

# SUMMARY AUDIT REPORT

for the September 2016  
International Cyanide Management Code Recertification Audit



**Prepared for:**

Chukotka Mining and Geological Company  
Kinross Gold Corporation/ Kupol Project

**Submitted to:**

International Cyanide Management Institute  
1400 I Street, NW, Suite 550  
Washington, DC 20005, USA

**FINAL**

22 December 2016



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## SUMMARY AUDIT REPORT

**Name of Transporter:** Chukotka Mining and Geological Company (CMGC)

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### **Location detail and description of operation:**

The Chukotka Mining and Geological Company (CMGC) Transportation Group is a wholly owned subsidiary of CMGC. CMGC Transportation Group is devoted to the transportation of materials from the Port of Pevek (Chukotka Autonomous Region, Russia) to the Kupol gold mining operation some 400 km due south. Cyanide is delivered to the region via ship into the Port of Pevek once per year, typically in the fall.

The cyanide is shipped and stored in standard 20-foot steel intermodal shipping containers. Within each shipping container the solid cyanide is packaged in 1,000 kg 'bag-in-box' intermediate bulk containers (IBC). Together with the cyanide and the packaging each container weighs a maximum of 24,000 kg.

The containers are transported via CMGC Transportation Group truck convoys from the Port of Pevek to CMGC's interim storage facility at Km 21 along a route that is determined by the local authorities. The shipping containers are then stored at a dedicated compound until conditions are cold enough for an ice road to support heavy transportation vehicles that truck the containers to the mine site about 390 km south. The route is shown on Figure 1.

At the Km 21 interim storage facility, the sealed shipping containers are stored in an outside specially designed secure storage compound dedicated for cyanide storage. The compound is lined to provide containment in the event of a cyanide spill. The cyanide compound is surrounded by a 2 m high barbed-wire fence that is kept locked and sealed. The compound is monitored by security 24 hours/day and access strictly controlled.

Ground transportation from the Km 21 interim storage facility to the Kupol mine is conducted by truck in the winter, usually between February and April, when conditions are cold enough for the ice road to support heavy transportation vehicles. The cyanide is transported in convoys that have emergency response personnel and equipment, security personnel, spare parts and equipment, and a maintenance team. The ice road normally takes between 10-12 hours to traverse. Drivers are switched at Dvoynoye Camp, the approximate mid-way point to reduce to the chance for fatigue. On arrival at the Kupol cyanide storage compound, the Kupol mining operation takes custody of the material.

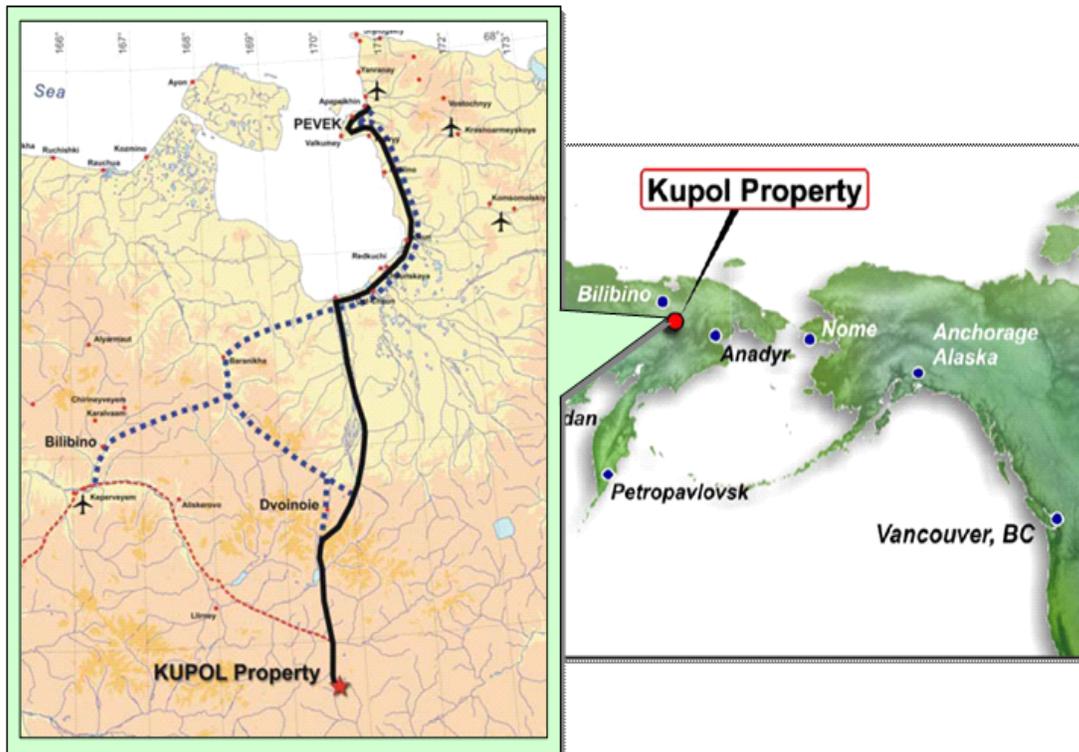


Figure 1 – CMGC Transportation Group – Pevek to Kupol Cyanide Transportation Route<sup>1</sup>

<sup>1</sup> Source: Kupol Mine, Russian Federation, NI 43-101 Technical Report (Henderson, May 2011).

## SUMMARY AUDIT REPORT

### *Auditors' Finding*

**The operation is:**

- in full compliance
- in substantial compliance
- not in compliance

The Chukotka Mining and Geological Company (CMGC) Transportation Group operation has not experienced any significant cyanide incidents, releases, or exposures, or any significant ICMC compliance issues since the previous audit in March 2013.

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**Audit Team Leader and Technical Auditor:** John Lambert  
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**Date(s) of Audit:** 29 September 2016 and 5 September 2016

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 Detailed 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 Transportation Verification Protocol* and using standard and accepted practices for health, safety and environmental audits.

CMGC Transportation Group  
Name of Transporter

  
\_\_\_\_\_  
Signature of Lead Auditor

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# DETAILED AUDIT FINDINGS REPORT

**1. TRANSPORT: Transport cyanide in a manner that minimizes the potential for accidents and releases.**

**Transport Practice 1.1: Select cyanide transport routes to minimize the potential for accidents and releases.**

■ **in full compliance with Transport Practice 1.1**

The operation is

in substantial compliance with  
not in compliance with

*Summarize the basis for this Findings/Deficiencies Identified:*

CMGC continues to transport cyanide along the same transportation route used during previous ICMC recertification audits. The route is located in a remote region of northern Siberia. The only populated area along the summer route is the town of Pevek and the route skirts the town to minimize interaction with residential areas. There are no towns, settlements or other populated areas other than the company's field camps along the winter road.

The summer and winter routes and the vehicles that use them to transport goods are strictly regulated to reduce the potential of accidents and chemical releases. Government permits are required for each vehicle that transports hazardous goods on public roads. The permitted route for transport of hazardous goods is detailed on the vehicle permit. These permits are obtained at the beginning of the summer and winter transport seasons. The route selection is based on avoiding as much as possible, populated areas, and potential hazards due to road conditions and other potential hazards. The winter road construction is inspected and approved for use each year by a commission made up of CMGC and representatives of various government agencies. Ongoing monitoring of road conditions and ice thickness at river crossings is undertaken by the government and maximum load limits are regulated based on ice conditions and thickness.

CMGC has assessed the risks associated with the supply route and implemented measures to manage identified risks. The route has not changed since inception of the cyanide transport and was established by the company's Chief Engineer in coordination with local government authorities. The summer route between the Port of Pevek and Km 21 is approved annually by the State Inspection of Safe Road Trafficking. Traffic police review the route prior to each convoy and have the authority to modify the route as necessary to avoid potential new hazards.

The major risks are associated construction and maintenance of the winter road and winter driving conditions. Construction procedures for the winter road are set out in the Operations Guidelines. In addition to government monitoring of ice condition and thickness, CGMC road

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supervisors visually monitor ice conditions and test thickness and report concerns to the governing body for follow-up investigation. The risk factors associated with the safe operation of the winter road are well understood and drivers and maintenance crew are required to report potential hazards (weather conditions, obstacles, poor visibility, insufficient thickness of road ice, lack of signage, snow drifts, etc).

The transport of cyanide is seasonal and the routes undergo a re-evaluation and approval process by CGMC and government agencies prior to the beginning of each seasonal transport campaign. Permits are required to be renewed annually for each vehicle prior to the start of the summer transport of cyanide from the port to the interim storage facility. These permits, in addition to vehicle requirements to pass specific mechanical road worthiness standards, include a detailed description of the approved route to be used. The winter road is constructed every year and prior to use has to be inspected and approved by a commission made up of CMGC and government agency representatives.

The measures taken to address risks along the supply route are described in the Rules of the Road. This procedure includes requirements for drivers to follow including restrictions on speed along various sections of the route, prohibitions on overtaking accept under specific circumstances, spacing requirements between vehicles, radio etiquette, stopping and parking restrictions, precautions when driving in poor visibility and at river crossings on the ice road. The procedure also includes requirements for pre-trip vehicle inspections, and prohibitions on driving under this influence of drugs and alcohol. The procedure also sets out training requirements for drivers and is used as a basis for annual driver refresher training.

The transportation route is located in a remote area of northern Siberia. Input from the nearby communities, local and regional government agencies, and other stakeholders are considered annually during the route permitting phase. The summer route is approved annually by the State Inspection of Safe Road Trafficking. The commission set up for the winter road construction includes representatives of various government agencies (Chaunski and Bilibino Administrations; Territorial and Bilibino and Chaunski Departments of Automobile Roads Provisions; Ministry of Emergency Situations; and Department of Hydrographical Services).

CMGC continues to use convoys for transportation of cyanide, partly for government security requirements but also for personnel safety driving in the harsh arctic winter climate. The convoys are arranged with a lead vehicle that carries the Convoy Leader and Traffic Police Inspector; followed by the convoy of trucks carrying cyanide; followed by a truck carrying emergency response equipment, a reserve truck and trailer in the event of a breakdown, and an emergency repair truck with mechanics. In addition, a security vehicle is positioned in the middle of the convoy.

***Transport Practice 1.2: Ensure that personnel operating cyanide handling and transport equipment can perform their jobs with minimum risk to communities and the environment.***

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■ **in full compliance with Transport Practice 1.2**

The operation is in substantial compliance with  
not in compliance with

*Summarize the basis for this Findings/Deficiencies Identified:*

CMGC Transportation Group only uses trained, qualified and licenced drivers and "Reach Stacker" operators; have worked with CMGC for several years. Drivers have an "ADR Certificate" for hazardous material transport as well an appropriate class driver licence for heavy vehicle tractor trailer operation. The "Reach Stacker" operators have a heavy vehicle class licence, appropriate for operating the loader.

Full time and contract employees involved with cyanide storage, handling and transportation at Km 21 complete annual training in general health and safety, transport of hazardous goods, fire extinguisher use, safety measures for handling and storing cyanide, PPE, symptoms of cyanide exposure, cyanide first aid, cyanide emergency response, cyanide spill response and remediation, and transport rules on the winter road. Trainee knowledge is tested by an examination commission. A pre-departure briefing is given by the Convoy Leader on road and weather conditions prior to the start of a convoy. During this briefing refresher training is provided that includes road safety and convoy protocol, communication, emergency response and documentation to be carried.

Although many of the personnel used in this seasonal operation are technically contracted personnel (e.g., drivers) the management of all cyanide transport activities is conducted directly by the CMGC Transportation Group management and all personnel are trained by and follow CMGC Transportation Group procedures.

**Transport Practice 1.3: Ensure that transport equipment is suitable for the cyanide shipment.**

■ **in full compliance with Transport Practice 1.3**

The operation is in substantial compliance with  
not in compliance with

*Summarize the basis for this Findings/Deficiencies Identified:*

CMGC continues to maintain a fleet of Ural-Iveco tractor trailers for transporting cyanide. The vehicles are rated at 380 horsepower, and a maximum load of 38,500 kg (comprising an unladen weight of 10, 900 kg and an allowable load on the fifth-wheel coupling of 27,600 kg) and trailers are rated to carry a maximum of 55,000 kg (comprising an unladen weight of 9,000 kg and a load capacity of 46,000 kg).

Care is taken to ensure that the equipment designed and maintained to operate within the loads it will be handling. Prior to the 2016 delivery at the Port of Pevek, CMGC was receiving

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shipping containers packed with twenty, 1,000 kg IBC boxes and transporting one container (maximum gross weight of 24,000 kg) per truck/semi-trailer. Until the 2016 delivery only one container was transported per vehicle to ensure that the load capacity of the vehicle was not exceeded. In 2016 CMGC decided to reduce the content in each shipping container to eighteen IBC boxes. This change reduces the gross weight of each container to less than 22,000 kg allowing CMGC to transport two shipping containers per truck/semi-trailer and still maintain the total load below the allowable load for the truck and semi-trailer design. To date CMGC has transported six shipping containers between the Port of Pevek and Km 21 using this new two containers per truck configuration.

The "Reach Stacker" has a maximum lift capacity of 45,000 kg. The stacker is equipped with a load moment indicator to ensure loads handled do not exceed the safe load capacity for a given lift configuration.

CMGC Transportation Group have a full service maintenance shop at Km 21 for servicing vehicles and the "Reach Stacker". Over the three year period since the last ICMC audit a preventative maintenance program has continued to be in place for each vehicle. In addition vehicles are serviced prior to each convoy and inspected by the driver and maintenance mechanic prior to leaving the maintenance shop. Vehicles are also inspected by the driver and a dispatch mechanic prior to departure of a convoy. Any concerns are addressed prior to the vehicle being permitted to depart.

Vehicles are replaced as they age and cost of maintenance becomes uneconomic. Since the last ICMC recertification audit five Ural-Iveco trucks have been retired and replaced by new vehicles.

**Transport Practice 1.4: Develop and implement a safety program for transport of cyanide.**

■ **in full compliance with Transport Practice 1.4**

The operation is

in substantial compliance with  
not in compliance with

*Summarize the basis for this Findings/Deficiencies Identified:*

For security purposes and to maintain integrity of packaging the shipping containers remain sealed from the point of receipt at the Port of Pevek to delivery at the Kupol mine warehouse. The seals are checked at designated points during transportation. The cyanide storage compound at Km 21 is guarded 24 hrs a day and there are strict security measures for storage of containers. Entering the storage compound is prohibited without written approval. During transport the containers are secured to the trailer bed using locking clamp mechanisms that are part of the trailer. The clamps are located at fixed positions on the trailer so that the container is balanced during transport.

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Each cyanide container is labelled to meet International Marine Dangerous Goods (IMDG) Code labelling requirements. The driver pre-trip vehicle safety checks include confirmation that the cyanide placarding is displayed on all four sides of the vehicle.

To minimize driver fatigue on the winter convoys, drivers are changed at Dvoynoye Camp; the approximate halfway point on the road. During the changeover, the ensuing driver conducts a mechanical and load inspection to ensure the truck is in order. The road camp is fully equipped with sleeping and dining facilities. Drivers relieved from duty stay at the camp until the next day or until they have rested sufficiently.

CGMC Transportation Group's management and convoy leaders are responsible for evaluating weather and road conditions and determining what actions should be taken. Weather and road conditions may vary along the winter road and in addition to government weather forecasts, regular reports are received from other road users, road maintenance crews and rest camp personnel on conditions along the route. The government authorities would direct any efforts to modify or suspend convoy activities in the case of civil unrest.

Alcohol use is forbidden and all man camps are completely dry. Drivers are required to undertake a physical examination by a clinic doctor or paramedic prior to departing Km 21, and Dvoynoye Camp. The examination includes a blood pressure test and may include alcohol and drug test.

**Transport Practice 1.5: Follow international standards for transportation of cyanide by sea and air.**

The operation is

- in full compliance with Transport Practice 1.5

in substantial compliance with  
not in compliance with

This transport practice is not applicable as CMGC does not transport cyanide by sea or air.

**Transport Practice 1.6: Track cyanide shipments to prevent losses during transport.**

The operation is

- in full compliance with Transport Practice 1.6

in substantial compliance with  
not in compliance with

*Summarize the basis for this Findings/Deficiencies Identified:*

Each cyanide transport and support vehicle is equipped with a radio. There are no radio blackout spots along either the summer route or winter route. In the event that the radio malfunctions the cyanide convoy leader also travels with a satellite telephone.

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Two emergency response team (ERT) members travel with each cyanide convoy. The emergency response equipment is packed in a shipping container that is transported with the convoy. If additional assistance or heavy lifting equipment is required, this would be mobilized either from Pevek or Kupol, depending on the location of the incident and the type of support required. The person identifying the emergency is instructed to immediately report the situation on radio so that the emergency response coordinator and security can assess and respond to the situation. The convoys (summer and winter) are escorted by government transport police. These personnel also utilize satellite phones in order to maintain communications in case of an emergency.

Radios installed in vehicles are in regular use and are part of the preventative maintenance program to ensure they remain in good mechanical condition. In addition, the convoy leader is equipped with a satellite phone on all convoys. All communication equipment is checked to be operational prior to departure of a convoy. Each vehicle is also equipped with a global positioning system (GPS). The operation of the GPS is confirmed as part of a driver's pre-departures vehicle safety check.

The Bill of Lading is used to track cyanide shipping containers from the point they are unloaded at the Port of Pevek to delivery at the Kupol mine to ensure that the containers have not been tampered with and the cyanide shipment is complete. The Bill of Lading includes the container number and seal number of the container. At the start of a convoy to Kupol, the dispatch office logs the container numbers, truck and trailer numbers, and the driver identification information. This information is carried by the driver during transport. The seal integrity and numbers are finally checked on arrival at the Kupol mine storage facility. During the convoy the Convoy Leader is required to report via radio or satellite phone the position and condition of the convoy to the Security checkpoint every two hours. The location of the convoy can also be tracked by GPS. The Traffic Police that accompany the convoy also monitor the location and report on the progress of the convoy.

Part of the documentation package drivers are required to carry includes a Job Assignment Sheet and the Bill of Lading. The Bill of Lading documentation indicates the quantity of cyanide being transported and the Job Assignment sheet includes driver details together with the vehicle and container information under his responsibility. This package of information remains with the driver at all times and is transferred to the ensuing driver at Dvoynoye camp, the mid-way driver switching point along the winter road at the time of the truck and cargo hand-over. A Material Safety Data Sheet (Accident Card) is included as part of the permit to transport hazardous goods.

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**2. INTERIM STORAGE:**     ***Design, construct and operate cyanide trans-shipping depots and interim storage sites to prevent releases and exposures.***

**Transport Practice 2.1:**     ***Store cyanide in a manner that minimizes the potential for accidental releases.***

- **in full compliance with Transport Practice 2.1**

The operation is                             in substantial compliance with  
   not in compliance with

*Summarize the basis for this Findings/Deficiencies Identified:*

The Km 21 interim storage warehouse is a secure open air compound used for secure storage of shipping containers received in the summer when the Port of Pevek is ice free and stored until the winter road to Kupol mine is open. The cyanide is stored in a dedicated storage facility that is bounded by a 2 m high barbed wire fence and is accessible only via gates at each end of the compound that are locked and sealed at all times except when access is authorized. No materials other than cyanide are stored in the compound. The cyanide is packed in 1,000 kg IBC boxes in polypropylene supersacks that are enclosed in heavy plastic (bag in a bag). This combination of packing system in sealed shipping containers minimizes the potential for the briquettes to come into contact with water.

Signs are clearly posted on the entrance gates to the cyanide storage facility compound warning that toxic chemicals are stored and that trespassing, open flames, smoking, eating and drinking are prohibited. There is also signage posted that displays the personal protective equipment required in the compound. "UN 1689" and "Marine Pollutant Placards" are also clearly posted on each cyanide shipping container stored within the facility. Under normal conditions the sea containers remain sealed at all times and there is no opportunity for human exposure to the cyanide.

The Km 21 warehouse compound guarded 24/7 by security personnel. A security guard office is located next to the facility and security has clear view of the facility area. The compound has flood lighting and there are security cameras that provide good coverage of the facility. A security guard also conducts a perimeter inspection of the compound every 2 hrs; every 1 hr when weather is bad and visibility is poor from the office or cameras. Entrance to the compound is strictly limited and a permit is required before access is permitted. Security maintains records of the number of containers entering or leaving the compound, braking and replacement of seals on the gates, and the names of authorized persons entering the compound.

In the unlikely event of a cyanide release the storage compound is underlain by an impermeable HDPE liner covered by a protective gravel pad on which the containers are

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placed. The gravel pad is permeable and drains to a lined perimeter drain that is connected to one of two sumps. The drainage liner was observed to be maintained in good condition. During the short period of the year when snow melt may occur, any run-off from the pad would flow and be contained in the sumps. The contents of the sumps is analysed prior to disposal. Results for the past three years showed total cyanide concentrations to be less than 0.05 mg/l. After analysis the water pumped from the sumps was disposed at the Pevek sewage treatment plant.

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

**Transport Practice 3.1: *Prepare detailed emergency response plans for potential cyanide releases.***

- **in full compliance with Transport Practice 3.1**  
in substantial compliance with  
not in compliance with

The operation is

*Summarize the basis for this Findings/Deficiencies Identified:*

An Emergency Response Plan (ERP) has been developed for the industrial facilities for chemical reagent storage and for hazardous material transportation between the Port of Pevek and the Kupol Mine. The Plan clearly specifies the transportation and storage methods. CMGC transportation Group only handles and transports solid cyanide in sealed shipping containers. The shipping containers are handled using a "Reach Stacker" and are transported using an Ural-Iveco truck/semi-trailer. CMGC only transports cyanide in solid briquette form packed in polypropylene "supersacks" in plastic lined 1,000 kg plywood Intermediate Bulk Containers (IBCs). These IBC's are transported by road on truck/trailers in sealed 20-foot shipping containers. The Plan addresses response procedures in the event of emergency situations in which cyanide releases may occur during handling or transport. The Plan addresses potential emergency scenarios including vehicle roll-over and spillage of cyanide, release of HCN gas, employee injury and/or exposure to cyanide; and fire.

CMGC has completed risk assessments for cyanide transport and interim storage along the route between the Port of Pevek and the Kupol mine associated with variations in road and weather conditions. Safety rules in place to minimize hazards during transport include maximum speed limits depending on road and weather conditions, prohibition on overtaking except under limited situations, and limits on driving hours. Roads are continually being monitored and drivers are required to report potential hazards. The winter road is constantly maintained during its seasonal use to maintain safe road conditions. These controls are considered in the ERP. The presence of permafrost to restrict possible migration of spills, and

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potential to impact surface water bodies in the summer months are also considered in the ERP as part of the evaluation of likely release scenarios and planned response.

The interim storage facility has not undergone any structural changes since the last ICMC recertification audit. The facility which is dedicated for the storage of cyanide is an open-air secure compound surrounded by a steel post and barbed wire fence. The cyanide containers are stored on a gravel topped multilayer engineered containment pad. Drainage from the pad is directed to tanks (containment sumps). There are no specific structural or operational considerations regarding the storage area that needed to be explicitly made in the ERP.

The ERP identifies the potential emergency situations that might occur during supply chain operations. For each situation an emergency response scenario, setting out the actions to be taken in the event of such an emergency situation, is provided in the Plan. Each response scenario provides information on emergency response procedures, responder responsibilities, location of emergency equipment, and actions for the emergency response crew. In addition to these response scenarios the Plan includes detailed procedures for responding to various situations including; spill response, treatment and clean-up; HCN gas response; first aid response to cyanide poisoning, and fire-fighting.

In addition to CMGC Transportation Group's own internal response capability that accompanies the convoy, each convoy is also escorted by traffic police. In the event of an accident the traffic police in coordination with the Convoy Leader would contact the necessary response agencies if outside response support was needed. The Kupol Mine operation would be available to support emergency response efforts with heavy equipment or helicopters, as appropriate or necessary.

**Transport Practice 3.2:     *Designate appropriate response personnel and commit necessary resource, for emergency response.***

■ **in full compliance with Transport Practice 3.2**

The operation is

in substantial compliance with  
not in compliance with

*Summarize the basis for this Findings/Deficiencies Identified:*

CMGC Transportation Group have an emergency response team (ERT) comprising voluntary fire fighters and rescuers that are based at Km 21. All personnel that are involved with cyanide storage and shipment, including the ERT members are required to complete the CMGC Transportation Group training on an annual basis. This 16 hour approved program includes emergency response and is conducted prior to a cyanide transport campaign. In addition the ERT conduct other theoretical and practical emergency response training in general first aid, cyanide first aid, firefighting, and chemical spill response. This training includes emergency response drills, including drills involving cyanide spills and worker exposure.

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Response to an emergency during a convoy would be primarily undertaken by the ERT that accompanies the convoy. The role of drivers in case of emergency is limited. In addition to the internal training provided by CMGC Transportation Group, drivers also receive some level of general emergency response training as part of the governmental training and authorization process for a driver "ADR Certificate" to transport hazardous materials.

ERP describes the roles and responsibilities of the emergency response personnel and management. In addition the responsibilities of the various responders are set out in detailed response scenarios. Responsibilities of drivers in the event of an accident are set out in the Rules of the Road.

A list of emergency response equipment is included in the ERP. The equipment carried on convoys is stored in a dedicated shipping container that is located in the warehouse compound. There is also an emergency response storage room (Rescue Room) for additional emergency response equipment, and a Voluntary Fire Brigade storage room that contains fire fighter PPE and two self-contained breathing apparatus (SCBA) units. This room is also used to store the bags containing PPE equipment carried by each driver during cyanide conveys.

The emergency response equipment is checked monthly by the volunteer fire brigade. The checklist includes details for PPE, warning signage, lifting tackle, spill control and treatment equipment and materials (lime), and containers for collection of contaminated materials. PPE includes chemical suits, rubber boots, gloves, goggles, gas mask filters (B2P3 type) and full face respirators. The emergency response equipment container is checked prior to departure of a convoy.

At the time of the site audit the ERP included a procedure for neutralization of cyanide spills by application of calcium hypochlorite. However, calcium hypochlorite was not part of the emergency supply inventory inspected and was not listed on the inventory checklist. On discussion of this point with CGMC it emerged that the CMGC response procedure is to only apply lime to a spill; primarily to ensure pH is high enough to prevent the generation of HCN gas and render the spill safer to clean-up. CMGC do not use hypochlorite for neutralization because of the potential for generation of toxic cyanogen chloride. In addition, although SCBA equipment was observed as part of the emergency supply inventory this equipment was also not listed on the inventory checklist. Subsequent to the field component of the audit CMGC updated the ERP to remove reference to calcium hypochlorite and modify the response procedure for use of lime. The emergency response equipment list was also updated to include the two SCBA units. A copy of the revised ERP was provided to the auditor as evidence of the modifications made.

An annual training program that meets Russian safety and worker right-to-know requirements is presented twice a year for all transport vehicle operators prior to start-up of the summer and/or winter transport campaigns. In addition to cyanide awareness, this program includes training in fire extinguisher use, symptoms of cyanide exposure, cyanide first aid, cyanide

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emergency response, and cyanide spill response and remediation. Records for the past three years were available for review. Also members of the rescue team and voluntary fire fighters receive additional training in emergency response through theoretical classes, exercises and mock drills.

Emergency response equipment is checked monthly. The contents of the shipping container is checked prior to convoy departure to confirm that the inventory is complete. In addition, on-duty drivers carry an emergency bag with PPE (coveralls, gloves, and full-face respirator and filter cartridges). This PPE is stored in the Rescue Room when not on convoy.

**Transport Practice 3.3:    *Develop procedures for internal and external emergency notification and reporting.***

- **in full compliance with Transport Practice 3.3**  
in substantial compliance with  
not in compliance with

The operation is

*Summarize the basis for this Findings/Deficiencies Identified:*

The ERP designates the Emergency Response Supervisor with responsibility to notify external agencies and includes a contact list with telephone numbers of officials and organizations that must be informed immediately in the event of an emergency. These contacts include internal and external medical centres, emergency responders, government organizations and company directors and managers. CMGC Transportation Group and Kupol monitor the radio channels during transportation of cyanide and would be immediately aware of any problems during a convoy. The convoys are also accompanied by police who would notify external responders for additional assistance if needed.

The ERP is reviewed annually prior to the start of the cyanide delivery to Pevek. The ERP is reviewed and approved by the Ministry of Emergency Situations and the Deputy Director of CGMC.

**Transport Practice 3.4:    *Develop procedures for remediation of releases that recognize the additional hazards of cyanide treatment chemicals.***

- **in full compliance with Transport Practice 3.4**  
in substantial compliance with  
not in compliance with

The operation is

*Summarize the basis for this Findings/Deficiencies Identified:*

Written procedures are in place to address the clean-up of cyanide spills. The procedure includes evacuation of persons from the area and checking for potential HCN gas prior to

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attending to the spill clean-up. Lime is the only chemical used for clean-up and is added to prevent HCN gas generation. The top soil of the area of contamination is excavated down to permafrost and collected in plastic containers for disposal. The excavation is then filled with water and the water tested until cyanide levels are less than 0.05 mg/L. The cyanide contaminated soil and water would be transport to the Kupol mine for disposal at the tailings facility.

CMGC does not use calcium hypochlorite or other neutralization chemicals for spill clean-up. Nevertheless, the procedure includes a statement that calcium hypochlorite is prohibited for use as a neutralizing agent where there is a likely hood of entering water bodies.

**Transport Practice 3.5: Periodically evaluate response procedures and capabilities and revise them as needed.**

■ **in full compliance with Transport Practice 3.5**

The operation is

in substantial compliance with  
not in compliance with

*Summarize the basis for this Findings/Deficiencies Identified:*

The ERP is reviewed annually and updated as necessary prior to the start of the cyanide delivery to Pevek. Prior to 2014 CGMC had two ERPs; one for the Km 21 warehouse compound and one for the transportation operation. In 2014 the ERPs were consolidated into one ERP document which was approved by the Ministry of Emergency Situations and the Deputy Director of CGMC on 1 March 2015 and covers the period 1 January 2015 through 31 December 2016.

Mock emergency drills are periodically conducted to test the ERP and response effectiveness of the rescue team and voluntary fire-fighters. The drills are usually scheduled prior to the first cyanide convoy over the winter road and again prior to transport of cyanide over the summer road. Records were available for several cyanide related mock drills undertaken during the 3 year period since the previous ICMC recertification audit. CGMC also joins in district wide training with outside responders. In April 2013 they participated in an emergency fire exercise at the Port of Pevek to test the coordination of various companies and response agencies.

Mock drill records covering the last three years were primarily in the form of photographic logs and little written record was available to document participants, post exercise critique or development and completion of any actions to address deficiencies, although based on discussion with the Health and Safety Manager such activities and actions were being completed. Subsequent to the field component of the audit CMGC modified the mock drill record keeping procedures to require for all mock-drill exercises the completion of minutes that include a record of the individuals that participated in the drill, deficiencies identified during the drill and a corrective action plan and date and sign-off when corrective actions have been completed. An example record was provided as evidence of the implemented change.

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The ERPs are reviewed annually within two months respectively of the arrival of the cyanide shipment at Pevek and the first cyanide winter convoy, and following any incident or drill and revised as necessary. Section 5 of the ERP calls for the analysis of the results of mock drills and update of the ERP as needed to address any deficiencies identified.

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