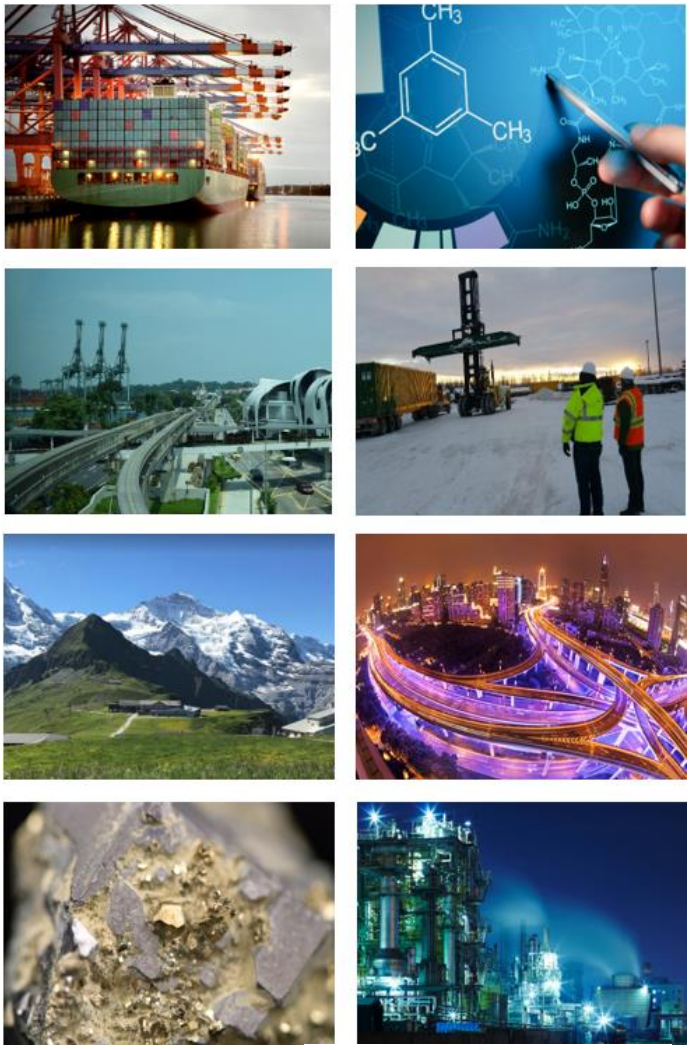
ICMI Cyanide Code Gold Mining

Summary Audit Report

Kinross Kupol Mine

Russia

2019 Re-Certification Audit



KINROSS

Submitted to:

The International Cyanide Management Institute

1400 I Street, NW – Suite 550

Washington, DC 20005

USA

MSS®

Code Certification Service

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Table of Contents

Company Names and Contact Information:

Company Name Mine Name and Location:	Kinross - CJSC Chukotka Mining and Geological Company Kupol Mine Legal Address: Rultyegina Street, 2B Anadyr, Chukotka Autonomous Region Russia, 689000
Contact information:	Gavin Jeffrey Ferguson Gavin.Ferguson@Kinross.com Vice President, General Manager, Kupol mine Alexander Cherdantsev Alexander.Cherdantsev@Kinross.com Vice President, Russia, Environmental, Health & Safety Phone: +7(4132) 220507 Magadan Representative Office

Location Detail and Description of Operation:

The Kupol Gold Mine is an underground gold and silver mine in the Bilibinsky District of the Chukotka Autonomous Okrug of Russia. The mine, which produces gold and silver dore bars, is 100% owned by Toronto based Kinross Gold.

Chukotka Mining and Geological Company (CMGC) is Kinross' wholly owned subsidiary operating entity for Kupol. Majority ownership of the mine was acquired by Kinross Gold Corporation (Kinross) in 2008 and has been 100% owned by Kinross since 2011.

The Kupol Gold Mine is located north of the Arctic Circle in the Chukotka Autonomous Okrug. The nearest town is 220 kilometers (140 mi) away. The mine is approximately 330 km (by air) south-southwest of Pevek and 1,230 km northeast of the town of Magadan. The Kupol property covers 1,767 ha, with adjacent areas being Kupol West, Kupol East, Kupol North and Levo-Mechkereva.

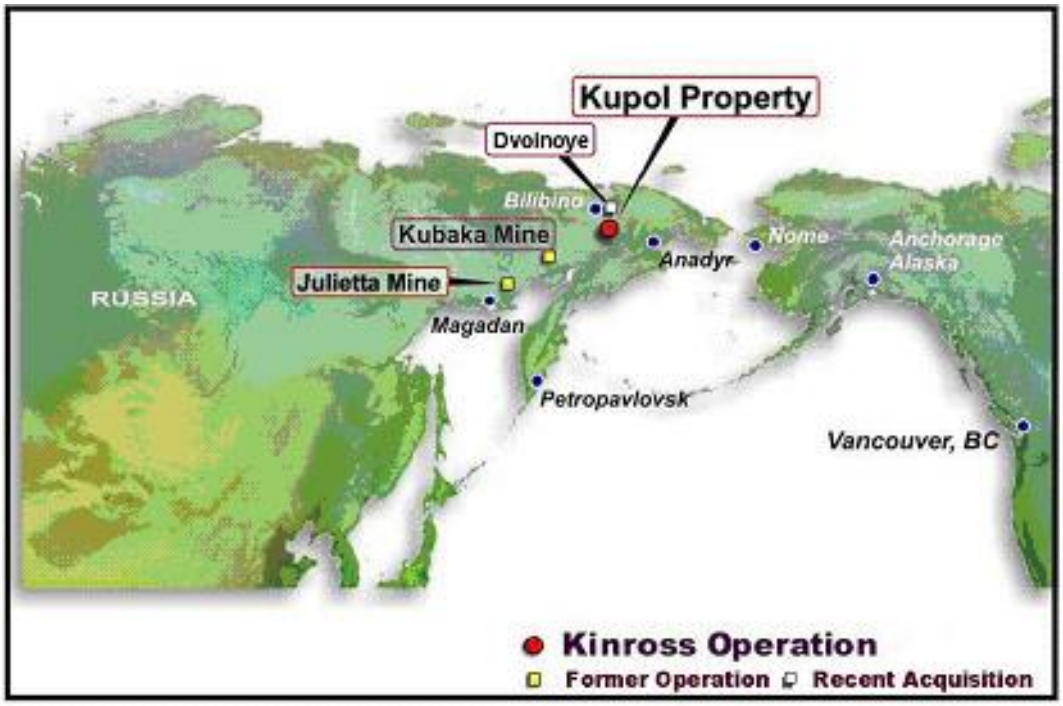
CMGC maintains administrative and governmental liaison offices in Magadan, as well as a logistics/public relations presence in Bilibino and the Port of Pevek, 400 km due north of the mine. Cyanide, fuel, and other bulk supplies must be delivered by mid-winter truck convoys on an annually constructed ice road connecting the mine to the Port of Pevek. The Kupol site has

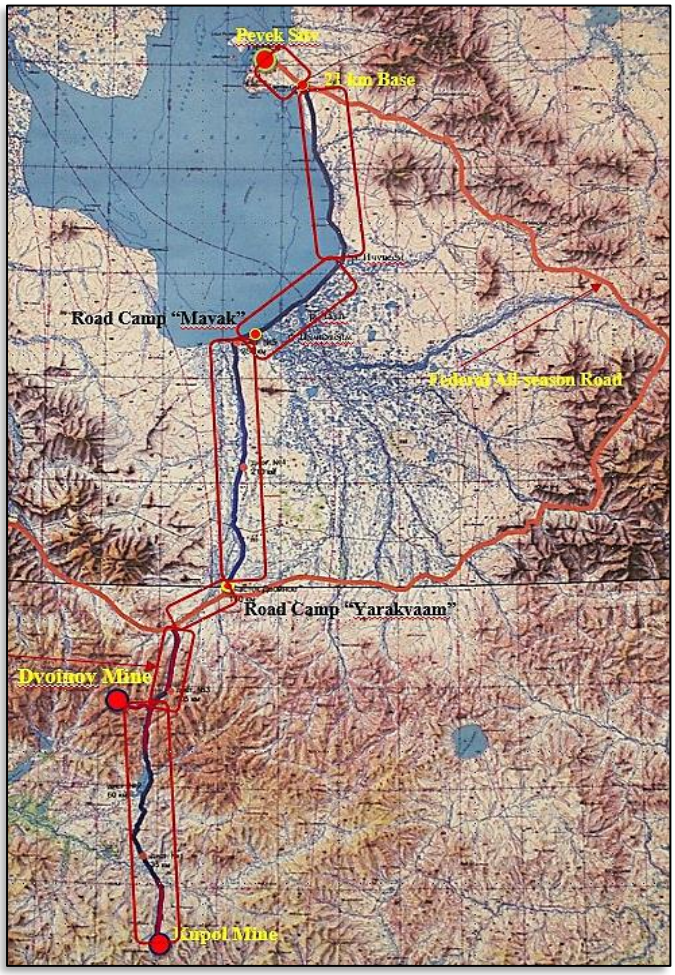
modern, self-contained man-camps with a total workforce of approximately 700 to 850 persons per rotation. The total area of the mine site inclusive of facilities is approximately 300 ha.

The main Kupol deposit was discovered in 1995. Kinross acquired the Kupol property owner, Bema Gold, in March 2007. Pre-stripping of the Kupol pit began in September 2007. Process facilities and other infrastructure construction continued throughout spring 2008. The mill was commissioned in May 2008. Open pit mining continued through 2009 and 2010 and the open pit was completed in 2011. The underground mine began producing ore in May 2007 with access via the South portal.

The Dvoinoye deposit was discovered in 1984.Kinross acquired Northern Gold, the owner of the Dvoinoye property, in 2010. Commercial production by Kinross began on October 1, 2013.

The Kupol site is isolated and can only be accessed by air, winter roads, and seasonal summer roads. By winter road, there is a network of roads that is passable between mid-December and mid-April. The main access road from port facilities are from Pevek to the Kupol site. Pevek and Kupol are connected with a combined all-season and winter road for a total distance of approximately 450 km (See figures).





As of 2013 an all-season road has been constructed from Kupol to Dvoinoye. This section of road connects to the road leading to Pevek and permits winter and seasonal summer road access from Pevek to Kupol. A further network of 1,500 km of winter roads and all-season roads connects the site to the southern center of Magadan.

The Kupol area is accessible by aircraft and helicopter which land on an 1,800 m airstrip north of the camp. Crews and freight are flown to the site on daily flights from Magadan, which take less than three hours to reach Kupol.

Kupol is subject to extremely severe weather consisting of long and cold winters (eight to nine months), overcast weather, and short summer periods (two months). The average annual temperature at the Kupol site is -13°C, ranging from -58°C to 33°C. The total amount of precipitation does not exceed 277 mm. There are less than fifty days that have an average daily

temperature above 0°C; the first positive temperatures occur in early June and the first negative temperatures occur in early September.

The overall Kupol-Dvoinoye region is sparsely populated, with approximately 65,000 inhabitants. Of this population, approximately one half of the people live in the districts of Bilibinskii and Anadyrskii. The overall population of the region has declined more than 50% in the last fifteen years.

The land surrounding the Kupol site is currently within the land used by the Lamutskoye agricultural community for reindeer herding and supporting traditional indigenous activities for hunting and gathering. The land is owned and administered by the municipality of Anadyr, region of the Chukotka Autonomous Okrug (A.O.)

The Kupol deposit is presently mined using underground methods. Another underground operation has been developed at Dvoinoye, a site 100 km due north of Kupol. No separate milling or leaching operations are presently undertaken at Dvoinoye, and ore from this operation is being processed in the Kupol mill and processing plant. The ores from the two sites are processed in batches. In 2015, combined gold production from both mines was 758 563 ounces, in 2018 was 489,947 ounces.

Mill throughput increased from approximately 3,000 t/d in 2008 to 3,660 t/d in 2012. In 2013, the plant capacity was expanded to 4,500 t/d allow processing of the Dvoinoye ore at the Kupol mill. Kupol mine production increased over time from 3,000 t/d in 2008 to over 3,500 t/d in 2014.

The milling process consists of primary crushing and a semi-autogenous grinding (SAG) mill / ball mill grinding circuit and includes conventional gravity technology followed by whole ore leaching. Merrill-Crowe precipitation is used to produce gold and silver dore bars. Countercurrent decantation (CCD) wash thickeners recover soluble gold and silver, and a cyanide destruction system is used to reduce cyanide concentrations to an acceptable level for disposal.

The tailings flow is achieved by gravity through a pipeline to a conventional tailings impoundment. Dore bars are shipped to the non-ferrous metals plant in Krasnoyarsk. Average mill recovery, based on both Kupol and Dvoinoye ore, is 95% for gold and 85% for silver. The mill availability is 94%.

The mill is designed to process ore on a two shift per day, 365 days per year schedule, at a rate of approximately 4,500 tons per day or 1,642,500 tons per year.

Ore is trucked from the mine to a stockpile and transferred to a coarse ore bin using a front-end loader. From the stockpile, ore is fed via grizzly screens (bars spaced 700 mm) into a coarse ore bin of 150 tons. Coarse ore is then conveyed to a Birdsboro-Buchannan jaw crusher with a discharge opening of 150 mm. Crushed ore is conveyed to a crushed ore bin with 3,500 m^3 capacity.

Two apron feeders are provided below the crushed ore bin to feed ore to the SAG mill feed conveyor. The first stage of grinding is wet semi-autogenous grinding in a Koppers (Metso) mill

(7.0 m diameter x 3.0 m effective grinding length) in a closed circuit with a vibrating screen for 2 mm primary grind size.

Screen oversize is sent back to the SAG mill feed conveyor and screen undersize is fed to nine Krebs hydrocyclones for further size control. Hydrocyclone underflow reports to the ball mill Koppers (Metso) (5.0 m diameter x 9.2 m effective grinding length).

Hydrocyclone overflow product is at a grind size of 80% minus -0.075 mm.

A gravity gold recovery circuit is located within the grinding circuit. Slurry is pumped from hydrocyclone feed sump to two centrifugal gravity concentrators (Knelson KCXD30) equipped with a control unit to vary operation mode and flush cycle. Concentrate is further processed at a gravity table. As concentrate builds up it is refined to concentrate bars.

Hydrocyclone overflow with solid content of 15% flows by gravity to the surge tank. From the surge tank, slurry is pumped to an EIMCO deep-cone thickener equipped with an agitator drive. Flocculent is added to get a clear overflow and to enable solids sedimentation. The thickener circuit overflow is pumped to a grinding circuit to be used as process water. Underflow with solids content of 50% is pumped to a pre aeration tank. The pre-aeration tank is equipped with a covered and ventilated agitator to stir slurry. The slurry then flows by gravity into the first of six leaching tanks for gold and silver to be dissolved.

The six leaching tanks are equipped with agitators to stir slurry. All leaching tanks are covered and provided with exhaust ventilation. The design of the leaching circuit ensures that slurry flows by gravity from one tank to another due to the descending top levels of tanks. Overflow from the last leaching tank is pumped to the first CCD thickener tank. Cyanide solution is added to the first, second and third leaching tanks at an adjustable flow rate. Lime milk is added to the pre-aeration tank, and the first and third leaching tanks. Lime is required to adjust pH level, while cyanide is added based on silver and gold content. Lead nitrate is added to the pre-aeration tank, and the first and second leaching tanks.

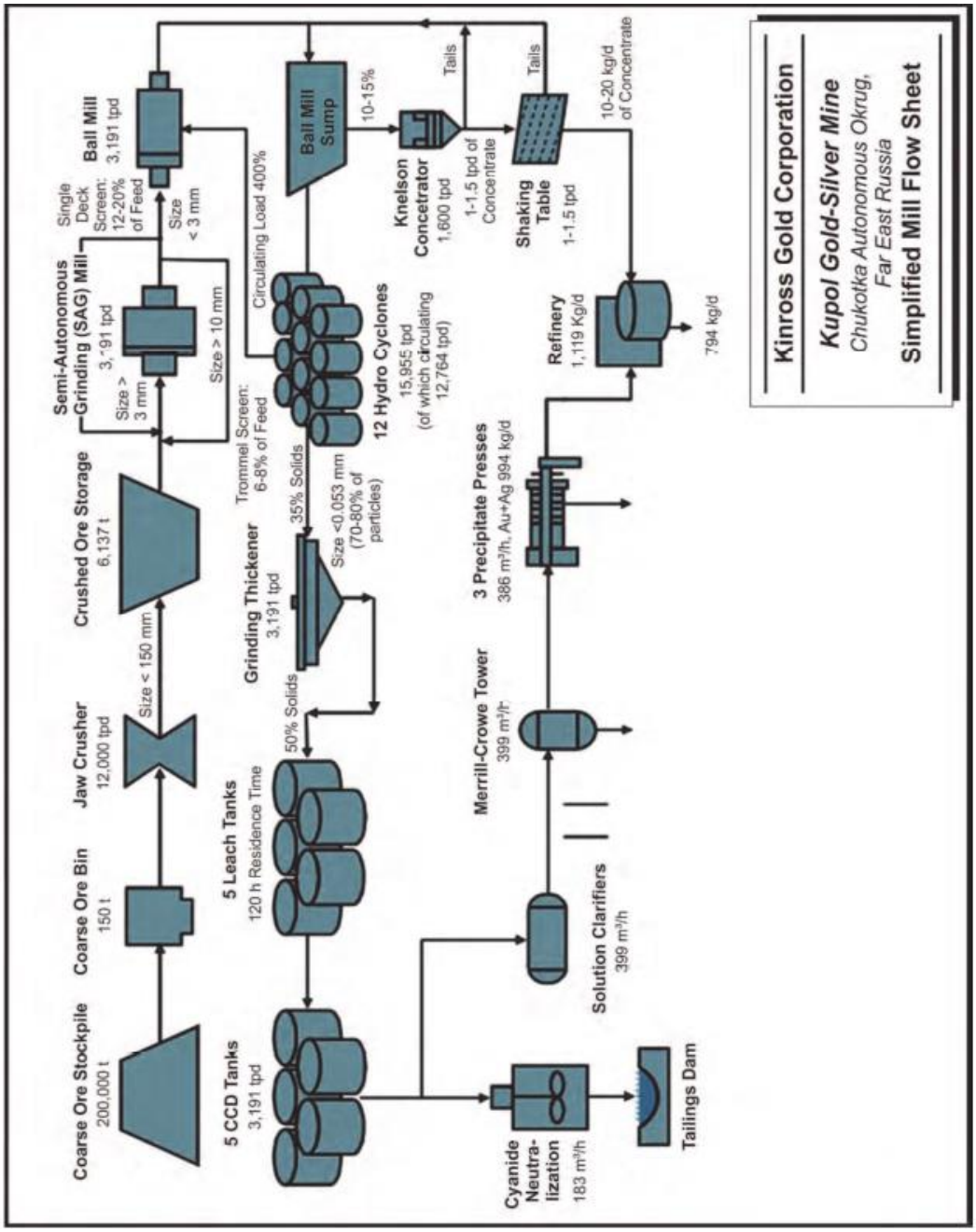
Pregnant solution residue tails are removed in a CCD circuit in five stages. The circuit comprises five EIMCO deep-cone thickeners equipped with agitator drives. The underflow of thickener tanks at each stage is pumped to a tank and mixed with the previous stage thickener with a solid content of 50%.

Barren solution from the Merrill-Crowe circuit is pumped to a slurry/solution mix tank under the last CCD thickener tank, as a washing solution. The first thickener overflow, the pregnant solution, flows by gravity to the pregnant solution tank.

Pregnant solution is pumped to pressure leaf clarifiers to remove suspended solids. Clarified pregnant solution is transferred immediately to the de-aeration tower Merrill Crowe process. The de-aerated solution is mixed with zinc dust (for gold and silver to be precipitated) and pumped to a filter press in the refinery area. After being pressed in the filter, the barren solution is pumped to a tank to be used for washing.

When filters are caked with solids, they are taken out of operation to be cleaned. The cakes are dried, and fluxes are added before further refinement in an induction furnace to produce dore bars.

CCD thickener number 5 underflow is pumped to a hypochlorite cyanide destruction tank; from this tank the slurry flows by gravity to the tailings impoundment.



During this recertification period a dry-stack tailings filter cake plant was constructed at Kupol in 2017. The plant allows for tailings storage for the current mineral reserve estimates, and flexibility to permit additional storage capacity for potential mine life extensions.

The tailings facility was upgraded to allow filter cake disposal of dry tailings, which increased capacity to provide sufficient storage for current Kupol and Dvoinoye reserves, and allows for potential future increases in reserves

Filter cake is being stored in the watershed of the current tailings dam and the capacity is expected to be 8.4 Mt of dry stack tailings, after consideration of the freeboard and the lift 4 capacity, less a 1.5 Mt allowance for operating process water. This increases the capacity of the facility to 22.3 Mt. This would provide sufficient storage for current Kupol and Dvoinoye reserves and would allow for potential future increases in reserves.

Also, during this recertification period a daily tank for cyanide reagent quality solution was installed on top of CCD tank #1, to allow dosage of cyanide to the system by gravity.

Auditor's Finding

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

During the re-certification period, the Kupol operation experienced a fatal incident. The fatality was not directly related cyanide operations but requires disclosure under Item 9.3.3 of the Mining Operations Verification Protocol. ICMI has been notified of this fatality. Further information and the rationale for the auditor's finding are provided under Standard of Practice 6.2.10.

Auditor's Attestation

Audit Company:	MSS Code Certification Service, a Division of Management System Solutions www.mss-team.com
Lead Auditor:	Bruno Pizzorni E-mail: CodeAudits@mss-team.com
Mining Technical Auditor:	Sean Webster
Date(s) of Audit:	December 1 – 4, 2019

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

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

Kinross – Kupol Mine July 24, 2020

Name of Operation 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 the Finding/Deficiencies Identified:

The Kupol Mine is in FULL COMPLIANCE with Standard Practice 1.1 requiring the purchase of cyanide from manufacturers employing appropriate practices and procedures to limit exposure of their workforce to cyanide and to prevent releases of cyanide to the environment.

Contracts for the purchase of cyanide were reviewed during the audit and were confirmed to require that the cyanide be produced at facility that is certified under the Cyanide Code. Confirmation was also made through a review of records that this requirement is fulfilled. The contracts, receiving records, and purchasing records were available for review and were found to be acceptable by the auditors.

Cyanide purchased by the mine is produced at facilities certified under the Code. The current certification status of the facilities was verified by review of the ICMI website.

No cyanide is purchased from independent distributers.

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:

The operation is in FULL COMPLIANCE with Standard 2.1, requiring that the operation establish clear lines of responsibility for safety, security, release prevention, training and emergency response in written agreements with producers, and transporters.

Kinross has developed formal practices and contracts with its supply chain partners to ensure that all ICMI International Cyanide Management Code requirements are fulfilled. Certified cyanide producers, transporters, and supply chains are used. Clear lines of responsibility are established for safety, security, release prevention, training, and emergency response. Contracts were available for producers and transporters. Distributors are not used by this operation.

The cyanide producers are contractually responsible for all transport and all in-transit spill response actions required by the Cyanide Code until delivering cyanide Free on Board (FOB) at the port of departure.

A review of the purchase contracts with the cyanide producer showed that the delivery of cyanide and the transfer of risk and responsibility of the product takes place upon loading of cyanide on board of the vessel - Free on Board (FOB). Due to the specialized considerations that need to be made for the Kupol Mine cyanide delivery process, Kinross takes control of the cyanide when it is loaded onto an ocean vessel at the departure port closest to the producer.

Kinross manages the safe transport of the cyanide from the departure port to the mine using its Cyanide Code-certified supply chains. The Kinross Russian Ocean Supply Chain is described in a separate audit report that is posted on the ICMI website. Kinross, through its supply chain

and transportation partners is responsible for all transport and all in-transit spill response actions until delivering cyanide to the Port of Pevek. Date of certification for this Transportation Supply Chain is September 09, 2019, according to the ICMI´s link in the Directory of Signatory Companies. The supply chain includes cyanide management at the Port of Arkhangelsk, Russia the Port of Pevek, Russia, and ocean transport by the marine carriers Sakhalin Shipping Company (SASCO) and Nord Project.

This supply of cyanide to the Kupol Mine is somewhat unique in that cyanide is not shipped to the mine continuously throughout the year, but rather during one delivery "event" in the summer/early fall to the port of Pevek each year. From the Port of Pevek the cyanide is moved to a Kinross storage facility (KM 21) near the port until ground transportation to the mine is possible in the winter after the ice roads form.

The KM 21 interim storage operations and the transport activities over the ice roads to the mine are part of the certified supply chain that is listed under the Kinross "Chukotka Mining and Geological Company (CMGC) Transportation Group" supply chain - formerly named and certified (2009; 2013) as Kupol Gold Mine Transportation. Date of certification is February 10, 2017, according to the ICMI´s link in the Directory of Signatory Companies.

There are no sub-contractors used by the producer, distributor, transporter, or operation for transportation-related activities. All entities involved in this supply chain from the production, to the packaging, to the transportation, to the unloading are under the direct control of either the cyanide producers or Kinross and have been audited and certified to the ICMI Cyanide Code.

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

All purchase contracts reviewed require the transporters to be certified under the Code. Contracts between the cyanide producers and Kinross states the Vendor (cyanide producer) to transport cyanide shall comply with ICMC requirements and has its cyanide transport activities certified as compliant with the ICMC Principles and Practices.

Kinross has continuously ensured that all cyanide used at the Kupol Mine has been sourced from ICMC-certified producers and shipped using ICMC-certified road transportation operations.

Kinross has developed formal practices that ensure that all ICMI International Cyanide Management Code requirements are fulfilled. Due Diligence reviews are performed at all ports and for all ocean carriers that are not otherwise included in supplier certified supply chains.

All cyanide supply chains used to transport cyanide from cyanide production plants to Kupol mine during this recertification period are ICMC certified transporters. Certifications are all current and were reviewed on the International Cyanide Management Institute (ICMI) website.

A review of shipping paperwork, bills of lading and manifest records, covering the recertification period, indicated that Kinross appropriately manages the transport of the cyanide. Each link in the supply chain was identified in the shipping paperwork, so the auditors were able to confirm that each of these parties is included in the transport audit results. Specific container deliveries can be traced to specific consignments received from the supplier to the receiving ports, transport on specific vessels, delivery to the KM 21 interim storage area, and subsequent road convoys to Kupol Mine.

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

Standards of Practice

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

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

Discuss the basis for this Finding/Deficiencies Identified:

The operation is in FULL COMPLIANCE with Standard Practice 3.1 requiring the design and construction of unloading, storage and mixing facilities consistent with sound, accepted engineering practices and quality control and quality assurance procedures, spill prevention and spill containment measures.

Cyanide is purchased exclusively in briquette form, packaged in standard polypropylene "supersacks" and polyethylene-lined plywood crates, and is delivered to the site in sealed steel intermodal shipping containers. During the recertification period CMGC purchased cyanide from Hebei. The operation maintains a secure facility 21 km south of the Port of Pevek for storage of cyanide containers and other bulk supplies pending on the annual ice road construction and delivery to the mine via secure truck convoy.

Kupol Mine facilities for unloading, storing and mixing for reagent cyanide have been professionally designed and constructed. Since the last ICMC audit, these have not been modified. The facilities are the same as those that were found in compliance with the Code requirements as these were designed and constructed in accordance with sound and accepted engineering practices for this type of operation.

As stated in previous Cyanide Code audit reports, the mine maintains the facility design drawings stamped by a certified professional engineer and has records of the review and approval of design and construction documents by regulatory agencies. The auditors concluded that the operation took the necessary and appropriate measures in designing and constructing the facilities.

In addition, according to Russian regulations, the facilities are considered hazardous industrial facilities subject to health, safety and environmental oversight, which is conducted by the government agency in charge. The government requires that all documents from the construction must be organized and retained into certification packages, referred to as passports. Each passport describes the component being certified, along with its specifications and technical requirements. The passport for the cyanide mixing and storage tanks, hoppers, the cabinet for bag rinsing, and the external storage compound was observed, the documentation is kept in archives.

Kupol Mine is located in a very isolated area, being the nearest village is Ilirney at 75 km away. The overall Kupol-Dvoinoye region is sparsely populated.

Except for the summer months, the rest of the year (8 to 9 months) temperatures are below freezing, water flow depends to a considerable extent on the season and precipitation. Surface waters freezes by the end of September and breaks up in the beginning of June. The nearest natural drainage path is about 150 meters away from the perimeter of cyanide storage area. The Project is in a zone of continuous permafrost (lower boundary varies from 200 m to more than 500 m below the surface.

The unloading and storage area for solid sodium cyanide, which arrives at the mine in sealed intermodal containers, has not changed since last recertification audit. The external storage compound is a guarded and fenced unroofed yard, located approximately 3 km north of the mill, and approximately 3 km from the permanent main camp.

The unloading and storage area is a rectangular pad covered with gravel placed on the top of a High-Density Polyethylene (HDPE) layer, with lined water capture ditches on all four sides of the pad. Any rainfall onto the pad would be directed towards and captured in the ditches and directed to an underground steel tank. The tank is inspected during every shift by security personnel to measure water level. If the level at the tank reaches one meter below the top, the environmental department is notified; and cyanide concentrations are measured. If cyanide is absent, water is pumped out and discharged to ground surfaces. If cyanide is confirmed as present, this will be considered as an emergency situation, the Emergency Response Plan activated, and the liquid is removed for disposal to the tailings facility.

The unloading and storage area is fenced and has a permanent guard who inspects the perimeter of the fence, locks and the water level in the underground tank. A two-tower system is in place to assist with the surveillance of the yard and it is equipped with a lighting system, especially important in the winter months to provide illumination. The containers are stacked to a maximum of a two-layer height in accordance with internal regulations, allowing good visibility from the towers. Outside of the storage area there is a container with emergency response equipment, ready to be used if necessary.

From the storage yard, the containers are moved separately to the mill complex and are placed in front of the fully contained cyanide mixing and storage room, located inside of the reagent

building. The container is then opened, and the plywood crates moved into the mixing room by forklift and are stacked no more than 2 crates high prior to being opened and cyanide bags added to the mixing hopper. The person in charge of this task is fully equipped with Personal Protection Equipment (PPE), and is observed by a security team member to prevent entry of other personnel into the area, by keeping the access door closed.

The reagent mixing facility is located in the mill building, controls are in place, such as fixed hydrogen cyanide gas monitor equipped with visual and audible alarms; warning signs and enhanced enclosure building system as appropriate for the specific location, strict access restrictions during mixing activities for not authorized personnel, specific emergency procedures for notification, evacuation and response as appropriate for the situation. These requirements were verified through visual observation, review of the applicable procedures, and discussions with the Chief Mill Engineer and the cyanide mixing operators.

The operation has one preparation area for cyanide that includes a mixing tank and a cyanide storage tank. There are level indicators and high-level alarms installed on both tanks. These levels are continuously monitored from the mill control room. Arrangements remain unchanged since last recertification audit.

There are both a Hi-level and Hi-Hi level alarm on each tank. The interlock valve from the mix tank to the storage tank shuts off automatically when the Hi-level indicator is reached. The Hi-Hi level alarm indicates any problem with the Hi-level indicator that would need to be corrected. There are also level indicators at the tanks that are inspected visually during the cyanide mixing process.

The level indicator in the mix tank is continuously monitored to ensure it is operational. The auditor observed screenshots in the control room showing that the level indicators were functioning correctly. The Instrumentation Service Department performs routine calibrations on the tanks level indicators and alarm instrumentation to ensure they are functioning properly.

Cyanide mixing and storage tanks are contained within concrete berms with good condition concrete flooring, all inside a fully contained room. Repairs completed on areas of concrete cracks were observed and concrete surfaced areas were noted to be in good condition with no significant damage, spalling or cracking evident. The area has a sump equipped with a pump to return any spills into the mix tank.

Process tanks are secured to solid, reinforced concrete plinth (pedestal-type). The containment floor and tank foundation system serve to prevent any seepage from the tank bottoms from entering the ground. At the time of this onsite recertification audit, the auditors observed that all of these concrete foundations were in good condition.

The entire process area, including the cyanide offload area and mixing tanks, is contained within a reinforced concrete pad surrounded by curbs, parapets and stem walls, providing a competent barrier to seepage. The concrete floor is sloped to drain to a sump, which convey spills to the mix tank. The bermed concrete impoundment, was observed to be of sound

integrity and considered suitable for containment in the event of a release or tank failure. The berms and containment areas are also subject to daily inspections at the beginning of each shift. Arrangements remain unchanged since the last recertification audit.

The cyanide storage area is located about 3 km away from employees, in an open pad, where sealed intermodal containers are stored. As such, it provides adequate ventilation and build-up of hydrogen cyanide gas is unlikely to occur.

The mixing and storage tanks are located within a dedicated enclosure, inside the reagents building; where plywood crates unpacked from the intermodal container are stored for the short-term prior to being used in the cyanide mixing process. This enclosure has a dedicated ventilation system and a large rollup door for emergencies.

The storage area is designed to store sealed intermodal containers. It comprises a gravel pad, which is underlain by a geo-membrane across the whole pad and has lined water capture ditches running along the pad perimeter. The risk of potential contact with meteoric water is very low.

The cyanide storage area is fenced with locked gates, and is under 24 surveillance from a security guard, who is also tasked to conduct inspections of the fence. The perimeter is equipped with 2-tower lighting system to aid with ease of surveillance.

The cyanide mixing and storage room is within the mill complex and reagent building. The door is always locked with access restricted only to authorized personnel. Appropriate warning signage is posted at access points. The area is also monitored by a closed video camera system.

Access to the storage area is restricted, with the main access door locked when not in use and internal access restricted by a security chain. Appropriate warning signage is posted at access points. The area is also monitored by the Security area through a closed video camera system.

The storage area is dedicated to sodium cyanide storage only with no other materials permitted to be stored. No storage of other materials was observed during the field inspection, neither any flow path of released material from separate areas may commingle in a common drainage ditch.

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:

The operation is in FULL COMPLIANCE with Standard Practice 3.2 requiring that unloading, storage and mixing facilities use inspections, preventive maintenance and contingency plans to prevent or contain releases and control and respond to worker exposures.

Sodium cyanide is received onsite in the form of super sacks in plywood boxes. Instruction No. 43 describes the method for transport of empty bags and plywood boxes from the mixing and storage room to the burn pit. The material is segregated and transported to the burn pit where is sprayed with flammable liquid and burned until no fragments of the packaging material remains. It is prohibited to use the packaging material for any other purposes.

The Instruction requires that empty cyanide sacks are rinsed a minimum of three times with rinse water in a dedicated steel tank equipped with a rotating spray head and an exhaust vent.

Empty super sacks, once rinsed, are folded and removed along with other packaging residue for disposal. Instruction No. 43 describes the method for transport of empty bags and plywood boxes from the mixing and storage room to the burn pit.

Cyanide is not purchased in reusable containers and, as such, no packaging is returned to the supplier. All packaging material is burned, including the plywood boxes and the supersacks. If any cyanide residue is identified inside the containers, an emergency situation would be declared, and appropriate response actions activated.

The document “Guidebook Mill process staff, training program for a reagent operator” outlines the requirements for inspection, observation and mixing of cyanide solutions; as well as the operation and function of valves, pumps and various interlocks within the cyanide mixing process. It provides guide for initiating, shutdown and normal operating mode of the equipment. It provides specific steps related to the activity, including sequential operation of valves and pumps.

The Guidebook provides the process description to prevent exposures and releases during cyanide unloading and mixing activities such as handling cyanide containers without rupturing or puncturing. It provides instructions for the safe handling of sodium cyanide super sacks including handling upon receipt, storage and transport to and from the mixing area.

Regulation No. 32 limits stacking of cyanide containers to a maximum height of two per stack. It guides the personnel to ensure that intermodal containers are stacked on a maximum height of 2 layers. Regulation No. 28 limits the stacking of plywood boxes to only 2 layers. By observation the auditors confirmed that both sea and boxes were stacked in 2 layers.

Instruction No. 41 01 includes a requirement for immediate clean up any spilled cyanide. It details clean up procedures to be followed in the event of spills. The procedures cover leaks and failure of offload, mixing and storage facilities. Nonetheless, all spills during unloading and mixing activities would be contained by the concrete pads and secondary containment systems.

The procedures require the use of proper Personal Protection Equipment (PPE) and list the specific equipment to be worn. Procedures also requires that two workers are present during the mixing activity. One operator is stationed at floor level, helps hook the cyanide bag in the overhead crane and observes the second operator who, working from an elevated deck near at the top of the mixing tank, breaks the bag, introducing the content into the mixing tank. All accesses to the mixing area is restricted. Mixing operations and cyanide alarms are also monitored remotely from the Mill Control Room. During the audit, a cyanide mix event was observed, and the personnel were observed to follow the procedure carefully.

Confirmation was made that the mine operation is using high strength cyanide solution that is dyed red for clear identification. A sample of the solution was taken from the process tank to demonstrate conformance with this practice. The auditors reviewed email communications from the producer that sodium cyanide shipments sent starting in August 2018 were going to include dye.

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 operation is in FULL COMPLIANCE with Standard Practice 4.1 requiring the implementation of management and operating systems designed to protect human health and the environment including contingency planning and inspection and preventive maintenance procedures.

The operation has written management systems, plans and procedures for operating its cyanide facilities. They have properly identified the cyanide related tasks that if not performed properly, have the potential to cause cyanide exposures or releases. The operation has developed and implemented a management system and the procedures needed to protect health and the environment. Has extensive written documents to manage and operate its cyanide facilities including unloading, mixing and storage facilities, leach tanks, tailings impoundments, cyanide treatment, and disposal systems.

The auditors reviewed updated procedures, guidebooks, regulations and instructions for the cyanide facilities, which demonstrate that the operation understands how to manage cyanide in a manner that prevents, and controls releases to the environment and exposures to workers.

Since last recertification period the process have remained essentially the same. It was added to the process a filtration plant to dry tailings (cake) and a cake disposal area near the tailings facility were put into operation.

Critical design criteria such as freeboard, cyanide concentration, and water flow rate information are included in the Kupol Gold Project Tailings Management facility design. Among other design parameters, the document states the minimum of 1.5 m for freeboard considering 0.5 m for waves above that level. The design assumptions regarding the total CN concentration of the slurry discharging into the Tailings Storage Facility (TSF) include a regulator set threshold of 5 mg/L, and 10 mg/L for total thiocyanate.

The site's operating plans and procedures incorporate the assumptions and parameters on which the design was based, as well as applicable regulatory requirements related to prevention of cyanide releases and exposures. In this way, the operation can keep track of why it is operating according to a specific plan.

The operation retains records titled "Monitoring indicators and limit values of safety criteria for the Kupol Tailings and Water Management facility". The summary includes criteria for the embankment dam, crest, slopes, shore abutments, TSF capacity, water collection sump, water diversion ditches, pipelines, and reclaim water pump station.

Kupol Mine has developed and implemented work procedures for cyanide related tasks, which describe the standard practices necessary for the safe and environmentally sound operation of

the cyanide facilities. The operation has identified equipment, personnel, and procedures for the process plant areas and all associated piping and pumps as having contact with cyanide.

The procedures address those aspects of the operation that are necessary for protection of workers, communities and the environment. Specific items are addressed in the operating manuals and procedures which include information regarding cyanide unloading, mixing and storage activities, water management procedures describing how and when tailings solutions must be managed to retain the design storage capacity in the facility, inspection programs for process tanks and pipelines of the cyanide facilities and preventive maintenance programs for critical equipment.

Inspections related to sodium cyanide mixing and destruction circuits, are addressed in Regulation 21, requiring daily/once-per-shift inspections for malfunctions, defects, leaks of equipment, pipes, pumps, tanks, secondary containment, safety showers and eyewash stations. Regulation 31 requires monthly inspections for spills at the cyanide storage and also every time the yard is unlocked. The Tailings Management Facility Design from AMEC requires at least weekly visual inspection for unusual cracks, bulging, settling, seepage and erosion on the tailings dam which must be completed using a checklist. In addition, on a yearly basis a geotechnical engineer conducts a visual inspection and every 5 years a formal dam safety review is performed.

The preventive maintenance (PM) system is managed using JD Edwards automated software. Work orders are produced automatically by a computerized system. The system is designed to document specific planned PM actions for critical equipment as well as unplanned actions and the tracking of associated work orders. The system also contains an archiving function that permits the generation of PM history on specific equipment items.

Equipment, personnel, procedures, and records from the areas containing cyanide were the focus of the audit. Extensive online database of procedures was available for review during the audit. Procedures adequately address all aspects of the facility, including operational control, environmental, health and safety topics, preventive maintenance, water balance, and inspection processes for equipment, secondary containments, environmental media, and wildlife protection. Procedures were available for normal and upset or emergency operating conditions. Procedures were reviewed and were found to be appropriate for the operation and fully implemented.

The operation has the formal written procedure Management of Change (MOC), to manage changes to the facility. The purpose of the procedure is to ensure that systematic processes are in place to evaluate any changes at the plant so that the risks of incurring negative impacts to people, environmental, property, or product quality are minimized. The written procedure requires written notification to environmental and health and safety personnel and a sign-off

before the change can be instituted in the operation. The procedure requires the evaluation of technical, operational, safety, environmental, quality and economical aspects of a proposed change to prevent hasty or unconsidered changes from being implemented.

The operation has implemented contingency procedures to respond to upsets in water balance, problems identified by inspections, and to address temporary closure of the operation. Updates of third-party consultancy reports include contingency actions to be implemented for the most likely upsets at Kupol Mine regarding water balance and water management plan, hydrological updates predictions on the TSF capacity.

These documents include the requirement to continue ongoing maintenance and inspection of the entire facility to ensure adequate storm storage capacity in the TSF and to ensure that the integrity of all pipelines, trenches, diversion structures, berms and embankments is maintained.

Kupol Mine maintains a program to inspect cyanide facilities on a frequency that was found to be sufficient to assure that the operation is safe and functioning within design parameters.

The cyanide mixing and destruction circuits, and its associated equipment and process pipelines, including secondary containments, are inspected during every shift to identify potential problems before they become severe. This regulation covers the following circuits: CN destruction, CN mixing, Leaching, CCD, Merrill-Crowe, and reclaim water supply.

The TSF is weekly inspected to check for unusual cracks, bulging, settling, seepage, and erosion on the tailings dam with the use of a checklist. On a yearly basis is visual inspected by a qualified geotechnical engineer conducts formal visual inspections and formal dam safety review is conducted by a third party every 3 to 5 years.

The cyanide containers storage yard is inspected by the warehouse keeper every time a container is dispatched to the mix area, to identify any damage to container sides, ensure integrity and soundness of seals and locks. In addition, the yard superintendent conducts inspection every 10 days and the procurement manager every month.

The operation performs focused inspections to the unloading, storage, mixing and process areas, prompting the operator to look at the specific items that need to be evaluated as presence of cracking on the floor of a secondary containment, accumulation of precipitated salt on a cyanide reagent pumps. The inspection forms provide sufficient detail with regard to what to look for.

Tanks holding cyanide solutions are inspected daily for signs of corrosion, leakage and general deficiencies. Inspection reports for the last 3 years were sampled and found to be complete. Nondestructive tests are conducted annually for structural integrity with measurements taken

at different heights as well as around the perimeter of the tanks. the operation provided records of tests that were conducted on leach tanks during the audit period.

Secondary concrete containments are inspected daily for integrity damage, cracking, presence of fluid in containment volume, adequacy of capacity and closed drains at all cyanide circuits (destruction, mixing, leaching, CCD, Merrill-Crowe and reclaim water supply).

Kupol Mine does not operate with leach pads or ponds.

Pipelines, pumps and valves are inspected daily as part of the workers shift inspection. Any deficiencies identified are reported. The TSF is inspected daily, and the supervisor conducts visual inspections of the barge system, tailings and reclaim water pipelines every 10 days. Inspection forms for tailing were verified for the inclusion of items related to deterioration and leakage of pipes, pumps and valves.

The Tailings Supervisor inspects the TSF daily for critical aspects including integrity of surface water diversions and available freeboard. Historical freeboard for the last 3 years at both the tailing facilities were reviewed and verified that it was managed according to their design criteria.

Records were available for all inspections performed. Records included the date of inspection, the name of the inspector, and any observed deficiencies. Corrective measures were noted directly on the hard-copy inspection records in the situations were deficiencies were noted, providing evidence of continuous compliance. The nature and date of corrective actions are also documented along with the record of the inspection. Operational inspections are documented on checklists. Completed copies were obtained to verify retention of inspection records.

The operation generates its own power using diesel generators located at the mill (5-5.3MW Wärstila units and 3-Caterpillar units). 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. Maintenance logs are retained for all generators and the emergency generators are tested weekly.

The operation provided examples of preventive maintenance records for the power generators for the last there years. A review of these records, confirmed that the generators are checked periodically for fuel level, lighting, heating and are also start tested. This inspection would trigger a corrective maintenance work order if required.

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 operation is in FULL COMPLIANCE with Standard Practice 4.2 requiring management and operating systems that minimize cyanide use, thereby limiting concentrations of cyanide in mill tailings.

During the 2005 Kupol Feasibility Study, the metallurgical sampling program consisted of the following tests: Enhanced Leach Process (CELP), Agitated Leach Vessel Testing (ALV), Acidification Volatilization Recovery pilot test (AVR), ore characterization bottle rolls tests and clay studies. Among others, the goal of the 2005 metallurgical sampling program was to provide preliminary metallurgical characterization and to provide samples for determination of the cost benefit analyses of the application of the CELP process.

The cyanide concentration for the economic optimum leach conditions was found to be silver grade dependent, with higher grade supporting higher cyanide leach concentrations. The economic optimum leach conditions were used to evaluate the metallurgical response of more than 50 ore variability samples composed of single and multiple hole composites from the core drilling program. Gold recoveries were mostly consistent across the zones in the Kupol deposit, but silver recovery was significantly more variable. Final recovery estimates based on the combined Phase I and II test results were 93.8% for gold and 78.8% for silver.

Kinross also performed cyanide destruction studies for Kupol. A laboratory evaluation of the cyanide and thiocyanate destruction in Kupol solution and/or pulp effluents produced from the CELP has been completed at the SGS Lakefield laboratory facilities in Ontario, Canada. Both batch and continuous alkaline chlorination tests were performed on Merrill-Crowe barren solution and simulated countercurrent washed thickener underflow pulps. Residual total cyanide (CNt) of 5 mg/L and sodium cyanide (SCN) of 10 mg/L were targeted (Devuyst, 2006).

For Dvoinoye, the purposes of the metallurgical test work program, among others, were to determine reagent consumption; and evaluate metallurgical performance of Dvoinoye ore in the Kupol process plant.

Analysis of the experimental procedure and conditions used for the leaching of the gold and silver from a Kupol underground sample indicates that the experiments were conducted using appropriate laboratory procedures and produced reliable results for the extraction of gold and silver with CELP leaching.

The operation has evaluated methods to determine if it is adding the necessary and appropriate amount of cyanide and to adjust it in real time as ore characteristics fluctuate by mean of an automated system of sampling of leach solution to determine residual cyanide and adjust addition rates accordingly. The operation has online cyanide distribution system which provides real-time adjustments to this rate to account for variations in the ore and its leaching characteristics. Interviews with process personnel indicated that the cyanide concentration is monitored to regulate the optimum cyanide addition rate. The objective is to minimize the amount of cyanide to reduce the cyanide addition.

The operation has fully implemented strategies to control its cyanide addition. Cyanide solution is added to the first, second and third leaching tanks at an adjustable flow rate. The system provides cyanide continuously to the leach tanks for dissolution of gold contained in the ore, and to the barren solution for carbon stripping.

Cyanide concentration of the process solution is dictated by metallurgy and mineralogy. Addition rates vary depending on head grade of material and recovery. Cyanide is continually monitored and adjusted as required from the control room on each cyanide addition point. The system is composed of a sampling system, an analytical system, a cyanide controller and a cyanide addition system. The system allows the operator to enter set points to control cyanide addition. Readings are taken throughout the shift and controlled for addition of reagents.

The operation monitors the cyanide concentration continuously as strategy to control cyanide addition at the process plant and records these concentration levels in a database. Kupol Mine measures the head grade for gold and selected metals at the onsite laboratory. This data is then used to adjust the cyanide addition rate at the leaching facilities. The examples of the operational spread sheet show that the cyanide addition rates.

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:

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

The mine has implemented a very comprehensive water balance especially taking into consideration the delicate environment that it is situated in. The Auditor was shown the water balance plan and how the tailings dam was managed along with all test reports that are done on a constant basis to ensure that strict monitoring takes place. This has also been done in conjunction with an external Engineering Company.

No wet tailings are being pumped to the TSF. CMGC's filter plant process the tailings for dry stacking. CMGC's filter plant process started operations in January 2017.

Supernatant solution in the TSF comes from the seepage collection pond. The facility has an impervious liner installed on the upstream face of a rock fill embankment and under a portion of its upstream shell. A collection system is installed to intercept any potential seepage and to collect runoff from the dam face. A seepage collection pond and permanent pump station has also been installed, and the collected effluent is discharged back into the TSF pond. The site does not operate any solution ponds other than the TSF and seepage collection pond.

Weak Acid Dissociated (WAD) cyanide measures in the TSF and in the seepage collection pond during this recertification period was 0 or below 0.05 mg/L, the Russian Class 1 fisheries limits.

The tailings dam was developed and designed to be cognizant of the delicate environment in which it is situated. Kupol has also enlisted the resources of Wood Engineering and Consulting, based in BC, Canada to ensure that all processes, procedures and test methodologies are in line with what is acceptable and taken as Best Industry Practice.

The flow rate is closely monitored and at present, due to the filter cake process, aids in reducing the net water inflow into the tailings dam.

The design was created in a way to ensure that any excess overflow can be dealt with, for example, the addition of a diversion ditch that assist in any excess overflow. The original design had to take into account the extreme weather conditions as well, so the overtopping factor had to be taken into account.

All the data that is collected is live and instrumentation is calibrated on an annual basis.

The precipitation levels are monitored and were factored in, during the design phase of the dam. Now that the filter cake plant is running, dam levels have in fact, decreased.

All of these issues were dealt with during the design and planning phases of the dam.

Any solution losses are factored in with the monitoring readings and form part of the holistic tailings management program.

There is a backup power station to operate the pumps serving the tailings facility. There is a check done on the power station on a roster basis to ensure that everything is operational at any given time, so as to ensure that emergency power can kick in whenever it is needed.

The tailings dam is monitored on a daily basis, covering aspects such as drainage, discharge, settlement rates and dam levels. These records are kept on site. The site also has a Governmental Authority come in to do additional, independent tests to review what the mine has on record and to ensure that there are no anomalies.

There is a specific design for the tailings dam, and with the filter cake now being added, has substantially improved the design expectations. There is a diversion ditch around the dam capable of handling any overflow as designed for any major event. Since the implementation of the filter cake plant, the freeboard level has in fact declined.

Due to the sensitive environment in which the mine is located, precipitation and snowfall levels are monitored on a daily basis. They have two meteorological stations, one close by and the second 60 km away in a local village. The equipment is calibrated on an annual basis.

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:

Kupol Mine is in FULL COMPLIANCE with Standard Practice 4.4 requiring measures to protect birds, other wildlife and livestock from adverse effects of cyanide process solutions.

The operation has extremely low Weak Acid Dissociated (WAD) cyanide levels in the tailings dam. No solution ponds at the operation have WAD cyanide concentrations greater than 50 mg/L. This is constantly tested, and for the past three years, there have been no wildlife fatalities on the site.

The site also demonstrated that besides constant monitoring, they have also enlisted the services of an outside Engineering Company to assist with the management of the tailings dam and this also ensures that in the event of any rise in the WAD levels, remedial action can be taken immediately. No wet tailings are being pumped to the TSF. CMGC's filter plant process the tailings for dry stacking. The current process for transport and deposition of tailings to the TSF is a combination of a 100 meters conveyor section to the loading hopper and the by trucks to the TSF for deposition as "dry stack" tailings.

No heap leaching is done at this site.

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

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

Discuss the basis for the Finding/Deficiencies Identified:

As stated in the previous audit report, Kupol Mine was designed and has operated as a zero-discharge facility, also during this audited period. The treated tailing slurry flows into the TSF impoundment and the free water is pumped back to the mill.

A dry-stack tailings filter cake plant was constructed at Kupol in 2017. The plant allows for tailings storage for the current mineral reserve estimates, and flexibility to permit additional storage capacity for potential mine life extensions.

The tailings facility has been upgraded to allow filter cake disposal of dry tailings, which increased the TSF capacity to provide sufficient storage for current Kupol and Dvoinoye reserves and allows for potential future increases in reserves.

The operation does not have indirect discharge to surface waters. The TSF was designed so that there will be minimal seepage through the dam and foundations. Permafrost beneath the dam acts as a primary seepage barrier. Additionally, the dam is lined with bituminous liner also serving as a seepage barrier. Any seepage from the tailings dam and runoff from the tailings dam face, is collected at the dam seepage pond and pumped back into the dam.

The daily total cyanide values of tailings slurry discharging into the TSF and at the reclaim water were recorded at 0.002 ppm, verified using data from different dates since the last audit.

Kupol Mine conducts monthly surface water quality sampling at two locations downstream of the TSF dam during the summer months (June, July, August and September) for total cyanide and thiocyanates. The minimum detection limit (MDL) for both total cyanide and thiocyanates is 0.05 mg/L and all data for this certification period shows readings below the MDL.

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:

Kupol Mine is in FULL COMPLIANCE with Standard Practice 4.6 requiring measures to manage seepage from cyanide facilities to protect the beneficial uses of ground water.

The mine has very comprehensive Water Management Program in pace to protect the local environment and has engaged with the Local Regulators as well as an independent Engineering Company to ensure that their water management program is as effective as can be.

The TSF has been designed and is managed as a zero-discharge facility. The TSF has an impervious liner installed on the upstream face of a rock fill embankment and under a portion of its upstream shell. A collection system is installed to intercept any potential seepage and to collect runoff from the dam face. A seepage collection pond and permanent pump station has also been installed, and the collected effluent is discharged back into the TSF pond. A pump barge recycles water from the TSF back to the reclaim water tank at the mill via two HDPE pipelines, which run adjacent to the two previous tailings delivery pipelines. No wet tailings are being pumped to the TSF. CMGC's filter plant process the tailings for dry stacking.

All test results that were shown to the auditor indicate that the WAD levels are below normal levels, and as such, can be released into ground water. During this recertification period, WAD cyanide concentrations from the seepage collection pond and from the TSF was 0 or below 0.05 mg/L. Monitoring points also include a point 60 km away.

The mill tailings are all sent to the new filter cake process which removes around 85% of moisture. This filter cake is used to build up the tailings dam. Waste rock is used as backfill in this case.

No seepage from the operation has caused cyanide concentrations of ground water to rise above levels protective of beneficial use. The operation has a strict monitoring system in place to ensure that cyanide concentrations are kept to an absolute minimum. If, in the event of the levels increasing, there are strict plans in place to restore the balance in terms of CN-levels as well as the water balance management.

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

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

Discuss the basis for the Finding/Deficiencies Identified:

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

Spill prevention and containment measures are provided for all tanks containing cyanide: mixing, storage and process solution tanks. All cyanide process circuits are located in the mill building on concrete surfacing which is in good condition and provides a large containment area.

The entire process area is contained within a concrete pad surrounded by curbs and walls, providing a competent barrier to seepage. The concrete floor is sloped to drain to concrete trench drains, where any spill will be pumped back to the process.

The secondary containment system is inspected daily as part of the process facilities inspection system. The auditors inspected the following process tanks areas during the site visit checking that the concrete containment systems were in good condition: cyanide mixing and storage area, Merrill-Crowe and ConSep Acacia system, leaching circuit tanks, CCD circuit, clarifier filters and the hypochlorite- based cyanide destruction system, all with containment measures.

The auditors also verified that the filtered tailings plant and the adjacent water treatment plant have a secondary containment system and are built on a concrete slab with slopes, sumps and berms that would prevent any spillage of solution to the environment.

The arrangement of tanks and secondary containment at the storage, mixing and process tanks has remained unchanged since the last certification audit: ConSep Acacia CS 4000 system, CCD circuit, the leach circuit, clarifier filters and tower of the Merrill-Crowe circuit and the hypochlorite-based cyanide destruction system. Also, the arrangement of the reclaim water tank has not change during this certification period.

As described in that occasion and found in compliance, secondary containment areas for the cyanide tanks are sufficient to contain volume of the largest tank within the secondary

containment area, including pipes leading that would drain back into the area. Containment areas have sump pits with dedicated pumps that return collected solutions back into the process circuit.

Although the system is designed with sumps and dedicated pumps and piping to return all solutions in the secondary containment to the production process, the operation has written procedures describing how any cyanide solution or cyanide-contaminated water that is collected in a secondary containment area is handled and to determine if the water contains cyanide or not, and what is done with the water.

There is no discharge of cyanide-containing water from the secondary containment areas. The operation has dedicated pumps within secondary containment collection areas that remove solutions and return them into the process circuit. The automatic sump pumps are part of the defined preventive maintenance program. The sumps are equipped to automatically pump solutions back to either tank. Water levels in the sumps are monitored in the control room. The secondary containment for the day tank drains by gravity via an overflow pipe to one of the ball mills.

All cyanide process tanks at Kupol Mine have concrete secondary containment. All cyanide process solution pipelines at the operation are located within a concrete secondary containment provided for the process.

The pipelines for tailings delivery to the TSF and reclaim water are located above ground along the road from the mill to the TSF. There are three HDPE tailings pipelines with one serving as a backup. Two HDPE reclaim water pipelines are installed, which are connected to a booster pump station, and the pipelines are heat-traced to prevent freezing.

None of the above pipeline routes have altered since the last recertification audit and containment measures remain in place. The pipelines are fitted with pressure sensors and flow meters capable of detecting blockage or leaks. Cutoff valves are also installed to facilitate the isolation and repair or replacement of any leaking pipeline sections.

Routine pipeline inspections are performed periodically as another preventive measure, inspections are documented.

Preventive maintenance programs including pipe wall thickness testing and rotation of transit tailings pipelines are used to prevent excessive wear on one side of a pipe.

On evaluation of the adequacy of spill prevention and containment measures for cyanide pipelines on the operation and the environment, the auditor did not identify any proximity to surface water as a significant factor in determining the necessary control measures. No release from a pipeline was identified could reach surface water.

As stated in the last audit report, based on the pipeline locations, natural topography, and diversion or catchment basin placement, it is unlikely that any release from the tailings or reclaim pipelines could reach surface water.

All cyanide mixing, storage and process tanks are constructed of coated carbon steel; solution pipelines are constructed of steel or HDPE, which is compatible with high pH cyanide solutions.

Material specifications and construction material testing records for all cyanide-containing equipment were found in compliance on the initial certification audit, according to reports on the ICMI´s website. Minor changes as replacement of pipeline sectors have been done during the audit recertification period due to maintenance requirements and were replaced with materials compatible with cyanide and high pH conditions. This requirement was verified by inspections and discussions with the Chief Mill Engineer.

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:

The operation is in FULL COMPLIANCE with Standard Practice 4.8 requiring quality control/quality assurance procedures to confirm that cyanide facilities are constructed according to accepted engineering standards and specifications.
Quality control and quality assurance (QA/QC) programs were implemented during the construction of cyanide facilities at Kupol Mine. The mine maintains files with QA/QC reports for the facilities constructed before the last recertification audit in 2017, which were found in compliance with the Code requirements.

The operation has implemented QA/QC programs for the new cyanide facilities built that were built or that went into operation during this recertification period. New facilities in operation since the last Code audit are:

- a dry-stack tailings filter cake plant. The plant allows for tailings storage for the current mineral reserve estimates, and flexibility to permit additional storage capacity for potential mine life extensions;
- the tailings facility was upgraded to allow filter cake disposal of dry tailings, which increased capacity to provide sufficient storage for current Kupol and Dvoinoye reserves, and allow for potential future increases in reserves; and
- a daily tank for cyanide reagent quality solution has been installed on top of CCD tank #1, to allow dosage of cyanide to the system by gravity.

The operation retains all QA/QC records on file including as-built drawings and commissioning packages for construction of new cyanide facilities. These commissioning packages vary in content depending on the type of unit implemented, and type of construction method used.

Russian regulations require that all industrial facilities classified as hazardous be constructed according to stipulated design. Government inspectors oversee the process to ensure that these facilities are constructed according to design standards and technical specifications and, prior to commissioning, requires documentation certifying that all components of construction were completed according to appropriate design and specifications. This documentation is produced for major facility components and typically includes a "passport" and one or several supporting "acts." The passport document provides a description of the facility component and its technical specifications. The act is the certification for each work component associated with the facility covered by the passport.

The commissioning packages included documents which were signed by the operation representatives namely the deputy general director and general manager. Documentation reviewed included acts of acceptance of operation, protocols of acceptance testing, acts of commissioning, technical specifications, pressure testing acts, work inspection acts, joint testing, foundation acceptance act, concrete mix and concrete specifications, concrete mixing design sheet, as built survey of control points and concrete foundation, documents of quality control, materials quality certificates.

The above documents describe the overall design, modifications during construction, earthworks, field and laboratory test results, and description of QA/QC procedures and results. The packages provide as-built drawings, and formal written confirmations that construction was completed in accordance with the specified design.

All QA/QC programs addressed the suitability of materials and adequacy of soil compaction. The mine maintains files with the QA/QC reports for its cyanide facilities.

The QA/QC reports include soil compaction tests, subgrade and concrete testing, fabrication material certificates and technical specifications for High Dense Polyethylene (HDPE) products, geosynthetics, liners, piping, electrical and mechanical instrumentation. QA/QC reports also include non-destructive test logs, destructive test logs, vacuum tests, pre-weld tests, destructive sample tests, and repair controls.

Quality control and quality assurance records have been retained for cyanide facilities; the operation maintains all QA/QC documentation onsite for all facilities related to cyanide.

Qualified engineers performed the QA/QC inspections and reviews during construction of the cyanide installations at Kupol Mine and prepared the final construction reports certifying that the facilities were constructed in accordance with the design drawings and technical specifications. The commissioning packages provide evidence that qualified personnel reviewed the construction of the cyanide facilities, and the facilities were built according to approved designs. As a standard practice, the QA/QC documentation for the process facilities were approved by the government agency certified engineers or by engineering companies certified by the Russian Federal Service of Ecological, Technological and Nuclear Supervision (RosTechNadzor or RTN)to perform such inspections.

The auditors reviewed records of construction reports, including as-built drawings for the new cyanide facilities. As-built drawings were properly stamped by qualified engineers.

The operation has as-built drawings/certification and QA/QC documentation for all cyanide facilities which are properly stamped by qualified engineers.

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:

Kupol Mine is in FULL COMPLIANCE with Standard Practice 4.9 requiring implementation of monitoring programs to evaluate the effects of cyanide use on wildlife, surface and ground water quality.

There is a very comprehensive monitoring program in place which covers aspects such as monitoring sites, sample methodologies and sample analysis. All of these are specified in SOP's which are adhered to. In the event of any changes, these SOPS are modified after due diligence is done and if found to be reasonable, will be implemented.

All sampling and analytical protocols were developed by qualified personnel. Both a Governmental Agency and Wood Consulting (Canada) has verified and consulted on the appropriate protocols.

All procedures are comprehensive, and all samples are analyzed on site. Some samples need to ship off to an independent laboratory, and these are transported under strict conditions to ensure that no cross contamination can occur. The sample handling procedures includes information on how and where samples should be taken, sample preservation techniques, chain of custody procedures, shipping instructions, and cyanide species to be analyzed.

Sampling conditions as weather, livestock/wildlife activity, anthropogenic influences and procedures are documented in writing. This requirement was verified through discussion with the Environmental Manager and review of the monitoring program.

The operation monitors for cyanide discharges of process water. This forms part of the very comprehensive monitoring process that the mine has in place. CMGC does not discharge process solutions to the environment. The tails from the last CCD thickener are routed to a calcium hypochlorite-based cyanide detoxification circuit. Detoxified tails with total CN and WAD CN are below the method detection limit. The monitoring program for Kupol Mine includes sampling at surface stations along the river, and sampling of monitoring wells located downstream of the TSF. The program is required to determine total cyanide and thiocyanate concentrations. The database was reviewed showing data for the whole audited period; and all

total cyanide readings show values below the method detection limit (MDL) as regulatory limit for drinking water. This requirement was verified by reviewing the monitoring program and discussions with the Environmental Manager.

The operation inspects for and records wildlife mortalities related to contact with and ingestion of cyanide solutions. They do have a program that monitors for any mortality rates, and at the time of the audit there were zero mortalities encountered since the previous audit. Weekly inspections are conducted at the TSF and external cyanide storage compound and include requirements for observations of wildlife and any wildlife mortalities.

Monitoring is done on a continual manner during all weather conditions in order to capture real time data. If there are any changes, these can be identified immediately, and process changes made to alleviate any changes found in the monitoring data.

The frequency for groundwater monitoring wells is weekly, and monthly for the south well. Water from the steel tank receiving runoff from the external cyanide storage compound is sampled during spring and summer and prior to any discharge. Other water sampling points such as the pump back sump at the top of the TSF embankment are also sampled monthly. The sampling frequency is considered adequate for characterization of the medium and to identify any changes. Data collected during the audited period illustrated all readings to be below the MDL. This requirement was verified through review of the monitoring program and the chemical analysis database.

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 Practice 5.1.

Describe the basis for the Finding/Deficiencies Identified:

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

The Mine has a detailed and comprehensive plan of action for decommissioning the operation. The plan includes a complete schedule along with timelines, activities to be completed as well as sections of the operation affected at any given time during the decommissioning phase. The plan is reviewed on an annual basis and takes into count and changes to the operation and these will be incorporated into the plan.

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:

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

Kinross has a detailed costing analysis for the operation which will cover any eventuality during the decommissioning phase. Corporate guidance requires the use of third-party closure costs as the basis for the estimate. The cost estimate developed for cyanide related decommissioning activities is based on third party implementation. This is updated on an annual basis and is available in their Annual Report.

Russian regulations do not require a financial guarantee to address the cost of decommissioning and closure of cyanide facilities. Kinross has in place, a very comprehensive Financial system to cover all eventualities in the event of the mine being decommissioned.

Their Financial system covers all eventualities in the event of the mine being decommissioned. The Auditor was shown the financial data to back up their plan of action. Kinross's accounting systems are also audited and verified by their external auditors, KPMG.

The operation has established a financial self-assurance mechanism for decommissioning activities. This internal corporate-level code is designed specifically to address this ICMC requirement in countries such as the Russia Federation that do not impose specific financial assurance requirements.

CMGC annually prepares the "Kinross Decommissioning Liability" (KDL) estimates for the Kupol Mine. These annual estimates are required over the life of the mine, or more often in response to major facility or operational changes or cost increases/decreases. The KDL estimates include a cost allocation for the cyanide storage area, mill, man camp, tailings earthworks, monitoring and tailings water treatment.

Financial assurance costs are based on the current KDL estimate spreadsheet and adjusted for the guidance provided in the ICMC. Kinross's internal code also requires verification

through 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. The Auditor was shown the financial data to back up their plan of action. Kinross's accounting systems are also audited and verified by their external auditors, KPMG.

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:

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

The operation has developed and implemented Guidebooks, Regulations and Instructions describing the safe practices to perform cyanide related tasks for mixing and storage, and process plant operations, including entry to confined spaces and equipment decontamination prior to maintenance. These documents provide detailed information for the risks involved with each task and adequately describe safe work practices.

The Guidebooks are manuals developed to train the process plant operators in diverse areas as mixing and storage, leaching circuits and Merrill Crowe hydro metallurgists, refinery operators, mill tailings and Acacia system operators, forming the basis for operators training program.

The Regulations deal with inspections for the process plant, first aids and cyanide containers storage area, among others. Instructions documents are focused in safe procedures related to cyanide activities as transportation and handling, mixing and storage, chlorination, entering to confined spaces, maintenance, heap leach area, HCN monitoring, remediation actions and cyanide containers disposal, among others.

The contents of instructions are specified by the Russian Regulator as required for hazardous facilities and include requirements for task training, use of PPE, pre-work checks, emergency response, safety measures specific to work tasks, first aid and task completion requirements. The Instructions include general requirements for specific tasks, worker safety, safety checks,

permitting requirements, use of specific tools and equipment, risk assessment procedures and emergency responses.

The procedures detail task specific Personal Protective Equipment (PPE) requirements, and for activities where it has been identified necessary, pre-work inspections are addressed in the procedures.

In addition to the use of general PPE, such as hard-hat, steel toes shoes, reflective and high visibility clothes, hearing protection and safety glasses throughout the mine areas, or tasks where personnel may come into contact with cyanide have additional PPE requirements. Observations during the audit confirmed that hard hat, hearing protection, rubber boots, rubber gloves, chemical suits, face shields and approved respirator were in use for tasks that were performed at the cyanide mixing area.

Work instructions require that pre-work checks are completed prior to undertaking tasks including cyanide related tasks. Pre work inspections are completed at the beginning of every shift and recorded in checklists. The auditor reviewed records of pre-works inspections for the last three years and found them to be complete.

The operation has a written procedure Management of Change (MOC), to manage changes in the facility. The change management procedure identifies changes to the facility and its operating practices that may increase the potential for workers to be exposed to cyanide before such changes are implemented so that they can be evaluated and addressed as necessary. The procedure requires a written notification to safety personnel and a sign-off before the change can be instituted. Verification was through a review of the procedure as well as completed forms that have been signed off by safety personnel during this recertification period.

Kinross has the corporate directive 6.1-C2 “Project Review Checklist for International Cyanide Code Compliance” to ensure all ICMC requirements are identified and addressed early in the project planning and project development cycle, and when any facility or operating process change is planned, which may impact management of cyanide or cyanide solution.

The auditors reviewed two changes in the installations which were evaluated with the MOC procedure during the recertification period.

The operation considers worker input into the development of health and safety procedures through various mechanisms and implements an open-door policy for employees to provide input into operations including health and safety matters. Workers have direct communication between supervisors and operators during daily shift meetings and regular health and safety management meetings.

The operation operates under a duty of care towards employees and integral to this process is soliciting and obtaining worker feedback through a variety of mechanisms. These include

encouraging feedback and submission of recommendations during safety meetings and accessibility to an online risk terminal reporting system, whereby mean of computer terminals located in different areas of the operation, through which employees can report hazardous conditions, unsafe practices or safety concerns (anonymously if desired).

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:

The operation is in FULL COMPLIANCE with Standard Practice 6.2 to operate and monitor cyanide facilities to protect worker health and safety and periodically evaluate the effectiveness of health and safety measures.

During cyanide mixing, barren solution entering the mix tank is maintained between pH 11.3 and pH 12. A pH meter installed in the mix tank allows adjustment of pH as necessary during the mix procedure. The pH of the mix tank is checked to ensure correct pH level prior to the application of sodium cyanide. This was confirmed during observation of the cyanide mixing process.

The leaching circuit is maintained with a pH between 10.5 and 11 to prevent the formation of HCN gas and optimize the efficiency of the process. Cyanide solution is added to the first, second and third leaching tanks at an adjustable flow rate. Lime milk is added to the pre-aeration tank, and the first and third leaching tanks. Lime is required to adjust pH level above pH 11, while cyanide is added based on silver and gold content.

The pH level is monitored throughout the process with pH meters installed in the leach tanks set to trigger lime addition should there be a decrease of conditions to below pH 11.4. Manual sampling of leach tanks 1 to 5 is also undertaken twice per shift (four times daily) to determine pH and cyanide levels. The results are logged on the Leach Operator Report Sheet and the Control Room Operator Logbook.

HCN gas levels are monitored through ambient (fixed) and personal devices. Fixed monitoring devices, Draeger Polytron 7000 model, which have been calibrated to signal an alarm at 4.7

ppm and 10 ppm levels of HCN gas, are mounted in all areas of the plant in which HCN exposures are possible.

The operation has personal monitors, which also have been calibrated to signal an alarm at 4.7 ppm and 10 ppm levels of HCN gas. These monitoring devices are provided for personal for use in areas where there is a potential for HCN gas generation.

There are six areas with potential for HCN generation that have been identified by the operation and have been fitted with fixed HCN monitors: the cyanide mix room, leach area, Acacia plant, CCD circuit, Merrill Crowe area, and cyanide destruction area.

The units are fitted with a visual alarm comprising red and amber visual cues; and an audio alarm. If ambient HCN concentrations above 4.7 ppm are detected, the amber light is activated. The red alarm signals if HCN levels exceed 10 ppm. HCN levels are displayed at the front of the unit and on monitors within the Control Room. Standard operating procedures requires that in the event of a stationary alarm being triggered at levels above 4.7 ppm, but below 10 ppm, a handheld multi-gas monitor is carried in the area and workers must use appropriate PPEs to ensure continuous safe working conditions. Where HCN levels exceed 10 ppm, procedures require evacuation of the area.

HCN gas levels are monitored at several locations around the mill using portable HCN monitors on a 10-day schedule, to identify areas and activities where workers may be exposed to cyanide in excess of 10 parts per million on an instantaneous basis and 4.7 parts per million continuously over an 8-hour period. Ambient monitoring is carried out in order to meet the Russian regulatory workplace 8-hour exposure threshold of less than 0.3 ppm HCN. Recorded HCN levels over the past three years have generally been below the Russian regulatory threshold of 0.3 and below 4.7 ppm.

The fixed monitors are dispatched annually for calibration to St Petersburg University which is a certified calibration organization and issues calibration certificates for each instrument . The operation maintains additional calibrated fixed HCN monitors, which are used as replacements for those units sent to calibration.

Calibration records and certificates are retained on records by the Instrumentation Services technician. Kupol's Instrumentation Service also conduct internal checks of fixed monitors using a 10 ppm HCN calibration gas and through comparison with personal monitor readings to identify any obvious errors.

The Instrumentation Service Department also calibrates the personal monitors on a monthly basis using 10 ppm HCN calibration gas. Inspection of documentation confirmed that calibration records were retained by the Instrumentation Service technician.

Warning signs are posted in all areas where cyanide is present as at the mill entrance, the cyanide mix room, the cyanide mix and storage tanks, leach tanks, CCD tanks, the Acacia plant, Merrill Crowe units and the cyanide destruct chlorination plant. Signage has also been

placed at the booster pump station, seepage collection ponds, at the entrance of the reclaim barge pump house.

Warning signs advise workers that cyanide is present, the PPE and that open flames are not allowed, among others. Smoking, eating and drinking are only permitted as designated areas at the mine site. Induction training and annual knowledge refresher training is explicit on the hazards of smoking, eating and drinking in areas were cyanide is used and prohibits such activities.

Confirmation was made that the mine operation is using high strength cyanide solution that is dyed red for clear identification. A sample of the solution was taken from the process tank to demonstrate conformance with this practice.

The operation has installed showers, eye wash station and fire extinguishers at strategic locations throughout the operation in all areas where there is a potential for exposure to cyanide.

Showers and eye wash stations are located around the leach tanks and CCD circuit, the cyanide mix room, Merrill Crowe units, cyanide destruct plant and the Acacia Plant. The units are yellow for easy recognition with pressure gauges showing adequate water pressure also noted. The units are inspected and tested every shift and prior to beginning a task that has the potential for cyanide exposure (examples: cyanide preparation and opening a pipeline for maintenance). Inspections are undertaken in accordance with an equipment checklist. In addition, separate planned inspections are undertaken by safety offices, supervisors and managers including checks of emergency shower operation and access. The inspections are recorded in an inspection logbook.

Fire extinguishers within the mill area and other cyanide use areas are dry chemical ABC type extinguishers. Work instructions specifically prohibit the use of carbon dioxide extinguishers within the mill. Monthly inspections of fire extinguishers are completed by departments. Other firefighting measures include wheeled dry chemical fire extinguishers retained by the fire department and a water fire suppressions system. The Fire Brigade Commander is also required to conduct monthly inspections of fire safety equipment with any extinguishers requiring repair or refurbishment are returned to the manufacturer.

The operation has identified all tanks and pipes that contain cyanide solution to alert workers of their contents. Pipes containing cyanide are marked as containing cyanide solution and flow direction is indicated. Cyanide storage and process tanks are marked as containing cyanide. Verification was by visual inspection. Auditors followed the cyanide solution circuit from the cyanide mixing area to the process plant facilities.

Cyanide warning signs are prominently displayed at the entrance to the mill, access door to the cyanide mix room, on cyanide mix/storage tanks, CCD and leach tanks, the Merrill Crowe units, the Acacia unit and the cyanide destruction tanks. Other areas such as the seepage

collection ponds, booster pump station and the entrance to the reclaim barge pump room are also signed.

The operation has available SDS and first aids procedures in all areas where cyanide is managed. All information relating to cyanide management including SDS information, procedures and emergency response plans are provided in Russian, the workforce language of operators in the plant. SDS for reagents used in the mill including sodium cyanide are posted at key areas in the plant including the mill reagent storage area, cyanide mixing area, operational areas in the leach circuit and
external cyanide storage compound.

Electronic Safety Data Sheets (SDSs) are accessible to all staff from computers located throughout the facility using the online portal and which all staff are trained to use. AII employees receive training on the use and interpretation of SDSs, in accordance with local requirements for hazard training.

First aid is described in work instructions and procedures. Written first aid procedures are also located at first aid stations located in the plant. In addition, signage is posted throughout the plant comprising chemical warning signs and mandatory PPE requirements.

Incident reporting is detailed in Regulation N° 7, requiring for incident reporting and investigation to determine the basic causes of the incident, provide remedial action and medical attention and ensure that a similar incident does not reoccur.

Incidents, occupational injuries, occurrences of property damage, loss to process and near misses are recorded onto an online reporting system. Reporting is required within 24 hours on occurrence to the H&S Managers for review and subsequently reported to the General Manager Deputy, General Manager and H&S Managers. The incident report is assessed further at incident report meetings.

The operation incident reporting complies with local regulations as well as the Kinross corporate procedure. Under Russian Regulations, all incidents involving cyanide are considered safety incidents and are reportable.

All incidents are investigated in accordance with mine´s guideline with root cause analyses completed. Incidents are retained on the database for categorization and aid in prevention of reoccurrence. The system is used to record health and safety related incidents only.

During this recertification period the operation experienced one fatal incident that was not directly related to a cyanide management operation. On November 5, 2017 a worker fell to his death into a mixing tank during its operation.

The fatality was extensively evaluated by an Investigation Committee and was led by an authorized representative of the Russian supervisory authority (RTN). A completed investigation report was submitted to Russian authorities and accepted. An internal Kinross

corporate incident report was prepared for internal submission. The ICMI requirements for a thorough investigation and reporting were fulfilled. This was verified through review of incident investigation reporting system and discussions the H&S Manager.

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.

Summarize the basis for this Finding/Deficiencies Identified:

The operation is in FULL COMPLIANCE with Standard Practice 6.3 to develop and implement emergency response plans and procedures to respond to worker exposure to cyanide.

The operation has made available antidote kits, water, oxygen, resuscitators, radios, telephones, and alarms in the process plant and medical center.

Cyanide antidote kits consisting of amyl nitrite ampoules with expiry date information are located within small refrigerators fitted with thermometers to ensure that the ampoules are stored within a regulated temperature range, located where cyanide in reagent grade is present: cyanide mix room, leaching tanks, CCD circuit, Merrill Crowe area, refinery room, Acacia reactor, outside of the control room, within the control room, and the external cyanide storage compound. Paramedics and medical response personnel based at the camp medical clinic also retain an antidote kit in their emergency response kit, with reserves also kept in the clinic fridge.

Oxygen bottles are located at the medical center; the auditors recommended, as an improvement opportunity, to include oxygen bottles with the emergency kits.

Operators are required to carry a radio while performing their tasks. Fixed line phones are located at key locations in the mill and operators also carry cellular mobile phones. Key areas in the process plant are fitted with cameras and linked to the control room to provide remote monitoring. The cyanide mix room and reagent store have push buttons alarm that activates a siren.

Emergency response equipment is regularly checked by security officers as required in Regulation 22 for cyanide first aid kits inspections. Inspections include checks of expiration

dates of cyanide antidote kits and temperature and notify Safety if replacements are required. Each fridge is sealed with a signed tag and only broken if necessary, such as in an emergency or in the presence of the management team. The fridges are also visually inspected during each shift to ensure that the seals remain intact, and if broken the contents of the fridges are inspected, replaced if necessary and resealed.

Mill operators complete workplace inspections during each shift, including an inspection of area specific showers and eyewash stations.

As stated in the previous audit reports, Russian Regulators have required the development of three emergency response plans, one for the mill and process plant, other for the reagent storage area and one for the tailing facility.

The emergency response plans (ERPs) include communication roles and responsibilities, evacuation procedures, required notifications, reporting procedures, incident categories and risk assessment. The ERPs are specific to their operations.

The ERPs have developed for several scenarios including transportation incidents, releases during unloading, releases during fires and explosions, pipe, valve and tank ruptures, power outages and pump failures, uncontrolled seepage, failure of cyanide treatment and failure of tailings impoundments.

The ERPs detail actions and measures assigned to individuals/organizations that are responsible for responding to an emergency. These include emergency communication procedures both internal and external communications with the public and government agencies.

The operation has a fully staffed emergency response team (ERT). The team comprises members in two shifts. They train through all the year. Training includes first responder on site, HAZMAT training and have achieved different training levels.

Paramedics also form part of the ERT and are certified to provide onsite training. The paramedics are qualified to provide medical/emergency assistance. They have been trained in first aid related to cyanide exposure.

The mine has automatic defibrillators (AD) equipment in different places, has a first container equipped with all equipment necessary to respond to any chemical emergency, including cyanide.

Due to the remoteness of the Kupol Mine, the operation has capacity to respond to most medical emergencies at the site. The site operates a 24/7 onsite medical clinic located at the camp with a minimum of one doctor and a paramedic in attendance. Paramedics are required to be recertified every 5 years which involves refresher training and examination. For transportation, the operation has a dedicated ambulance, fixed wing aircraft and helicopters,

all of which are available 24 hours a day to evacuate patients to medical facilities or hospitals for further treatment if necessary.

If a cyanide exposure victim requires medical attention beyond the capabilities of the on-site medical facilities, the ambulance maintained at the site will transport the victim to the operation airport from which the victim would be transported via airplane or helicopter to the nearest hospital located at Bilibino, an approximate one hour flight from site.

Although there have been no cyanide related casualties transported to Bilibino Hospital, the operation is confident that the hospital can provide the necessary level of care for such cases, as it maintains a specialist toxicological unit. Other hospitals are available in Anadyr, Magadan and Pevek and selection of the appropriate hospital will depend on the specific nature of the medical emergency.

Russian Federal Law 323 stipulates that all medical facilities in the country are to provide emergency first aid unconditionally. As such the operation do not have formal agreements in place to provide medical services. However, in the event of a cyanide related casualty, Bilibino Hospital is the first option considered due to its closer proximity relative to other hospitals and also having a specialist toxicological unit. Although the hospital has not been used in this scenario before, the operation is confident of their ability to treat cyanide related medical cases.

The operation performs emergency mock drills twice a year and holds regular training sessions to the ERT which are expected to attend a minimum of training sessions annually.

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:

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

The Auditor was shown a comprehensive ERP that detailed possible scenarios as well as the Roles and Responsibilities of various personnel. This plan covers the following:

- Operational Resources,
- Response resources cooperation arrangements,
- Procedures to ensure constant preparedness of resources,
- Involvement of Management and communication between the teams,
- Local population safety,
- Arrangements of inventory, logistics, engineering and financial support.

The ERP covers all eventualities as well as specific roles and responsibilities for each response Team Member. Since the Mine is far removed from any community as such, the Plan does mention community involvement, such as for transportation incidents, but for the main part, the community would not be involved.

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:

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

All members of the response teams are constantly involved in the form of drills, and regular training. The affected communities are involved in the form of outreach programs which are an ongoing process. This involves local communities and Elders and Leaders who are invited to the mine to learn about the operation and what the Mine does to ensure that operations are managed in a way to minimize any risks, and in the event of anything happening, that there are procedures to mitigate any incidents.

Since the mine is so far removed from anything, any incident needs to be managed in house. As far as Medical facilities go, there is a procedure in place whereby any affected parties can be airlifted to the closest medical facilities for further treatment if they cannot be comprehensively treated on site.

This ERP is updated annually and with the drills that are conducted, feedback from stakeholders is taken into consideration when updates need to be done. Any drills that are done are also analyzed to ensure that procedures are correctly followed and if the procedure has changed, the plan is also modified to reflect those changes.

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:

Kupol Mine is in FULL COMPLIANCE with Standard Practice 7.3 requiring the designation of appropriate personnel and commitment of necessary equipment and resources for emergency response.

Specific teams have been identified who are on call 24/7. Each team that has been identified receives training as needed for their specific roles. Since the mine operates on a 24/7 basis, there are team members available at all hours to respond to any emergency. Each team has specific roles, duties and responsibilities that are spelt out in the ERP and various scenarios that were shared with the Auditor.

All emergency response equipment is checked on a monthly basis to ensure that it is fit for purpose, and if found to not be suitable, is replaced.

All the various roles are outlined in a detailed manner and that includes what they are responsible for as well as their specific duties during an emergency.

Since the mine operates at a remote location, the main outside entities would involve the nearest hospitals for medical treatment as well as the local Governmental Agencies. The communities are involved as per the stakeholder procedures.

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

The operation is: ■ in full compliance

□ in substantial compliance

□ not in compliance with Standard of Practice 7.4.

Describe the basis for the Finding/Deficiencies Identified:

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

These procedures are very specific to cover all eventualities as well as to have open communications with Management and medical facilities. External stakeholders, such as regulatory agencies or local governmental agencies are also listed, and contact details are updated at least on an annual basis.

Even though the mine is located in a remote area, they are in contact with the communities.

Any Press releases will be handled by the Regional office and communication between the mine and the office in Magadan is constantly maintained.

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:

Kupol Mine is in FULL COMPLIANCE with Standard Practice 7.5 requiring the incorporation into response plans monitoring elements and remediation measures that account for the additional hazards of using cyanide treatment chemicals.

The plan does cover any accidental spillage scenarios which includes the afore-mentioned examples listed above. There is a specific ERP that covers any cyanide release scenarios. This plan is up to date and has the authorization of both the Deputy Director of Interregional Process Management as well as the Director of the Ministry of Emergency Situations, MChS, or internationally as EMERCOM Russia Main Office for the Chukotka Region.

No additional chemicals are added in whichever way to deal with any cyanide releases. Kupol has an extensive monitoring system in place and the Auditor was shown records going back several years for the monitoring points. All sampling methodologies are in line with global accepted practices.

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:

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

These plans are reviewed on an annual basis as a minimum. If there are any deficiencies found, for example during a drill, or some equipment has changed, the plan is updated, and any updates are relayed to the various Teams in order to keep them up to date.

There are various drill scenarios that are outlined, and these are practiced on a regular basis as part of the training requirements for the Teams, as well as to assess the accuracy of the plans. Any issues found, can then be evaluated and then the plans can be modified.

If any cyanide related incident occurs, Management has a standing order that after the investigation, the ERP must be re-evaluated and if needed, changes 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:

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

All Employees undergo a 2-3-day Safety Briefing when they arrive. These briefings are general but are tailored to address issues like Cyanide awareness where the Position warrants it.

Refresher training forms part of the Annual Knowledge Assessment that is conducted in December / January each year. All training records per Employee, are retained while the Employee works for the Mine. Even if the Employee changes to another Department or area, the records are still kept.

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:

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

Kupol Mine trains all workers to perform their normal production tasks. All tasks that the Employee will need to perform are laid out within the Training Program, and HSE elements are incorporated into the Standard Operating Procedures. Once the Employee has completed the Safety Briefing, he will then complete a test. He will then go to his new Department, where a Tutor will be assigned to him. A complete schedule of Training Elements will then be followed under tutelage and once all these Elements have been completed, the Employee will then be subjected to a written test.

A Tutor (who has years of experience), is assigned to each new Employee to oversee their training. Each employee is expected to complete each module in their training course, and this includes Cyanide handling (in the case of the Mill), and other specific modules that the employee may need, such as First Aid.

Every module done is assessed by either a written exam, or verbally and the employee is expected to demonstrate competence before they can move on. Annually, the employee will undergo a verbal exam that covers not just the SOP's, but issues like handling NaCN, working at heights, working in confined spaces, First Aid, Fire Fighting just to name a few examples. All exams, (whether written or verbal) will be evaluated by the Mill Manager, HSE Manager and Chief Metallurgist.

All training records per Employee, are retained while the Employee works for the Mine. Even if the Employee changes to another Department or area, the records are still kept. Evidence shown to the auditor included three employees and the records included the names of the employee and the trainer, the date of training, the topics covered, and if the employee demonstrated an understanding of the training materials. All training programs

are approved by the Russian Federation, and in 2017, this training program received an award for the best training program for the mining industry in Russia.

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:

Kupol Mine is in FULL COMPLIANCE with Standard Practice 8.3 requiring the training of appropriate workers and personnel to respond to worker exposures and environmental releases of cyanide.

All cyanide unloading, mixing, production and maintenance personnel in the mine are trained in the procedures to be followed if cyanide is released.

Decontamination and First Aid are examples of training areas that are frequently revisited, and Drills are regularly done in the Cyanide area. Any anomalies that are found during the drills are analyzed and corrective action is taken.

Both the Emergency Response Coordinators and members of the Emergency Response Team are trained and certified in basic firefighting, emergency response, first aid and SCBA use which are provided by external trainers. CMGC also provides their own internal emergency response training program which considers fires and cyanide spills in the mill and external storage compound, or during transport to the mill, including the use of necessary response equipment.

Since the Mine is in a remote area it must be self-sufficient in order to deal with any eventualities. Communication has been made with the hospital in Bilibino, so that if any patients need to be airlifted to Bilibino, they will be aware of the initial risks, and the Security Control Room will keep them up to date with new information. Other hospitals are available in Anadyr, Magadan and Pevek and selection of the appropriate hospital will depend on the specific nature of the medical emergency.

Once drills are conducted and analyzed, then refresher training is done based on drill findings. All personnel are required to successfully complete annual knowledge assessments to the satisfaction of an examination committee approved by the Russian Regulator RTN. For employees that encounter cyanide in the workplace including the Emergency Response Teams, the knowledge assessment includes cyanide hazard assessment, PPE, first aid and fire response.

Evidence produced showed drills done and various scenarios, as well as a document "Emergency Containment and Response Plan for Hydraulic structures of Kupol Mill Tailings Facility". This document deals with various scenarios regarding environmental releases. It was revised in 2018 and is valid 2019. Evidence shown proved that learnings from drills held would be used in revising of Training Procedures as well as assessing the individuals' Competency. Any deficiencies identified will be addressed.

All employees have their own training record files which contain the following: Topic covered, Date of completion, Name of the trainer, and, whether competence was measured and attained.

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:

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

Since 2013, Kupol embarked on an open dialogue program with the local Communities. Besides Education of Cyanide, they also focus on Environmental issues, since this is a very important topic to the Local Indigenous People. Members from the various Communities in the Chukotka Region are invited to engage with the Mine regarding any concern that they may have.

The last Outreach Program was held in April 2019, and the next planned for January 2020 with Leaders from 2 Villages invited, as well as a group of Reindeer farmers.

In 2014, an Environmental Program was started with 50 people from 4 different areas in Chukotka invited with the intention that these people go back and share their knowledge with the rest of the Community. It was also in 2014 when Kupol started Hydroponic farming close to the Base Camp.

Kupol was featured in a Siberian Mining article in the July 2014 edition of National Geographic magazine, and Kupol has received several Awards in the Chukotka and Magadan Regions for work done in this regard.

Kupol also received Awards from the World Wildlife Fund in 2017 (First), 2018 (Joint First), and the Awards for 2019 will be held after the WWF visit on 18th December 2019.

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:

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

Besides having an open dialogue with the Communities, Kupol also invites a number of delegates for 3 – 4 days at a time, and during these visits, focus is given to: Environmental concerns and how the Mine is dealing with them, Ongoing concerns from the Communities, and these visitors are taken around the Mine and shown all aspects of the Mining activities.

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:

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

Each visit by the Leaders and Elders of the Community starts with various presentations informing them of Mining aspects, and printed presentations are given to them to take back to share with their Communities. Besides verbal presentations and talks in various areas of the Mine, all information is in written form, (Russian). Russian is the Language of instruction and the literacy rate in the region is very high.

During this recertification period the operation experienced one fatal incident that was not directly related to a cyanide management operation. On November 5, 2017 a worker fell to his death into a mixing tank during its operation.

The operation reported the incident to local regulators as part of applicable governmental reporting requirements. Also, the incident was reported to Kinross corporation which was publicly available in the company's Annual Report and on its website. Under Russian Regulations, all incidents involving cyanide are considered safety incidents and are reportable.

When an incident occurs, the Mine General Manager will inform the General Director or his deputy, both located in Magadan, who would in turn take the lead in informing regulators and government authorities in Bilibino. The regulators and authorities will then in turn inform communities of the incident, making use of the media. Subsequent communications between CMGC and the authorities is through the Deputy General Director in Magadan with support provided from the Mine, as needed.
Any releases from the operation remain reportable to local regulators and the Kinross Corporate Vice President, EHS based in the US. Reportable spill data is also required to be recorded as a monthly key performance indicator, which is made publicly available on the corporate webpage. This requirement includes cyanide releases off the mine site requiring response or remediation, cyanide releases on or off the mine site resulting in significant adverse effects to the environment, cyanide releases on or off the mine site requiring reporting under applicable regulations and releases that are or that cause applicable limits for cyanide to be exceeded. During this recertification period, there have been no reported releases on or off the mine site requiring reporting under applicable regulations.