyanide arriving by ice road convoy are placed on the pad by a Terex reach stacker. The perimeter of the pad is secured with a steel multiple-strand barbed wire fence and two locked and sealed gates and the area be physically guarded 24 hours a day, 7 days a week. The fence and lighting in the area has been upgraded since the 2009 audit. In summer, the sump is periodically inspected for water accumulation, tested for cyanide and pumped dry if no cyanide is detected. Records indicate that there have been no detections of cyanide in the sump to date. Inspection records were maintained in logbooks and retained in the guardhouse, and were available for the previous 3 years.

Shipment between the secure storage area and the mine is carefully controlled. A pilot vehicle travels ahead of the truck, followed by armed guards. Container unloading practices in the mill were essentially the same as observed in the 2009 audit. The container is currently unloaded in a receiving area immediately adjacent to fully contained cyanide mixing and storage room. The plywood crates moved into the mixing room by forklift and temporarily stored (stacked no more than 2 high). The container is entirely within the mill building when the transfer occurs. No plywood crates of cyanide are permitted to be stored outside of the mixing room.

High level alarms are installed on both the mixing and storage tanks that are monitored from the mill control room. The cyanide mixing and storage tanks are located within a dedicated concrete impoundment in a fully enclosed room in the reagent section of the mill building. The impoundment contains a sump with a dedicated pump; all wash-down

water is returned to the mix tank. Visual inspection of the impoundment indicates that it has been well maintained since the last audit. Fumes from the mixing and storage tanks and bag rinse cabinet are collected and routed through an exhaust fan and scrubber system before being vented to the atmosphere, and the room has a large rollup door that can be raised in an emergency.

**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:***

There have been no substantive changes to the training program and orders of instruction used for the management of cyanide in the cyanide unloading and mixing process since the 2009 audit. CMGC continues to maintain a comprehensive "Training Manual for Mill Maintenance Employees on Reagent Mixing" which addresses the operation of all valves, ventilation systems, and pumps used for mixing cyanide. In addition to standard forklift/crane operator training programs, Orders of Instruction have been generated for the handling of intermodal containers (at both the offsite storage compound as well as the unloading area within the mill) and plywood crates containing cyanide briquettes.

Orders of Instruction limit the stacking of both plywood crates and intermodal delivery containers to no more than two high. No intermodal containers are returned to the cyanide producer. CMGC owns the containers, which are swept and inspected after unloading and released to warehousing for other use. The procedure for plywood crate and packaging disposal has not changed substantially since 2009, except that the winter burn area was a designated pit dug into the snow rather than the fenced enclosure observed in the summer of 2009. Knocked-down plywood crates, rinsed bags, and other packaging residues are stored in a designated area within the mix room and transported to the burn pit at least once per shift. Prior to the submittal of this report, CMGC improved winter burning practices to employ a modified intermodal container as a burning bin, which can be used in both winter and summer. The burn bin area is posted with appropriate warning signs and no other materials are permitted to be burned.

The "Training Manual for Mill Maintenance Employees on Reagent Mixing" addresses the operation of valves, ventilation systems, and pumps used for mixing cyanide, as well as proper personal protective equipment (PPE) requirements, the use of the bag rinsing system, requirements for washing down the mixing tank hoppers after a mixing event, and for accumulation of rinsed bags and packaging materials pending transport to a

designated incineration area. Orders of instruction include directions on use of PPE and cleanup of any spills incurred during mixing. The "Training Manual for Mill Maintenance Employees on Reagent Mixing" also specifically assigns two operators are assigned to each mixing event; progress is closely monitored by the operations office using automated control systems and radio communication with the operators. As noted in 3.1 above, prior to the submittal of this report, a new video camera was also installed that permits security to directly monitor mixing activities; a second monitor is planned to be installed in the central operational control room.

***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:***

The mineral extraction processes observed in the 2009 certification audit are essentially the same, although some modifications have been made for improved efficiency and safety. The CMGC mill is currently undergoing an expansion in capacity (from 3,000 t/d to 4,500 t/d) in anticipation of ore shipments from the Dvoinoye deposit. Cyanide facilities currently include:

- the secure storage area for intermodal containers of cyanide briquettes
- cyanide mixing/storage circuit;
- leach circuit (6 leach tanks; one has been added since the 2009 audit);
- Counter Current Decantation (CCD) circuit (5 thickener tanks);
- Merrill-Crowe circuit (3 clarifiers and a Merrill-Crowe tower, with one additional clarifier observed to be in the process of being installed);
- one pregnant solution tank;
- one barren solution tank;
- a newly constructed hypochlorite-based cyanide detoxification circuit in an extension of the mill building (foundations were under construction during the 2009 audit);
- the tailings head tank;

- a reclaim water tank;
- the Tailings Storage Facility (TSF);
- tailings delivery, distribution, and reclaim water pipelines, including a reclaim barge and booster station (a new booster station is under development in order to manage the anticipated increase in tailings volume from the mill expansion project);
- surface water diversion earthworks upgradient of the TSF; and
- associated pumps, piping systems, and secondary containments.

CMGC has developed and implemented a robust suite of management and operating manuals, plans, regulations, and instructions that pertain to all of the cyanide management facilities noted above. In addition to the operating manuals and regulations, other work "Instructions" are required to be prepared pursuant to Russian law that provide detailed procedures and requirements for undertaking specific tasks that involve cyanide. These "Instructions" address specific task training needs, PPE and other work safety requirements; pre-work checks; safety measures applicable to specific tasks; emergency response requirements; first aid, and task completion requirements. It is understood that CMGC reviews and updates these Instructions as needed to incorporate operational changes reflected in the higher-tier regulations and training manuals.

CMGC converted its Excel©-based Preventative Maintenance (PM) program to JD Edwards automated software in 2009 and 2010. The system documents specific planned PM actions for critical equipment as well as unplanned PM actions and the tracking of associated work orders, and permits the generation of PM history on specific equipment items. Historical data from the old system remain available for reference purposes. Sample PM records were reviewed for 2009 through 2013.

CMGC's inspection program is essentially the same as observed in 2009. The cyanide container storage area is physically inspected by the security guards every two hours; the runoff collection tank at the storage area is also inspected by environmental department staff at least weekly. All process circuits and the TSF are inspected at least once per shift. Copies of process control records and logbooks for 2009 through 2013 are retained on file. Ultrasonic thickness testing is performed annually on the mixing, storage, leach, and CCD tanks; all testing is conducted by a specialty subcontractor (Ultron), and reports remain on file.

There have been no substantive changes to CMGC's change management processes in the years since the 2009 certification audit. Kinross's Corporate Responsibility Management System (CRMS) requires that all infrastructures involving cyanide be designed and constructed in compliance with ICMC requirements, and that location-specific project aspects be evaluated in terms of hazard identification, hazard mitigation, potential occupational health and safety exposures, and other criteria. The

"Management of Change" element of the Kinross CRMS requires that the environmental, health and safety aspects of a major facility change be identified, evaluated, and appropriate control measures developed before a change is implemented. Mining operations are considered to be intrinsically hazardous under Russian law, and significant facility changes require advance review and approval by RTN before a CMGC AFE can be processed.

CMGC had completed the expansion for the new calcium hypochlorite mixing system observed in the 2009 and has undertaken a number of other plant improvements and modifications that have required RTN review and approval and subsequent AFE review and approval processes. These include:

- placement of light welded steel covers on all leach tanks, the CCD tanks, and thickener;
- addition of a solution clarifier for the Merrill-Crowe system, required in order to accommodate the increased throughout requirements for Dvoinoye ore;
- intermediate raises to the tailings dam conducted in the summers of 2009, 2010, and 2012; and
- construction of a new reclaim water booster pump facility (ongoing).

Minor facility or process changes costing <$5,000 are typically requested by the manager of the affected area, discussed with the affected operational managers as well as the environmental and H&S managers, and prepared as an "Order of Regulation" or directive, signed by the Deputy General Manager and endorsed by affected managers and operators after completion of training discussions.

CMGC has a contingency procedure for managing TSF water during temporary closure or cessation of operations. CMGC have assessed the capacity and storage time for the TSF in 2013 and determined that at current crest height (555 m), if the mill were to shut down, approximately 60 months of storage capacity (2,500,000 $m^3$) would be available. The height of the dam will be raised to 560.5 meters in 2014.

The Kupol Leach Operator Manual and Merrill-Crowe Operator Manual are still in effect (last update: October 2012) and provide emergency shutdown procedures for the leach circuit, CCD thickeners, cyanide detoxification circuit, solution tanks, the Merrill-Crowe system, as well as other specific actions to take in response to power failures.

CMGC converted its Excel© -based preventive maintenance (PM) program to JD Edwards automated software in 2009 and 2010. Historical data from the old Excel© system remain available for reference purposes. The electrical and instrumentation maintenance groups performs PM and any required calibrations for the primary and

emergency generators, electronic tank level indicators, HCN monitors, and electronic cyanide and pH sensors. PM programs include the wall thickness testing program for major process solution tanks as well as thickness testing of the tailings and reclaim water pipelines.

Inspection documentation practices are essentially identical to those observed in the 2009 certification audit; process inspections are documented on checklists, and TSF inspections through an array of logbooks. Security inspections are record in a logbook, and weekly environmental inspects are record in the environmental monitoring database (and summarized, as appropriate, in monthly environmental reports). All forms and logbooks provide for the identification of the operator performing the inspection, the date of the inspection, as well as any observed deficiencies and corrective actions.

Power generation practices are also identical to those observed in the 2009 certification audit. Kupol generates its own power using diesel generators located at the mill. A separate emergency powerhouse is located at the camp facility, and a dedicated backup generator has been installed at the pump-back sump. The emergency generators are only used during a complete failure of the main powerhouse supply. Additional mobile (containerized) generator sets are available for emergency use.

**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:***

The methods CMGC uses to control cyanide addition rates are the same as were observed in the 2009 certification audit. Cyanide concentrations are measured continuously and automatically at the No. 1 and No. 2 leach tanks, and mill operators perform manual titrations at all the leach tanks every two hours. Test results are evaluated by the Chief Metallurgist and an Assay Report for Daily Metallurgical Summary is generated on a daily basis, which summarizes gold and silver grades at various points in the process, as well as post-leaching cyanide concentrations. Cyanide addition is optimized to meet specified doré recovery level requirements.

**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:***

AMEC originally developed a comprehensive, probabilistic water balance model for the site in 2007 using Microsoft Excel© software. The model has been maintained continuously by AMEC (Burnaby, BC) under a long-term contract. CMGC provides site-wide monitoring data, primarily focused on TSF inputs and outputs. On a monthly basis (or more often if necessary in response to a specific project need) AMEC conducts a model update, recalculates the elevation and volume of the water and tailings in the TSF, and advises CMGC of any issues requiring corrective or preventive action.

The TSF is a zero-discharge facility, and the impoundment is designed with sufficient capacity to store average annual net water inflows, a 200-year return period, and a probable maximum flood (PMF) event, with adequate freeboard maintained over the life of the mine. When the water balance model was developed, insufficient climatic data was available at the Kupol site to allow correlation with regional meteorological stations, as climate records at the Kupol site only began in 2003. Two surrogate meteorological stations (one at Ilirney and one at Ostrovnoye) were used for initial model calibrations. Kupol began providing actual site meteorological data to AMEC in 2009; all meteorological data for the model are now generated on site.

CMGC has completed installation of all surface water diversion structures (noted as in process s during the 2009 certification audit), as well as installation of flowmeters to provide real data for the model. The stormwater diversion system consists of structures along the west and north upgradient sides of the TSF that serve to intercept and convey stormwater around the facility. The surface water diversions are designed to convey the peak discharge from the 1 in 200-year, 24-hour storm event while providing 0.3 meters of freeboard as well as a 0.3 meters allowance for ice accumulation. The model conservatively assumes that these structures will fail during a PMF and all diversion flow would be to the TSF. The model also incorporates predicted freezing and thawing conditions on the accumulation of precipitation based on climate data from the Kupol meteorological station. The data are used to predict monthly runoff distribution including thaw conditions in the spring (June/July) and winter freeze-up.

The primary seepage barrier for the TSF impoundment is permafrost. The base and upslope of the rockfill dam is lined with a bituminous liner, which serves as a barrier to seepage through or beneath the dam. Any seepage or runoff from the from the tailings dam is collected within a pump and pumped back to the reclaim pond.

The water balance model does not need to consider the effects of potential power outages or pump and other equipment failures, as the tailings stream form the mill would immediately cease. The TSF also stores acid generating (AG) and potentially acid

generating (PAG) waste rock. However, the estimated volume of AG/PAG was accounted for in the original design of the impoundment and is not included in the model.

A minimum of 1.5 meters of freeboard is provided above the resulting tailings and water level, comprising 1.0 meters for storage of a PMF event, plus 0.5 meters for waves above that level. This freeboard allowance is based on the Canadian Dam Association design criteria. CMGC calculates a new freeboard elevation with each new dam lift.

**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:***

There have been no major changes in solution pond infrastructure since the 2009 audit; there are no open solution ponds other than the TSF. All tailings are treated prior to deposition using a calcium hypochlorite-based detoxification process to achieve the ≤ 5 mg/l Total cyanide and 10 mg/l thiocyanate discharge limits. The detoxification process is very effective over the past 3 years and performance appears to have been steadily improving.

There have been no cyanide-related mortalities observed since the 2009 certification audit. One wolf mortality was reported in this time period, but did not occur near the cyanide storage area or the TSF and is not attributed to the storage or use of cyanide.

**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:***

The TSF is designed and operated as a closed system with zero discharge to surface water or groundwater. The primary seepage barrier for the impoundment is permafrost. Additionally, the base of the rockfill dam is lined with a bituminous liner, which serves as a barrier from seepage through or beneath the dam. Any seepage from the tailings dam, along with surface water from the tailings dam face and adjacent slopes is collected within the pump-back sump and pumped to the reclaim pond.

No indirect discharges have occurred in the past 3 years that have caused cyanide concentrations in surface waters to rise above the numerical regulatory standard (0.05 mg/L Total CN) established by the government for protection of the beneficial use of surface water for aquatic wildlife (i.e., a "Fishery Basin" standard). Records reviewed of sampling conducted after the 2010 seepage incident showed that Total cyanide levels remained below the regulatory standard.

**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:***

There has been no change in the overall containment strategy in effect at Kupol since the 2009 certification audit. All major cyanide management facilities upstream of the tailings pipeline are within the mill building and are provided with concrete secondary containments, which are subject to routine inspection. A number of containment crack repairs have been made since the 2009 audit, and completion of additional repairs made prior to the submittal of this report were verified by review of site photographs.

Tailings and reclaim water pipelines are constructed of HDPE material and are located above ground to facilitate regular inspections for potential leaks. The tailings booster pumps are also located inside a small building with concrete containment, upgradient of the TSF. It was noted that a new tailings booster pump building was under construction to accommodate increased flows anticipated from the processing of Dvoinoye ore, and is also provided with concrete secondary containments.

The TSF is a zero discharge facility, constructed and operated to prevent or intercept seepage through the dam and the dam foundation. A causeway has been constructed north of the west abutment to enhance tailings beach buildup. The dam is designed so that any seepage from the tailings dam along with surface water from the tailings dam face is collected within a rock-lined sump and pumped back to the TSF supernatant pond.

An excessive seepage event was observed on the western face/toe area of the dam in the summer of 2010. CMGC responded by increasing the sump pump capacity in order to manage rising levels in the seepage collection pond. The incident was immediately reported to CMGC and Kinross management. Corrective actions included earthworks improvements to the rockfill berms on the pump-back sump; addition of a dedicated

backup generator at the pump-back sump pump station; addition of a temporary tailings discharge line to the west abutment (to increase tailings deposition above the suspected seepage source); strength and integrity testing of all emergency pumping operations; additional earthworks to stabilize and improve access to the seepage area on the dam face; and to increase the number of water quality monitoring samples from the sump and downgradient surface water monitoring points and monitoring wells. An independent review of the TSF design was also undertaken by a qualified geotechnical engineer. The engineer's report noted that thermistor data indicated that the seepage path was likely through ice-rich relic rock joints under the liner near the west abutment, in areas of fractured, poor quality bedrock. The data also suggest that there may be been some foundation thawing on the west side of the dam.

Following the engineer's recommendation a 50 m+ tailings beach was constructed against the west abutment. A causeway was built in 2011 to help facilitate the development of a beach in this area. Color tracer tests were then conducted and confirmed that particle transport in seepage was minimal. Thermistor monitoring is continuing, as is monitoring of seepage volume, and the clarity and quality of seepage water. Discussions with CMGC and Kinross management indicate that the seepage situation has stabilized and is slowly improving as the localized tailings beach is being developed over time. It should also be noted that CMGC has also conducted a detailed bathymetric survey which has been used to delineate preferred deposition points for the tailings deposition planned for the summer of 2013; these have been submitted to AMEC for technical review and implementation is pending.

Spot-checks of environmental sampling data from groundwater monitoring locations for 2010, 2011, and 2012 were made. Total cyanide levels in the samples reviewed were less than the detection limit (<0.002 mg/l). The officially-designated maximum beneficial use of groundwater downgradient of the TSF is classified as "Potable", as was the case in 2009. The maximum allowable concentration of Total cyanide for this water classification is 0.035 mg/l, per the applicable Russian Federal standard.

CMGC does not currently use mill tailings for underground backfill. However, in discussions with the Mill Chief Engineer it was noted that a test program was under way to assess the future potential for paste backfill in the underground using a combination of tailings with a cement binder.

**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:***

As noted in the 2009 certification audit, all cyanide mixing, storage and process tanks are located inside the mill building, within concrete secondary containment; cyanide is purchased only in solid form, so there are no unloading tanks to be considered under this standard of practice. The new detoxification plant building (under construction in 2009) has its own concrete secondary containment, sump, and automated spillage return pump. The foundations for all cyanide mixing, storage, and process tanks (except for the pedestal foundations used for the CCD thickener tanks) are massive concrete pads; ring beams are not used. Each containment area has its own spill collection sumps and solution return pumps and pipelines. The area of the building with the six leach tanks, CCD thickener tanks, and the pregnant and barren solution tanks is hydraulically linked (via overflow) to the adjoining concrete containment areas provided for the tanks in the grinding circuit. The process components of the Merrill-Crowe circuit located outside of the refinery include the four solution clarifiers (one of which had just recently been installed) and the Merrill-Crowe tower. These vessels are located in an area of the mill building that has a reinforced concrete floor and stem walls, and a concrete floor sump with an automated pump to return spillage to the CCD thickener.

Prior to submittal of the certification audit report in 2009, CMGC completed modifications to the concrete curbing and stem walls within the mill building in order to hydraulically link adjacent containment areas and increase the aggregate secondary containment volume to the minimum levels suggested under standard of practice 4.7(2). As part of these modifications, a raised concrete ramp was created at the entrance to the cyanide offloading bay and mixing room, which served to isolate the primary containment area. The steepness of this ramp proved to be a safety hazard, however. The ramp was therefore removed and an emergency gate created that could be lowered by overhead crane as necessary to provide the level of containment required by the ICMC in event of a spill. The gate was constructed of reinforced plywood with rubber sealing surfaces and was designed to fit into welded steel channels mounted on either side of the passageway into the mixing area. Gate width was equivalent to the height of the former concrete ramp. Discussions with the Mill Manager and Chief Mill Engineer indicate that to date, there have been no spill events that have required the gate's use.

Secondary containment arrangements for cyanide mixing, storage, and process tanks have not changed since the 2009 certification audit except for the completion of the detoxification plant building extension, which has its own dedicated concrete containment, and the "emergency gate" modification discussed above. All tanks are located inside the mill complex buildings within interlinked concrete secondary containments. The process circuits are physically separated into four areas, each with its own concrete containment, collection sumps and dedicated pumps. Containment in excess of 110% of the volume of the largest contained tank can be demonstrated for all cyanide mixing, storage, and process tanks. One major tank (an additional leach tank)

and an additional clarifier for the Merrill-Crowe system have been added within the impoundment as a result of the expansion required to process Dvoinoye ore, but their dimensions are identical to previously installed tanks. As the grinding bay is also now interlinked to the mill building and refinery containments (which makes an additional 1,271 $m^3$ available with the emergency gate installed), in the auditors' judgment, any loss of capacity in the leach area containment due to the installation of an additional leach tank within the containment is considered negligible.

Procedures for management of cyanide solution are essentially the same as those observed in the 2009 certification audit. The secure cyanide container storage area is bermed and lined with a geomembrane reporting to a steel accumulation tank. When snowmelt occurs, surface runoff is collected in the tank. Accumulated runoff is periodically sampled by the environmental department; if tests for cyanide are negative, the tank is pumped out and the water discharged to the environment. Cyanide has never been detected in the sump, however.

There has been no substantive change to the layout of process solution or tailings/reclaim pipelines since the 2009 audit. All cyanide process pipelines are located within concrete containment inside the mill complex buildings, as previously noted. The tailings and reclaim water pipelines between the mill and the TSF are located above ground alongside the roadway to the TSF. The pipelines pass through corrugated culverts at all roadway crossings. Diversion structures and catchment basins have been constructed to direct or capture potential pipeline leaks, which would ultimately drain to the TSF. Procedures for responding to leaks are included in the ERP for the TSF.
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The tailings pipeline system consists of one primary and one backup HDPE pipeline, with only one of the pipelines in service at any given time. There is a drop in elevation of approximately 156 meters from the mill the TSF, so tailings flow must be managed to prevent excessive wear to the pipeline; a tailings choke station has therefore been installed in a heated building, with concrete secondary containment provided. Two HDPE reclaim water pipelines have also been installed. A booster pump station has been located adjacent to the choke station; a new larger capacity booster pump station was noted to be under construction in order to accommodate reclaim water flow increases related to increased mill throughput from the processing of Dvoinoye ore. Reclaim water pipelines lines are heat-traced to prevent freezing.

CMGC continues to use steel and HDPE for construction of pipelines and tanks that contact; these materials are appropriate for cyanide and high pH solution service. All cyanide tanks (including the new leach tank, Merrill-Crowe thickener, and welded covers for major tanks observed during this audit) are all made of steel.

**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 2009 certification audit, CMGC has routinely implemented Quality Assurance and Quality Control (QA/QC) programs during construction and modification of new cyanide facilities. Russian regulations require that all industrial facilities classified as "hazardous" (including mines and mineral processing facilities) be constructed according to design. RTN oversees the process for ensuring that these facilities are constructed according to appropriate design standards and technical specifications, and prior to commissioning, requires documentation certifying that all components of construction were completed according to appropriate design standards and technical specifications. This documentation is produced for major facility components and typically includes a "Passport" and one or several supporting "Acts." The Passport document describes the facility component and its technical specifications. The Act is the certification for each component associated with the facility covered by the Passport.

Review of the QA/QC documentation for the TSF verified that a qualified engineering company (AMEC) performed QA/QC overchecks during construction and prepared the final construction reports certifying that the facility and its subsequent raises were constructed in accordance with the design, as intended. These reports are signed by licensed professional engineers. The QA/QC documentation for the process facilities were certified by RTN-certified engineers or by engineering companies certified by RTN to perform such inspections.

All Passport/Act documents presented in the original certification audit remain on file. In addition, new Passport/Act documents were reviewed for the construction of the new detoxification plant, the installation of the new leach tanks, and the installation of steel covers on all leach tanks, CCD tanks, and clarifiers. Retention of original (2008) AMEC QA/QC program documentation for the starter dam was confirmed, and as-built construction inspection reports were reviewed for all subsequent dam raise construction.

**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:*

There has been no change in practice since the 2009 certification audit and the governmental water monitoring requirements remain the same. The environmental department conducts site-wide weekly inspections that include the cyanide storage facility and the TSF; inspection check sheets permit documentation of observations of wildlife or any wildlife mortalities. CMGC has continued to use a detailed, spreadsheet based monitoring schedule for all water quality monitoring locations; it provides the sample locations, sampling frequencies, laboratory parameters to be measured, sampling methods, and the laboratory to be used. A map showing the monitoring locations has also been maintained and kept up to date. GOST R 51592-2000 includes the requirements for the sampling equipment and the reporting of sample results; and procedures for sample preparation, storage, transportation, and receipt by the laboratory. CMGC maintains electronic copies of water quality sample logs, which note sample location, number, sample container requirements, field parameters, weather conditions, and analytical parameter. These logs are sent to the laboratory with the samples, and the laboratory provides a sampling protocol certificate with the analytical results in return.

Monthly water quality data from a downgradient surface water monitoring points show Total cyanide levels below the regulatory maximum allowable concentration (0.05 mg/l) for the past three years.

***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:***

CMGC developed an initial version of the “Reclamation and Closure Plan for the Kupol Project” in December 2008, which was updated in 2012 and is referred to internally as

the “Kupol Life of Mine (LOM) Reclamation and Closure Plan.” As noted in the 2009 audit, this plan originated with earlier versions that were developed to support the Kupol Project’s feasibility study and permitting process. The plan also addresses requirements under the sustainability element of Kinross’s corporate EHS Management System (now Corporate Responsibility Management System) that require development and maintenance of a current best estimate of actual ultimate decommissioning and closure costs that consider current LOM projections.

The “Reclamation and Closure Plan for the Kupol Project” incorporates updated operation information, and specifically discusses Russian regulatory requirements for decommissioning and closure. Based on the interpretations provided in the plan and confirmatory discussions with Kinross and CMGC management, Russian regulations strictly define a rigorous planning process that applies at the point of closure, and among other items requires commissioning of an appropriately licensed engineering firm to prepare the decommissioning and closure plan per the approved scope of work; presentation of the decommissioning and closure plan for expert technical review with respect to environmental, industrial safety, and mine safety considerations; implementation of the approved plan under the direction of a governmental closure commission; and submittal specific documentation as necessary to remove the closure mine from the government’s register of hazardous industrial facilities. Although kept current over the LOM, the plan will nevertheless have to be extensively updated at the point of closure to address the requirements of the Russian regulations. In the meantime, the existing plan does present a comprehensive approach to closure upon which third-party cost estimates and the final closure plan can be based.

**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:***

There have been no substantive changes in this standard of practice since the 2009 audit. Kinross’s corporate “Internal Code for Self-Insurance of Decommissioning and Closure Liabilities” is still in effect. This internal corporate-level code is designed specifically to address this ICMC requirement in nations such as Russia that do not impose specific financial assurance requirements. The (July 24, 2008) version of the code evaluated in the original certification audit was observed to be based on based on the requirements of the U.S. Code of Federal Regulations 40 CFR 264, and established:

- mathematical requirements for comparison of net worth to liabilities, adjusted net income to liabilities, and assets to liabilities;

- minimum requirements for capital or tangible net worth in multiples substantially greater than the estimated costs of decommissioning cyanide facilities, as determined by the ARO or KDL report;

- minimum requirements for tangible net worth; and

- minimum requirements for assets in multiples substantially greater than the estimated costs of decommissioning cyanide facilities.

The July 24, 2008 version of Kinross's internal code was updated May 29,2012 in order to better align the language defining net working capital (or tangible net worth) to Canadian accounting practices; no other changes were noted. This code defines the mathematical assumptions that are to be used to calculate the amount of the required financial reserve, and requires CMGC to demonstrate the sufficiency of financial assets for the latest estimates of cost for cyanide facility decommissioning. It also requires reasonable ratios of assets to liabilities, net working capital substantially greater than the sum of all cyanide-related decommissioning activities (from a periodically updated and independently audited estimate), a high level of tangible net worth, and assets substantially greater than the sum of all cyanide-related decommissioning activities. Financial assurance costs are based on the current ARO/ KDL estimate spreadsheet, and adjusted for the guidance provided in the ICMC, which specifically excludes physical stabilization, revegetation, long-term seepage management, and environmental monitoring. Kinross's available financial resources are more than adequate to implement the cyanide management elements of the current decommissioning plan.

Kinross's internal code also requires verification of internal code implementation with an annual audit of the calculations resulting in the financial assurance figure by an independent financial auditor in accordance with current Canadian chartered accountancy standards. Discussions with Kinross management personnel and review of signed reports from a major chartered accounting firm indicate that such independent audits were satisfactorily completed in 2010, 2011, and 2012. These reports confirm that the method used for calculating financial assurance reserves was determined to be acceptable. The accounting firm's professional certification status was confirmed by verification of its membership in the Institute of Chartered Accountants of Ontario; the latter organization is authorized by Canadian statute to act as a regulating body for charter accountancies.

***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:***

Operating manuals for each area of the plant form the basis of CGMC's operator training program. Each manual includes general operating procedures common to all areas and task operating procedures specific to the subject area of the plant. General procedures include worker safety, emergency evacuation, accident reporting, use of fire extinguishers; work permits, confined space entry, use of emergency showers and eye washes, and spill response. The area specific procedures describe tasks for equipment operation and process control. In addition to the operating manuals there are work "Instructions" that provide detailed procedures and requirements for undertaking specific tasks that involve cyanide. The layout of these Instructions is dictated by the Government and includes sections that address task training needs; PPE and work safety, pre-work checks; safety when performing specific tasks; emergency response and first aid; and safety on completion the work task. CMGC reviews and updates these Instructions as needed to incorporate operational changes.

The use of appropriate PPE is a workplace requirement for all employees and contractors. In addition to hardhat, steel toed boots, reflective vests and safety glasses is also a requirement for workers to wear personal protection such as rubber gloves, coveralls and appropriate respirators when undertaking specific tasks or when working in specific areas where there is a risk of exposure to cyanide.

The requirement for pre-work safety checks is included in the "Instructions". If non-routine work is to be carried out on units which contain or convey hazardous materials or there is a potential for toxic gases or ventilation issues a work permit is required. The permit requirements include assessment of the job hazard, PPE requirements, instruction to workers and worker sign-off, and approval by the mill manager before work can commence. The 5-Point Safety Program in place since 2009 includes pre-work inspection and safety checks before, during and after completion of the work.

The "Project Design" element of Kinross's corporate EHS Management System requires that all components involving cyanide be designed and constructed in compliance with ICMC requirements. The same section also requires that location-specific project

aspects be evaluated in terms of hazard identification and mitigation, potential industrial hygiene exposures, and other critical factors. The "Management of Change" element of the EHS Management System requires that the environmental, health and safety aspects of a major facility change be identified, evaluated, and control measures developed where necessary before a change is implemented. CMGC fulfills these requirements in the execution of AFEs for major facility changes. Because mining operations are considered to be intrinsically hazardous industrial operations under Russian law, all such changes required advance review and approval by RTN.

With regard to more minor changes in the site's existing processes and operating practices costing less than $5,000, proposed changes are documented by the manager of the affected area, discussed with the affected operational managers as well as the Environmental and HSE Managers, and prepared as an "Order of Regulation" or directive, signed by the Deputy General Manager and endorsed by affected managers and operators after completion of training discussions.

CMGC strongly encourages workers to provide input to improving workplace safety by promoting discussion during weekly safety meetings and through the 5-Point Safety program which promotes workers to identify and discuss safety issues and improvements with their supervisors. In 2012 CMGC rolled out the Risk Reduction Program at Kupol, whereby employees are encouraged to input (anonymously if they wish) any safety concerns they identify into the system via electronic kiosks that are located in the process plant, camp, and administration office. Each concern is reviewed by a moderator (Senior H&S Manager) and the actions are assigned to a responsible person(s) and tracked to completion. The "Kupol Bucks" recognition and awards program also provides an additional incentive to workers showing demonstrated commitment to health and safety, including completeness and authenticity of filled 5-Point cards and work permits, and to observance of safety measures and risk identification and reduction.

**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:*

To prevent the generation of HCN gas and optimize the efficiency of the sodium cyanide extraction process, the leach circuit is maintained between pH 10.5 and pH 11.5. Lime is added at the pre-aeration tank as required to ensure that the pH of the slurry entering

the leach circuit is maintained. Further pH meters are set to automatically add lime as needed if the slurry drops below pH 11.4. Manual samples are collected from the leach tanks twice each shift (four times a day) for pH and cyanide analysis. The mixing procedure also requires that the barren solution entering the mix tank is maintained between pH 11.3 and 12 and the control room does not allow a mix to begin if this pH is not met. The importance of maintaining pH in the cyanide circuit is emphasized in the awareness training provided to all mill workers as well as in the operating manuals.

Fixed HCN monitors are installed in the Cyanide Mix Room, Leach area, Merrill Crowe area, CCD, and Cyanide Destruct Plant area, where CMGC determined there is a potential for hydrogen cyanide gas generation. The units are each equipped with visual and audible alarm systems that alarm at HCN concentrations of 4.7 ppm and 10 ppm. The monitors are calibrated on a six-month schedule as recommended by the manufacturer. In addition, CMGC uses portable HCN meters to monitor 17 locations about the mill for HCN gas on a 10 day schedule. The 2010 records showed elevated HCN levels (2 to 3 ppm) in the vicinity of the CCD and leach tanks. Because these levels exceeded the 0.3 ppm Russian 8 hour threshold, in 2011 CMGC installed covers on each of the CCD and leach tanks to reduce HCN levels in the mill. This initiative has been successful, as since installation of the covers, the 17 point monitoring records show that HCN levels in the mill, with few exceptions, have remained less than 0.3 ppm. These low levels are further maintained through good controls and an effective ventilation system. In addition to the fix monitors “Instructions” require portable monitors be used in areas and on tasks where there is a potential for exposure to HCN gas.

A formal respiratory protection training program was initiated in 2009 that covers use of dust masks, gas respirators with dust/chemical canisters, and self-contained breathing apparatus (SCBA). All employees that work with cyanide are provided with two full face gas respirators (one for backup) fitted and complete respiratory protection training annually. General Instructions require canisters to be changed out after a total of 60 minute use in atmospheres where HCN ranges between 9 and 11 mg/m$^3$. Workers are required to log respirator use and canister change out. Four SCBA units are stored in the chemical spill emergency response equipment container for use by the emergency response team (ERT) and two units are stored at the control room in the event of an emergency to permit control room operators to shut down critical equipment.

Cyanide warning signage is clearly posted at entrances to the mill, entrance to the cyanide mix room, on the cyanide mix and storage tanks, the leach and CCD tanks, the Merrill Crowe units and the cyanide destruct chlorination plant, at the booster pump station, seepage collection ponds and on the entrances to the reclaim barge pump house and on the gate and fencing around the cyanide storage compound. The high concentration cyanide lines in the mix room and between the mix room and the leach circuit were also clearly identified with labels and colour coding for easy identification. The cyanide lines were also clearly marked with flow direction arrows.

Smoking is only permitted at designated locations at the Kupol mine site. No smoking signage was observed to be prominently posted at the entrances to the mill. As part of induction training and annual knowledge refresher training workers are instructed on the hazards associated with eating, drinking and smoking where cyanide is used and that these activities are prohibited in the work place.

Shower /eye-wash units are located in areas where there is a potential for exposure to cyanide. The units are painted yellow for easy recognition and are regulated to provide a safe operating flow. There is also a portable eyewash station located in the reagent storage area outside of the cyanide mix room and near the chlorination plant. The water at these stations is changed out every three months. Showers and eye wash stations are checked and tested daily during each shift, and spot checks are as made during supervisor, safety and mill manager scheduled inspections. Inspections are recorded in an inspection log book maintained in the control room.

All fire extinguishers in the cyanide use areas are dry chemical ABC extinguishers. Instruction prohibits the use of carbon dioxide extinguishers in the mill. The Fire Brigade Commander is required to conduct monthly inspections of fire safety equipment. Any units that require maintenance are returned to the manufacturer for maintenance or replacement. In addition to wall mounted dry chemical extinguishers there are wheeled dry chemical units and a centralized water sprinkler suppression system in the mill. There is also a pumper truck for water and foam parked at the mill's fire hall.

MSDS for sodium cyanide are posted in strategic areas of the plant including the cyanide mix room, the titration station above the leach tanks, and in security office at the cyanide storage compound. In addition, written instruction on first aid response to cyanide exposure is posted at each of the first aid stations in the plant. This information is supplemented by information presented in the "Instructions" on properties of cyanide, requirements on personal hygiene and PPE when working with cyanide, and first aid response to cyanide exposure. The MSDS, signage and first aid instructions are written in Russian, the language of all the operators.

CMGC has a procedure in place to investigate and evaluate worker health and safety incidents that is unchanged since the initial ICMC verification audit in 2009. This procedure follows the requirements of Russian regulation and Kinross Corporate procedure. In Russia, all incidents involving cyanide are considered safety incidents and are reportable through the regulatory driven safety incident reporting process. In addition, CMGC follows Kinross corporate reporting requirements whereby all occupational injuries and illnesses, property damages, environmental damages, production delays, near miss events or any other events that may affect the efficiency of the operation are reported internally. No cyanide related safety or environmental incidents have occurred at the plant in the three years since the initial certification audit.

**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:*

Water, medical oxygen, antidote kits and a means of communication or emergency notification are readily available for use. Shower /eye-wash and portable eyewash stations are located in areas of the mill where there is a potential for exposure to cyanide and other hazardous chemicals. Antidote kits are available in refrigerated first aid boxes located at strategic points in the mill where cyanide is present, in a refrigerator in the control room, and at the medical clinic as part of the paramedic emergency response kit. The antidote is manufactured in the Ukraine and was being stored and replaced every 6 months as directed by the manufacturer. Medical oxygen is kept with the paramedic emergency response kit and in the emergency centre at the mill. The medical oxygen is and the first aid cabinet contents are inspected monthly. Management personnel and shift foremen are issued with radios and the control room has a fixed amplified radio to monitor radio traffic. There are phones located in the mill and most workers also carry cell phones. There is also a public address system in the mill to provide additional communication options. In addition, there is an alarm system in the mix room and reagent area that can be activated in the event of an emergency. Cameras are located around the mill for control room operators to monitor process areas. Workers are trained to notify their supervisor or the control room via radio or phone in emergencies.

CMGC maintains emergency response plans (ERPs), for the Processing Plant, Tailings Impoundment Facility and Reagent Storage Area and Road Reagent Storage, as required by regulation. Each of these plans detail specific response procedures for separate potential emergency scenarios, including cyanide spills and worker exposure or poisoning at the mill, reagent storage facility and on road to the reagent storage. All employees that work with cyanide are trained to recognize symptoms to cyanide exposure and in emergency notification and first aid, including use of amyl nitrite. Refresher or knowledge assessment training is undertaken annually. Symptoms of cyanide exposure and first aid response are documented in the ERPs and in the safety "Instructions" associated with cyanide related tasks. Rescue procedures and first aid for worker cyanide exposure are also posted at first aid stations located in the mill, mix area and reagent storage/cyanide unloading area. The ERT is specifically trained to respond to cyanide release emergencies. The ERT and the on-site nurses (paramedics) are available 24 hours a day to respond to cyanide exposures. The plans are reviewed and revised as needed by CMGC and reviewed and approved by regulators annually.

Because of the isolated location, CMGC maintains a medical capability to respond to most medical emergencies at the mine. As during the 2009 audit, there has continued to be a medical clinic at the camp which is manned 24 hour/day with a paramedic and doctor; or two paramedics, depending on the mine rotation. An aircraft is maintained and available 24 hour/day to evacuate, weather permitting, a patient requiring further treatment or observation at a regional hospital. Hospitals are located at Bilibino, Anadyr, Magadan and Pevek. These hospitals are aware and capable of treating cyanide exposure patients and the clinic is in regular communication with these hospitals. Russian Federal Law No. 323, dated 21 November 2011 requires all medical facilities to now provide emergency first aid without the need for a special agreement. As a result CMGC no longer needs to continue the formal agreement m with the regional hospitals in 2009.

The ERT undertake emergency response training composed of theoretical and practical training sessions. Mock drills are also conducted to test the response of workers in recognizing and correctly responding to an emergency situation (notification, evacuation and first aid) and the response performance of the emergency response team including security dispatch, ERT, medics and emergency coordinators. Drills undertaken during the past three years that have simulated cyanide emergencies have included: sodium cyanide spill when shipping from cyanide storage facility to the processing mill; sodium cyanide spill at the cyanide storage facility; sodium cyanide spill inside preparation facilities for cyanide solution at the mill; uncontrolled release of HCN gas, spill of sodium cyanide solution; and fire in the storage or in the reagent preparation plant. These drills have included both environmental spills and worker exposure. Lessons learned from the drills are incorporated into response planning.

## *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:***

CMGC maintains ERPs, for the Processing Plant, Tailings Impoundment Facility and Reagent Storage Area and Road Reagent Storage, as required by regulation. The ERPs are linked to specific emergency situations and the appropriate procedures and responses within the site's systems. The scope of the ERPs and associated procedures include all potential accidental releases of cyanide. Procedures and records were found in compliance by auditors. The ERPs identify credible emergency scenarios for solution and HCN vapors releases from tank failures and containment areas as well as, but not limited to impacts of power outages, fire, or other causes.

The Processing Plant ERP includes specific response procedures for 15 separate potential emergency scenarios, including six that relate to incidents that could involve cyanide. The Reagent Storage Area and Road Reagent Storage ERP includes specific response procedures for an additional four potential cyanide emergency scenarios; response procedures address both winter and summer conditions and potential HCN generation. The tailings impoundment ERP addresses six additional scenarios that include dam failure, pipeline or tailings facility leakage, and pump/choke station fire.

The cyanide shipping containers delivered to the Kupol mine are stored in a secure dedicated cyanide storage compound located approximately 6 km from the mill. The emergency response team at Kupol is responsible for responding to emergencies at the Kupol cyanide storage compound and along the road between the storage compound and the mill. The ERP provides response and clean up procedures in the event of impacts to soil, surface water, and contamination of snow in the event of a transport accident. It also addresses responses in the event that HCN is generated.

The ERPs include initial observer reporting procedures (radio call-in, telephones numbers); evacuation procedures and responsibilities; contact list and notification scheme of emergency response personnel, mine and corporate management, and government agency officials; cyanide first aid procedures; and specific response procedures for various emergency scenarios. The specific response procedures provide actions and responsibilities to address evacuation, response, mitigation, and clean-up. Following the emergency there are regulatory requirements to investigate the cause of the incident and implement measures to prevent a future occurrence.

**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:***

As the Kupol mine is in a remote location the mine has to be self-sufficient with regard to emergency response. The ERPs were developed and are maintained with input from senior specialists and managers at the mine, as well as paramedics and the voluntary fire brigade who provided input into the types of equipment and medical supplies required to effectively respond to an emergency. CMGC personnel are involved in the emergency planning process also by participation in the regular mock drill exercises. Cyanide is strictly regulated, and government involvement in emergency planning is required. The ERPs must be submitted to RTN annually for approval.

The operation is at a remote location, there are no communities in proximity to the operation to be affected. The closest community is greater than 100 km distant from the operation. The main stakeholders at the operation are therefore the federal and regional governments. In the event of an emergency CMGC is required to notify government agencies in Bilibino. Government agencies would be responsible for notifying communities as necessary. The ERPs provide a list of agencies and contact numbers.

CMGC have a MI-8 helicopter parked at Kupol at all times in the event that a medical evacuation is required. Government medical evacuation service in Bilibino is also available if additional evacuation assistance is required. If external medical support or follow-up care is required, medical facilities and care are available at regional hospitals in Bilibino, Anadyr, Pevek or Magadan. Because Russian emergency and medical resources are obliged to assist when requested no formal arrangements with external responders is required. However, external responders and regional hospitals have been made aware of situations where their services may be requested.

**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 TSF ERP designates the Tailings Superintendent as the emergency response coordinator (ERC). In his absence, the Process Superintendent is the appointed ERC. The Process Plant ERP designates the Mill Chief Engineer as the ERC and the Mill Process Engineer as the alternate. The ERP for the process plant provides a list of names of emergency response team members training with designated response responsibilities in the event of an emergency at the mill. It also provides lists of ERT members. The ERP for the TSF provides a list of key personnel with designated response responsibilities. A list of emergency response personnel is updated when

there is a crew change. An up to date list of emergency response personnel on call during night and day shifts is maintained at Security/Dispatch and the Control Room.

Training and certification of emergency responders is regulated by the Russian Government. Workers complete annual refresher training which includes review of emergency response procedures, and cyanide first aid. ERT members complete basic emergency response refresher training every 3 years. In addition, mock drills are conducted monthly. Each of the ERPs provides tables with the names of the designated coordinators or their rotational cross-shifts. The ERPs also include a table that provides 24-hour contact information of key officials and agencies (off-site phone and addresses) that must be contacted in the event of an emergency.

The ERPs detail the specific duties and responsibilities of coordinators, key personnel (officials involved in emergency response) and ERT members. The responsibilities of key personnel and the activities of the ERTs are also detailed within each of the emergency scenarios discussed in Section 7.1. Emergency response equipment is kept in containers located at the reagent storage compound, outside of the cyanide mix building, and at the tailing impoundment. Fire and mine response equipment is located at the fire hall. The paramedics keep emergency medical supplies at the clinic, including medical oxygen and cyanide antidotes. Emergency response equipment is listed in the ERPs. Lists are also posted in the emergency response containers.

The emergency response equipment inspections are conducted on a set schedule and inspection records are available for the past three years. An inventory check of equipment is required after an emergency. The first aid cabinets in the mill are sealed with a tag that is breaks if the cabinet is opened. The integrity of the cabinet seal is checked daily by the mill superintendent and inventoried if the seal has been broken.

Except for requesting support from government air medical evacuation and/or regional hospitals if medical evacuation or assistance is needed, the mine does not use outside responders. The 2009 formal agreement with regional hospitals is no longer required as Russian Federal Law No. 323, dated 21 November 2011 now requires all medical facilities across the country to provide emergency first aid without the need for a special agreement. The clinic has good relationships with the regional hospital and its affiliates and the operation is confident that the regional hospitals have the resources and expertise to provide any additional treatment and care to a cyanide exposure patient.

### 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.

Kupol Mine — Name of Mine
Signature of Lead Auditor
November 11, 2013 — Date

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

Each ERP includes lists of managers and regulatory agency officials that must be contacted in the event of an emergency. Initial response is notification by the observer to his superintendent and/or security dispatch. Security sets in motion the emergency response teams and contacts the managers listed in the plan. The Mine Manager contacts the General Director of CMGC who is responsible for contacting the regulatory agencies. Contact information is also provided for Bilibino and Magadan hospitals and emergencies services, if required. The operation is at a remote location and the closest community is greater than 75 km away. In the event of an emergency CMGC is required to notify government agencies in Bilibino. Government agencies would be responsible for notifying and assisting communities if any response measures were necessary. The ERPs provide a list of government agencies and contact numbers.

**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 ERPs provide instructions for remediation and decontamination of sites impacted by cyanide spills and disposal of impacted soils and materials. Soil and water remediation measures and on-going monitoring requirements are specified. Protection measures for the handling and use of cyanide treatment chemicals, including prohibiting the use of treatment chemicals in surface waters, is specified in the ERPs and is included in emergency response training. During the past three years lime in an aqueous solution has been the only chemical used by CMGC as a neutralization agent during spill response. Subsequent to the field component of the audit, procedures were modified to allow use of sodium hypochlorite in the event of a cyanide spill where there is not a potential for impact to surface water. This modification was made as Russian regulation requires sodium hypochlorite to be available for cyanide spill response. In the event a cyanide spill which affects the quality of surface drinking water in the surrounding area, an immediate search (10 km radius) will be conducted to identify, notify and relocate all human inhabitants from the affected area. Alternative potable water supply will be provided for those inhabitants.

Remediation and monitoring procedures in the event of solid and solution releases are detailed in an “Instruction”. The Instruction provides requirements on isolation and

neutralization of the spill, collection and analysis of samples, comparison of analytical results with regulatory standards, disposal of impacted materials/solutions, and backfill placement with clean fill where excavation was required. If a cyanide release occurs the Instruction requires implementation of an enhanced schedule for monitoring established control points on surface water bodies proximate to the mine for evidence of cyanide. This monitoring program would require expansion to incorporate new sampling points up and down stream if cyanide was detected. After an emergency response that has impacted surface water CMGC will implement an aquatic life impact assessment. The Instruction also provides detail on sample collection and analysis methods, and the use of independent outside laboratories for control.

**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 Russian legislation requires that the ERPs are reviewed annually and submitted for approval at the end of each year. The Mill Chief Engineer is responsible for maintenance of the plans. Revisions are tracked through the Order of Regulation process and training on the revised plan is provided and recorded in a log book. Separate committees are appointed by the Mill Chief Engineer to review each plan. Emergency response drills are scheduled on a monthly basis. These include table top and practical emergency response drills. Mock drills undertaken during the past three years have included: a sodium cyanide spill when transferring from cyanide storage facility to the processing mill; a sodium cyanide spill at the cyanide storage facility; a sodium cyanide spill during preparation of cyanide solution at the mill; an uncontrolled release of HCN gas, a spill of sodium cyanide solution; and a fire in the storage or in the reagent preparation plant. These drills have simulated both environmental spills and worker exposure. Although the drill records reviewed did document planned drill scenarios and emergency response actions during drills, CMGC was not recording drill debriefings, recommendations for improvements; and the tracking to completion those improvement actions. However; based on discussion such actions were being completed. Subsequent to the audit CMGC revised their mock drill procedure to include a record of the debriefing, a corrective action plan and tracking and sign-off process to address and record corrective actions identified during a drill.

Regulation requires ERPs to be reviewed annually, following incidents and emergency drills or when new information regarding cyanide becomes available. There is a requirement to investigate the cause of an incident and implement measures to prevent

a future occurrence. To date there have been no real emergencies so such a review has not been undertaken. However, critiques are made after each mock drill. These critiques have resulted in revisions being made to the ERP.

***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.

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

CMGC continues to provide site orientation and induction safety training to all new employees as a requirement of Russian regulation. Induction training is a 3 day program that includes safety training, rules of the company, first aid training, emergency response procedures, fire response and evaluation, use of PPE and hazard awareness training, including bad weather training. Those workers that work in areas where cyanide is handled are also required to complete cyanide safety training. This includes 30 hours of theoretical training and 8 hours of practical training. Cyanide topics include physical properties and behaviour of cyanide; hazard effects; ventilation; shipping, receiving and storage; mill operations utilizing cyanide; fire safety; emergency response, and environmental safety. The practical includes pre-work inspections, maintenance of reagent equipment, and medical first aid.

Workers, whose job function does not involve cyanide but who may enter and/or work in an area where cyanide could be present, are provided with cyanide hazard recognition training by their supervisor before being permitted to work in the area. Employees are also required by Russian law to complete a knowledge assessment annually and if off-duty more than 2 months. Employee knowledge assessment or job refresher training program is initiated by special order and is undertaken during December, January and February each year. For employees that encounter cyanide in the workplace this assessment program includes cyanide hazard recognition, first aid, PPE, fire response, confined space entry, and job task instruction. Each worker is examined by a committee with authority to certify workers. In addition, cyanide is periodically a safety training topic presented and discussed at weekly worker safety meetings.

Training records are maintained for each employee as a requirement of RTN. Each training program record includes a description of the course (breakdown of each class by subject and hours taught), names of attendees, signatures of instructors for each class, and certificate of completion for each employee. This requirement was verified through review of safety meeting minutes; training programs and log books; and training records for selected employees over the past three years.

**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:***

The Russian government is very involved in regulation and oversight of worker training programs. Guidelines on training requirements are set by government, and job training programs must be approved by RTN. CMGC has been licensed by the government to perform training in-house. If not licensed, a government trainer must be used. Training must be current and records maintained for CMGC to retain its license.

CMGC provides task training to all plant operators and has developed training programs for each operation at the mill and health and safety procedures for those operations. The components of these programs and the required hours of theoretical and practical instruction are detailed in the Operator Training Manuals. Workers have to pass an examination to the satisfaction of the examination committee before being permitted to work unsupervised. Certification is provided by qualified, certified trainers, approved by the examination committee, and usually selected from the superintendent level. On completion of training each workers knowledge is examined by an examination committee certified by the RTN Board based in Moscow.

Each training program is documented and includes a breakdown of the classroom and practical courses, a description of the topics covered and the hours allocated to each topic. Records of training courses provide the names of persons being trained, the signature of each instructor against the topic taught, and dates the training occurred.

CMGC's examination committee comprises five senior managers that have been certified by the RTN Certification Board in Moscow. Certification is based on education, experience and examination. The examination committee is able to appoint trainers and specialist instructors based on a process approved by RTN. The process involves review of education and experience of candidates. The examination committee is also

responsible for examining and certifying workers. Employees are also required by Russian law to complete a knowledge assessment or job refresher training annually and if off-duty more than 2 months. This requirement was verified through review of safety meeting minutes; training programs and log books; and training records for selected employees over the past three years.

CMGC has a formal task observation program in place that requires shift leaders to conduct a minimum of one task observation a month (resulting in approximately 12 task observations being performed each month). During a task observation workers are assessed against conformance to a job "Instruction". The observation record is signed by the worker, observer and manager. Records were reviewed for the past three years. In addition to formal observations workers are also evaluated on a daily basis by shift leader that are responsible for their safety and performance and by superintendents who are required to conduct at least one workplace inspection daily.

**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:***

Workers that may encounter cyanide are required to complete cyanide awareness training that specifically addresses cyanide hazards; HCN monitors and alarms; emergency response; and cyanide symptoms and first aid (including use of amyl nitrite). Workers also complete operator training specific to the operating area in which they work prior to being permitted to work unsupervised. This task training program includes procedures for, emergency shutdown of equipment; emergency response; emergency evacuation; and spill response. Knowledge assessments are undertaken annually thereafter. Cyanide unloading, mixing, production and maintenance workers are trained in emergency response procedures as part of their induction and operating task training.

The ERT have been trained and certified in basic firefighting, emergency response and first aid through the Civil Defence, Chukotka Region. ERT members also complete SCBA refresher training. The ERT undertake emergency response training composed of theoretical and practical training sessions. These include mock drills that are undertaken on a monthly schedule to test and improve emergency response skills for various emergency scenarios. In the past three years seven mock drills have been completed that have simulated cyanide emergencies. These scenarios have involved cyanide spills in the reagent warehouse and during transport; releases near the leach circuit, cyanide; exposure of victims to cyanide, and HCN gas releases. Mock drills are

evaluated and performance critiqued by the participants and facilitators following the drill. Based on the critique, recommendations for improvement are identified and action items are assigned. Where response skills are found inadequate, further training would be recommended. Training records for all training are maintained as a requirement of RTN. The records include the names of the employee and trainer, date of training, topics covered and the grade the employee achieved. Records are also maintained of government certifications received by trainers and emergency response team members.

Due to the remoteness of the mine the ERT are self-sufficient and have the equipment and personnel needed to address most emergencies at the site. The site maintains three fire crews each with a pumper truck carrying water and foam. There is also an ambulance parked at the emergency centre fire station in the mill for transport of injured to the medical clinic which is manned 24 hour/day. In the event of a medical emergency that requires further medical care or observation; CMGC maintains a helicopter at the airport for medical evacuation if required. In the unlikely event that an incident occurred that would potentially impact a nearby community or nomadic group that may be in the vicinity of the mine, CMGC would notify the State Board of Civil Defense and Emergencies in Bilibino.

### *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:***

As noted in the 2009 certification audit, although the Kupol project is in a very remote location, public outreach or consultation meetings are routinely held in different community locations throughout Chukotka AO several times a year. This precedent was established during the environmental and social impact assessment conducted during the permitting phase of the project. CMGC continues to conduct meetings in an open format that provides ample opportunity for stakeholder discussions and question/answer sessions in which questions or concerns on the use of cyanide could be raised. Detailed minutes from these meetings are kept, and action items identified for CMGC follow-up. Meeting attendees typically include local residents as well as regulatory authorities, town officials, representatives of indigenous peoples' associations, and the media. The

overall frequency of these meetings has increased in the last three years and has involved more interest from Pevek and interaction with smaller settlements and interactions with indigenous peoples.

CMGC has maintained its administrative and governmental liaison offices in Anadyr and Magadan, as well as logistics and public relations offices in Bilibino and Pevek. Personnel in these offices are able to field questions on the use of cyanide and refer them to management for review and further action. General information on cyanide and its use in gold mining has been prepared as a simple brochure, supplies of which are reportedly maintained in the various offsite office locations. CMGC policy is to respond to requests for information or potential complaints about cyanide or any other mining practice on a case-by-case basis, whether received in the context of a public meeting or other forum. No specific complaints or requests for information about the use of cyanide at the Kupol project have occurred to date.

### 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:***

Protocols are essentially the same as observed in the 2009 certification audit. CMGC voluntarily conducts periodic public meetings to provide information on the progress of the Kupol project. General information on cyanide management and CMGC's ICMC commitment are provided at all meetings. CMGC also provides copies of an updated two-page brochure that describes the environmental and health effects of cyanide, as well as its use in mining and CMGC's management practices for transportation and use.

In keeping with Kinross corporate policy, CMGC practice is to receive and respond to requests for information or potential complaints about cyanide or any other mining practice on a case-by-case basis, whether received in the context of a public meeting or other forum. The CSR Manager confirmed that no specific complaints or requests for information about the use of cyanide have occurred to date. In addition, since the initial certification audit, CMGC has maintained and updated a Russian-language website that provides general information about the Project, including the use of cyanide and CMGC's ICMC commitments. More detailed discussions of cyanide use are also provided in general and country-specific CSR reports on the Kinross corporate website.

**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:***

See 9.1 above; after completion of the original certification audit, CMGC developed an updated two-page brochure, in Russian translation that describes the environmental and health effects of cyanide, as well as its use in mining and CMGC's management practices for its transportation and use. This brochure may be openly distributed in response to specific requests for information. In 2011 Kinross Corporate also produced another brochure for Kinross employees that speaks to the use of cyanide and its ICMC compliance commitments. Additional information on cyanide use in mining and ICMC certification is carried on a Russian-language, Kupol-specific website; more information on the use of cyanide in mining is provided in Kinross's 2011 current CSR report on Kinross's corporate website. These reports are published every two years

Literacy is not an issue at the Kupol site; however, as observed in the initial certification audit, information on the management and use of cyanide is typically presented in public meetings in a verbal, visually supported format. Governmental agencies regularly use the media to advise the public about any such events, which is consistent with the practice noted in the initial certification audit. Primary liaison responsibilities are assumed by CMGC's Deputy General Director in Magadan, with Kupol management providing support as required. All reportable releases and all discharges off the concession boundary, reportable under regulatory conditions or not, are also reported to Kinross's Corporate Vice President, EHS, based in Reno, Nevada. Reportable spill data are also required to be collected by CMGC and reported to Kinross in monthly key performance indicator (KPI) reports; these data are ultimately made publicly available under the CSR section of the Kinross website, as well as the Environmental Performance section of Kinross's annual CSR report.