ICMI International Cyanide Management Code
Summary Audit Report

Chukotka Mining and Geological Company (CMGC) Transportation Group
Kinross Gold Corporation
Kupol Transportation and Interim Storage
2019 Re-Certification Audit

Submitted to:
The International Cyanide Management Institute
1400 I Street, NW – Suite 550
Washington, DC 20005
USA
Table of Contents

Chukotka Mining and Geological Company ................................................................. 2
(CMGC) Transportation Group .................................................................................. 2
Company Name & Contact Information .................................................................. 2
Chukotka Mining and Geological Company ............................................................. 6
(CMGC) Transportation Group - Auditor’s Finding ................................................ 6
Detailed Audit Results .............................................................................................. 7

1. TRANSPORT ........................................................................................................ 7
   Transport Practice 1.1 ......................................................................................... 7
   Transport Practice 1.2 ....................................................................................... 10
   Transport Practice 1.3 ....................................................................................... 11
   Transport Practice 1.4 ....................................................................................... 12
   Transport Practice 1.5 ....................................................................................... 16
   Transport Practice 1.6 ....................................................................................... 16

2. INTERIM STORAGE ............................................................................................ 19
   Transport Practice 2.1 ....................................................................................... 19

3. EMERGENCY RESPONSE .................................................................................. 21
   Transport Practice 3.1 ....................................................................................... 21
   Transport Practice 3.2 ....................................................................................... 24
   Transport Practice 3.3 ....................................................................................... 26
   Transport Practice 3.4 ....................................................................................... 27
   Transport Practice 3.5 ....................................................................................... 28
Chukotka Mining and Geological Company

(CMGC) Transportation Group

Company Name & Contact Information

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Location detail and description of operation:

Chukotka Mining and Geological Company (CMGC) is Kinross’ wholly owned subsidiary operating entity for Kupol Mine. CMGC Transportation Group transports materials from the Port of Pevek in the Chukotka Autonomous Region, Russia to Kupol Mine, a gold mining operation located in the same region.

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. The 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 near the port until ground transportation to the mine is possible in the winter after the ice roads form.

Cyanide is delivered to the region via ship (Far Eastern Shipping Company (FESCO) ocean carrier) into the Port of Pevek once per year, typically in the fall. The Port of Pevek is located on Chaunskaya Bay, part of the East Siberian Sea. Pevek is the northernmost town in Russia
and is located above the Arctic Circle. The estimated population of the city is approximately 4,000-5,000 people. The area has short summers and long cold winters.

The Port of Pevek is drug and alcohol free. The port is authorized by the Russian Ministry of Transport to receive cyanide. The port is completely fenced in, and all access to the port is strictly controlled at all access points.

The Port of Pevek is not considered to be a cyanide interim storage location. Upon arrival at the Port, the cyanide is loaded onto CMGC trucks. Local regulations require that the cyanide containers be picked up by CMGC within 24 hours of the shipment’s arrival at the port. The containers are transported via convoys to KM 21 via a route that is determined by the local authorities. Local authorities participate in the convoys and ensure that any necessary roads are blocked off so that the convoys can pass safely through the city.

Once the containers arrive at the KM 21 storage and logistics facility, they are unloaded from the trucks using a Terex FTC 45 container handler (mobile crane-type unit). The cyanide is stored in the sealed shipping containers for six months each year in an outside secured storage facility that has been specially designed for cyanide storage. The engineered storage pad is lined and has multiple layers of natural and engineered materials. The run-off from the storage area is collected in tanks and tested for cyanide concentrations prior to being pumped out. The cyanide compound is surrounded by a 2 m high barbed-wire fence that is kept locked and sealed. Security is manned 24-hours/day and access specifically to the cyanide portion of the property is closely controlled.

Cyanide is shipped and stored in standard 20-foot metal shipping containers. Within the shipping containers the cyanide is packaged in 1-ton with 18 Intermediate Bulk Containers (IBC) or ‘bag-in-box’ bulk units consisting of multiple layers of polypropylene bags sealed within a plywood box. A tractor-trailer unit carries two standard 20 feet container.

Ground transportation from the KM 21 interim storage facility to the Kupol mine can only be done seasonally when conditions are cold enough for ice roads to support heavy transportation vehicles. The exact timing of the transportation to the Kupol mine via truck convoy varies each year, but the transport generally occurs in the February-April timeframe. The ice road is 390 km long and normally takes between 10-12 hours to traverse. Drivers are switched at Dvoinoye Camp, the approximate mid-way point to reduce the chance for
fatigue. The cyanide is only transported in convoys that have emergency response personnel and equipment, security personnel, spare parts and equipment, and a maintenance team.
The road is built, maintained, and regularly inspected by CMGC personnel. Most of the ice road is stationary (fixed) ice that is formed either over land or the edge of the ocean shore. There are seven ice floating sectors of the road, most over the seaside along the route. Ice thickness is measured at least weekly throughout the season and maximum allowed weights for cargo are determined. Cyanide is transported when the ice river crossings are at a sufficient thickness (and strength) to accommodate the heavy loads with sufficient safety factors built into the calculations. Upon arrival at the Kupol material storage area, the Kupol mining operation takes custody of the material.

*The 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. The supply chain was originally certified in 2009 and was most recently re-certified in February 2017.*

*The ocean transport portion of the cyanide supply chain is entitled the “Kinross Russian Ocean Supply Chain” and was last certified in September 09, 2019. Kinross has developed formal practices that ensure that all International Cyanide Management Code (ICMC) requirements are fulfilled.*
Chukotka Mining and Geological Company

(CMGC) Transportation Group - Auditor’s Finding

The Chukotka Mining and Geological Company (CMGC) Transportation Group is:

☑ in full compliance
☐ in substantial compliance
☐ not in compliance

with the ICMC requirements of the International Cyanide Management Code.

Kinross reported that during the previous three-year audit cycle, the operations included in this audit have not experienced any cyanide incidents, releases, or exposures.

<table>
<thead>
<tr>
<th>Audit Company:</th>
<th>MSS Code Certification Service, a Division of Management System Solutions</th>
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<tbody>
<tr>
<td></td>
<td><a href="http://www.mss-team.com">www.mss-team.com</a></td>
</tr>
<tr>
<td>Lead Auditor:</td>
<td>Bruno Pizzorni</td>
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<td></td>
<td>E-mail: <a href="mailto:CodeAudits@mss-team.com">CodeAudits@mss-team.com</a></td>
</tr>
<tr>
<td>Transport Technical Auditor:</td>
<td>Sean Webster</td>
</tr>
<tr>
<td>Date(s) of Assessment:</td>
<td>November 29-30, 2019</td>
</tr>
</tbody>
</table>

I attest that I meet the criteria for knowledge, experience and conflict of interest for Code Certification 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 Certification Auditors.

I attest that the Audit Report accurately describes the findings of the certification audit. I further attest that the certification audit was conducted in a professional manner in accordance with the International Cyanide Management Code Certification Protocol for Cyanide ICMC Transportation Operations and using standard and accepted practices for health, safety and environmental audits.
Detailed Audit Results

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.

The management of Ocean Transport is:

- ☑ in full compliance with Transport Practice 1.1
- □ in substantial compliance
- □ not in compliance

Summary of the basis for this finding:

The routes upon which the cyanide is transported are established by the company’s Chief Engineer in coordination with local governmental authorities (Traffic Inspectorate of Chukotka), as stated in previous audit reports. There is limited choice regarding the exact routes driven.

There is a summer road and a winter road, each of which is permitted by the governmental agencies. Cyanide transport in the summer is along a Russian Federation road (Pevek – Komsomolskiy Road) between the Port of Pevek and the CMGC interim warehouse compound referred to as Km 21. The selected summer route surrounds the town to minimize interaction with the residential area.

Km 21 is used for interim storage of goods until the winter season when the goods, including cyanide, are reloaded onto trucks and transported along the winter road to the Kupol Mine.

The winter road is along a private road between Km 21 and Kupol Mine. The route is based on avoiding as much as possible potential hazards due to geography conditions as pitch and grade and other potential hazards such as waterbodies proximity and atmospheric conditions.
conditions as fog. There are no towns, settlements or other populated areas other than the company’s field camps along the winter road.

A risk assessment that addressed all International Cyanide Management Institute (ICMI) required considerations was also reviewed for each route. The city of Pevek was considered for the summer road (from the port to the storage area 21 KM outside of the city). There are no cities or populations other than company personnel in ‘man camps’ along the winter road.

The risk assessment documents for the summer and winter roads were evaluated. CMGC has assessed the risks associated with the supply route and implemented measures to manage identified risks. The major risks are associated with construction and maintenance of the winter road and driving in winter conditions.

The risk mitigation measures for driving in winter conditions, noted in the risk assessment include cyanide to be transported in convoys with security guards, emergency and maintenance equipment and personnel, convoy speed be limited to 30 kilometers per hour, and that regular thickness monitoring of the ice roads be performed. CGMC Instruction called Rules of the Road, provides requirements for drivers to minimize risk. These include restrictions on speed along various sections of the route, prohibitions on overtaking accept under specific circumstances, spacing requirements between vehicles, radio communications, stopping and parking restrictions. The risk mitigation recommendations have been implemented by the operation.

The transport of the cyanide is seasonal. There is a summer transport (from Pevek Port to Km 21 warehouse) and a winter transport (Km 21 to Kupol Mine). The routes undergo a re-evaluation and re-permitting process by the government prior to the beginning of each seasonal transport campaign.

During the transport, drivers are in constant contact with other drivers and base operations via radio and via designated checkpoints; the convoy leader and drivers provides feedback on the route conditions. Roads that require maintenance or changing situations that would require additional or different safeguards are reported to the road maintenance crew. Records showed that driver and maintenance crew feedback regarding road conditions were considered during the scheduling of cyanide convoys.
Risk mitigation measures necessary to reduce the risk to acceptable levels are described in the risk assessment document Rules of the Road, providing 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 communications, stopping and parking restrictions, precautions driving in poor visibility and at river crossings on the ice road.

Input from the community, governmental agencies, and other stakeholders are considered during the route permitting phase. The routes upon which the cyanide is transported are established by the company’s Chief Engineer in coordination with local governmental authorities (Traffic inspectorate of Chukotka).

Convoys are used for the transportation of all cyanide shipments due to local regulations security requirements and for personnel safety driving in the harsh arctic winter climate.

Winter cyanide transport operation starts late January to end of April until official closure of the road. Drivers have six by six months shifts because of the importance transportation needs.

Ice thick must me greater than 0.80 m which is assessed drilling the ice, Russian authority must authorize transit above ice. The authority sets the maximum load to transit over the ice. As stated by the Vice President Health and Safety and Environmental (HSE) Russia at Kinross, there are 7 ice crossings, and most of them at the seaside. Here speed limit is set to 10 km/h, the vehicle is not allowed to stop or turn around there. Only will pass one vehicle at the time. If there is water in the road, it must be immediately reported to the supervisor.

Drivers are switched out at a mid-way point to ensure that they are not overly fatigued. Extensive records showing the members of the convoys and the equipment used were reviewed and found acceptable during the audit.

On the summer road, the convoy is escorted by Traffic Police who would manage communication with the Pevek emergency services if necessary.
The government manages the communication of emergency response information to local medical facilities and external responders are part of the cyanide importing approval process. The Convoy Leader would be responsible for notifying the various government agencies of emergency situations and about the progress of any emergency response operation. The National Health and Safety Agency is aware of each cyanide transport and would decide if the government would provide response assistance.

Although many of the personnel used by this seasonal operation are technically contracted personnel (e.g., drivers), the management of all activities and personnel is done directly by CMGC management.

**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.

The management of Ocean Transport is: ☑ in full compliance with Transport Practice 1.2
☐ in substantial compliance
☐ not in compliance

Summary of the basis for this finding:

Only trained, qualified and licensed operators are used by the operation. Drivers have driving licenses with the appropriate class for the type of vehicle driven which is valid for 10 years. Drivers also have an “ADR Certificate” which is necessary in order to be allowed to transport and handle hazardous materials in the region. Licenses and ADR certificates were current, appropriate for transporting 6.1 Class goods, valid for 5 years and were available for those individuals sampled. Drivers take one week of hazardous materials training and are then issued the hazardous materials certification for a period of three years. According to interviews with drivers, competency testing is part of the one-week course and authorization process. The Terex reach stacker operators must have a heavy vehicle class license appropriate for operating the equipment.
As previously noted, a hazardous material training is part of the driver/Terex operator qualification process. In addition to this, CMGC has defined the training needs for drivers, KM 21 Terex crane operators, the emergency response team, and CMGC Senior Staff. Drivers receive training on the road rules for the route they will be traveling (summer or winter) and on the appropriate emergency response plan for the route.

All personnel involved with cyanide storage, handling and transportation at Km 21 complete the annual training program in “Additional Training for Driving, Transporting Dangerous Good and Cyanide at Km 21 and Road to Kupol Mine” that is presented twice a year prior to start-up of the summer and/or winter transport.

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

The management of Ocean Transport is: ☑ in full compliance with Transport Practice 1.3

☐ in substantial compliance

☐ not in compliance

Summary of the basis for this finding:

CMGC exclusively uses transportation equipment designed to operate within the loads it must carry. All equipment receives appropriate maintenance to ensure that the equipment can be operated safely at all times. CMGC has developed detailed studies of the load to be transported to ensure that equipment is not overloaded for the routes. Considerations made during the studies include which type of vehicles are appropriate for the difficult conditions of the winter road and information including tables of permitted loads to travel over certain thicknesses of ice on lakes and rivers through which the loaded trucks must pass.

Tractor specifications were confirmed to be capable of hauling a maximum load that is more than the load that is transported. Records were reviewed and confirmation was made that the equipment is not being overloaded. Container handler Terex FTC 45 of 45 tons capacity handles sodium cyanide at reagent storage facility of km 21 staging area.
The gross weight of a container is less than 22,000 kg. The load is transported by tractor-trailer units composed of tractors Ural-Iveco 632911 and trailers CHMZAP-99903. The complete weight of a tractor-trailer unit is 88 tons. Axle load is 13 tons. A tractor-trailer unit composed carries two standard 20 feet container.

Technical passports (specification documents) for each piece of transportation equipment are maintained that indicate, among other things the weight tolerances of the equipment.

Equipment is inspected regularly, and preventive maintenance activities are performed according to a preventive maintenance checklist. CMGC Transportation Group has a full-service maintenance shop at Km 21 for servicing vehicles and the reach stacker. There is a preventive maintenance program in place for each vehicle.

CMGC manages standard amounts of cyanide with known weights that are loaded into its transporter’s trailers. CMGC modified its transportation practice to carry two shipping containers per truck/semitrailer from the previous practice of carrying one container. The load capacities of the trucks, trailers, and Terex reach stackers were evaluated through the review of information in owner’s manuals and information in “technical passports” maintained for the equipment. Information presented during the audit was found to be acceptable by the auditor.

To prevent overloading of the transport vehicle, CMGC modified its transportation practice to carry two shipping containers per truck/semitrailer. Since 2016 CMGC is receiving at Port of Pevek shipping containers packed with eighteen IBC boxes, to reduce the gross weight of each container to less than 22,000 kg. In doing so CMGC is able to transport two shipping containers per truck/semi-trailer and maintain the total load below the allowable load for the truck and semi-trailer design.

The Terex reach stacker is equipped with a load moment indicator that can be monitored by the driver to ensure loads handled do not exceed the crane capacity for the given lift configuration.

Transport Practice 1.4: Develop and implement a safety program for transport

Chukotka Mining and Geological Company (CMGC) Transportation Group

Signature of Lead Auditor

Date

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Page 12 of 29
of cyanide.

The management of Ocean Transport is:

☑ in full compliance with Transport Practice 1.4
☐ in substantial compliance
☐ not in compliance

Summary of the basis for this finding:

CMGC transports solid sodium cyanide in briquette form that is packaged into 1-ton intermediate bulk containers (IBC – bag in box) which are packed in sealed 20-foot shipping containers. CMGC does not open the sea containers. The seal number on containers and the condition of the containers are checked when the containers are picked up from the port, put into storage, and at the start and end of the trip from the KM 21 interim storage facility and the Kupol Mine. The containers remain sealed until custody of the container is transferred to the Kupol gold mining operation.

CMGC procedures call for the securing of the containers to the trailer bed using the clamping mechanisms that are part of the trailer itself. The suitability of the clamping mechanism and the attachment point on the container is checked during a pre-trip inspection prior to the departure of the cyanide convoy.

Appropriate placards are displayed on all four sides of the transport vehicles during transportation. The front and back of each truck is placarded with the UN number 1689 and the sign used for Class 6.1 toxic substances. This was confirmed during the site visit to Km 21 by interviews with staff and drivers. Drivers conduct pre-trip vehicle safety checks prior to departure of the convoy. They stated that they visually confirm that placards are in place prior to each movement. Per the reviewed operation files, the presence of the placards is verified through a checklist.

Each cyanide container is labelled to meet International Marine Dangerous Goods (IMDG) Code labelling requirements. This labelling is posted on each side of the container and includes identification of solid sodium cyanide by UN number 1689 and the sign used for Class 6.1 toxic substances, along with the Marine Pollutant marker.
The transporter has developed and implement a safety program for cyanide transport that includes all ICMI requirements. Drivers conduct a pre-trip inspection prior to departure. Mechanical defects are called to the attention of the on-site mechanic. Issues that would affect safety or the operation of the vehicle are resolved prior to movement off-site.

CMGC employs several full-time mechanics who perform preventive maintenance on all transportation equipment at regular intervals. A preventive maintenance program is in place that is tracked on a computer database using J. D. Edwards. Maintenance is scheduled by hours of vehicle use and recommendations of the vehicle manufacturer. Drivers interface with the mechanics upon arrival from a trip and prior to departure on the next trip. A signature is obtained from the Mechanic and from the Driver indicating the equipment is suitable for service directly prior to each departure.

Driver work hours and driving hours are contractually limited. Drivers may not be “on-duty” for more than 12 hours. On the winter road, there is a pre-designated mid-route road camp at Dvoynoye where drivers switch. The winter road takes approximately 12 hours to traverse. It takes approximately 4-5 hours to reach the road camp from the Kupol mine and then 6-8 hours to reach KM 21. The road camp is fully equipped with sleeping and dining facilities. The drivers that are relieved from duty stay at the camp until the next day or until they have rest sufficiently. The truck, cargo, and shipping papers are transferred to the new driver with oversight from the management and security personnel located at the road camp. Interviews and observations during the 12-hour journey indicated that this policy of switching drivers is consistently practiced.

CMGC does not open the sea containers. Trailers have clamping mechanisms where the container is embedded preventing it from shifting. Company procedures call for the securing of the containers to the trailer bed using the clamping mechanisms that are part of the trailer itself. The suitability of the clamping mechanism and the attachment point on the container is checked during a pre-trip inspection prior to the departure of the cyanide convoy and at Dvoynoye Camp prior to departure to the Kupol mine.

The company’s management and convoy leaders are responsible for evaluating if severe weather conditions are an issue and with their communications capabilities, determine what actions should be taken. Convoy Leaders are senior personnel who are highly qualified to make decisions regarding the need to suspend a shipment or to modify any
convoy plans. The Convoy Leader reports the state of progress of the operation and in any unsafe event can stop the convoy. Transport can continue only if the Convoy Leader has provided the relevant weather conditions and has authorized the transport to proceed. 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. On the summer road the government authorities accompany the convoy. The authorities would direct any efforts to modify or suspend convoy activities in the case of civil unrest or unsuitable weather conditions.

The use of alcohol at any of the CMGC or Kupol operations is forbidden. Although the Port of Pevek is drug and alcohol free, drivers are not allowed to go to the port. All man camps are completely dry, and drivers are contractually obligated not to drink or take drugs during employment. A physical examination is performed by a doctor on each driver at the KM 21 facility before a driver can depart.

The operation has retention of records documenting that the above activities have been conducted.
Transport Practice 1.5: Follow international standards for transportation of cyanide by sea and air.

The management of Ocean Transport is: ☑ in full compliance with Transport Practice 1.5
☐ in substantial compliance
☐ not in compliance

Summary of the basis for this finding:

Shipments are not transported by sea or by air in this part of the supply chain. The 1.5 requirements are therefore not applicable within the scope of this report.

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

The management of Ocean Transport is: ☑ in full compliance with Transport Practice 1.6
☐ in substantial compliance
☐ not in compliance

Summary of the basis for this finding:

Each driver has a radio and is aware of where (which parts of the route) to use the different radio channels: 1 and 6 for Kupol, 2 for Pevek, 4 and 8 for the winter road. The cyanide Convoy Leader travels with a satellite telephone. The convoy can communicate with management and emergency responders at both KM 21 and the Kupol Operations in case of emergency. The convoy can communicate with other road uses, and with management and emergency responders at both Km 21 and the Kupol Mine operations in case of emergency using different channels. 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 the satellite telephone.

The radios used by the drivers are used on a continuous basis and are part of a preventive maintenance program to ensure their continued fitness for use. Additionally, the convoy leader has a satellite phone on all convoys. Each vehicle is 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. All communication equipment is checked prior to the departure of the convoy.

There are no blackout areas for communications along either the summer or winter roads, as a radio network has been established providing complete radio coverage along the route.

The progress of cyanide shipments is tracked very closely. CMGC tracks the cyanide shipping containers from the point they are unloaded from the ship at the Port of Pevek to final delivery.

The container numbers and seals are rechecked by warehouse security as the containers are unloaded at the Km 21 warehouse. Security also checks the container numbers and seals when they leave the storage compound for Kupol Mine. Dispatchers log the container numbers, seal numbers, truck and trailer numbers, and the driver identification information at the start of the convoy. The location and speed of all trucks in the convoy are monitored at approximately two-hour intervals through a GPS tracking system.

During transportation, the Convoy Leader is required to report via radio of satellite phone the position and condition of the convoy to the security checkpoint every two hours. The seal integrity and numbers are finally checked again on arrival at the Kupol mine storage facility. Additionally, the progress of the transport is monitored by the militia escorts and by CMGC management via radio and phone communications.

At the Port of Pevek cyanide containers are unloaded directly from the ship onto the CMGC trucks. The containers are sealed upon receipt and it is forbidden to open the containers prior to their arrival at the Kupol mine. A manifesting process is used to record all actions that are taken with the container. The master inventory system and manifests show the container number, the truck number used to move the container, trailer number, employee name, bill of lading document number, the date of dispatch, and the date of arrival at the next destination.

Seal numbers on containers are checked by security upon pick-up of the containers from the Port and upon dispatch of the container from the KM 21 interim storage facility. The bill of lading provides information of the shipment including name of goods being transported,
the container number, seal number and weight of shipment. The bill of lading is stamped by Security at departure from Km21, at arrival and departure at Dvoinoye, and on delivery at the Kupol Mine. This information was confirmed through interviews with security personnel and dispatch personnel at KM 21.

Government regulations require that drivers carrying hazardous materials have an “Accident Card” (Material Safety Data Sheet) with them at all times during transport of the cargo. The bill of lading documentation indicates the amount of cyanide being transported. This package of information remains with the driver at all times and it transferred to the new driver at the mid-way driver switching point along the winter road (Dvoinoye camp) at the time of hand-over. This requirement was verified through discussion with the Vice President EHS Russia at Kinross, and review of driver documents.
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.

<table>
<thead>
<tr>
<th>The management of Ocean Transport is:</th>
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<tbody>
<tr>
<td>☑ in full compliance with Transport Practice 2.1</td>
</tr>
<tr>
<td>☐ in substantial compliance</td>
</tr>
<tr>
<td>☐ not in compliance</td>
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**Summary of the basis for this finding:**

<table>
<thead>
<tr>
<th>Warning signs are clearly posted on the fences surrounding the dedicated cyanide storage area at KM 21 interim storage. It is an open-air facility that has an area that was especially designed for the storage of solid sodium cyanide in sealed sea containers. Signs indicate that cyanide is present, and that open flames, eating and smoking are prohibited in the area. Signs showing required personal protective equipment were also posted.</th>
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<tbody>
<tr>
<td>The cyanide interim storage area is fenced and permanent guarded by security personnel. The cyanide storage facility is located within Km 21 compound and separated from all other installations with its own security provisions to prevent unauthorized access. The area is surrounded a 2 m high barbed wire fence with gates at each end that are locked to prevent unauthorized access. A security guard office is located adjacent 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 hours. Security also completes entries in the Security Logbook at the beginning and end of each shift. 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.</td>
</tr>
<tr>
<td>The cyanide is completely segregated from any other materials. Containers are physically segregated from other stored materials in a dedicated, secure and locked compound. Personnel have undertaken cyanide awareness training and were very aware of the...</td>
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requirement that non-compatible materials be physically segregated from the sodium cyanide.

| All material is stored in the sealed sea containers on a lined gravel pad in an area where no other materials or chemicals are stored. 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 placed. The sea containers are stacked in such a way to prevent the intentional or unintentional opening of a container door during storage. Inside the containers the solid material is packed in multiple layers within a bag-in-box packaging system. |
| The KM 21 interim storage is an open-air facility that was especially designed for the storage of solid sodium cyanide in sealed sea containers. The storage area is a lined gravel pad with multiple layers that was especially designed to capture the potential run-off from a cyanide spill. The sea containers are not opened by CMGC. The build-up of hydrogen cyanide gas is highly unlikely and was considered to be of no concern for this facility. |
| The storage area is a lined gravel pad with multiple layers that was especially designed to capture the potential run-off from a cyanide spill. The gravel pad on which the containers are stored is underlain by an impermeable liner that drains to a perimeter ditch that flows to one of two sumps. A water collection system is used to collect water from the melting snow in the summer so that it can be tested for cyanide to ensure that there have been no container breaches during the storage period. The run-off water is tested by an authorized laboratory and results for this recertification period indicated that there was no cyanide in the water. |
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.

The management of Ocean Transport is:

- ☑ in full compliance with Transport Practice 3.1
- □ in substantial compliance
- □ not in compliance

Summary of the basis for this finding:

CMGC has an updated emergency response plan covering the summer road from Port of Pevek to Km 21 interim storage facility and the winter road. The plan was developed in compliance with the requirements of Russian Federation Regulations regarding emergency containment and response action plans at hazardous facilities.

The emergency response plan is appropriate for the organization. The plan includes a number of scenarios outlining the potential incident types on the summer road, winter road, and storage facility. The plans were specifically developed to address potential emergencies during transportation of hazardous materials between the Port of Pevek and the interim storage at Km 21; interim storage at Km 21, and transport on the winter road between Km 21 and Kupol Mine. The plan addresses potential emergency scenarios including vehicle rollover and spillage of cyanide, release of HCN gas, employee injury and exposure to cyanide and fire.

Detailed information regarding the chemical and physical form of cyanide is contained on an “accident card” (MSDS) that is kept in the truck at all times with the shipping paperwork. Summarized information regarding the general characteristics of sodium cyanide is contained within the emergency response plan.

CMGC only transports cyanide via truck and all scenarios considered in the emergency plan were related to truck accidents or accidents in the storage area. Solid sodium cyanide (the only physical form transported), roadway infrastructure differences, and the roles of emergency team members are discussed in the planning information. The plan clearly
specifies the transportation and storage methods. The shipping containers are handled using a Terex 45 “Reach Stacker” and are transported using Ural- Iveco trucks/semi-trailers.

The plan considers the conditions of the summer road and the winter road. The scenarios described also consider the proximity of the route to water bodies in summer and the presences of snow and ice in the winter.

CMGC has completed risk assessments for cyanide transport along Port of Pevek and the Kupol mine associated with variations in road and weather conditions. Requirements are in place in the Rules of the Road that imposes safety rules, including 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 potential to impact surface water bodies in the summer months are also considered in the plan as part of the evaluation of likely release scenarios and planned response.

The plan considers transporting and storing solid sodium cyanide in sea containers. The packaging type and the transportation equipment used are considered in the plans. The storage facility is an open-air facility within a fence. The cyanide storage area is a gravel topped multilayer engineered storage pad. There are no specific structural or operational considerations regarding the storage area that needed to be explicitly made in the emergency response plan.

A description of response actions required during six different potential emergency scenarios are documented in the emergency plan attachments. CMGC has identified the following potential emergency situations that might occur during supply chain operations:

Emergency scenarios considered are:
No cyanide release: integrity of all packaging maintained.
CN release: packaging or container ruptured.
Dry Spill (no mixing of CN with water).
CN release: packaging or container ruptured.
Wet spill (mixing of CN with water).
CN release: Human exposure.
Truck fire.
CN incident with or without spillage at KM 21 Cyanide Storage.

For each situation an emergency response scenario that sets out the actions to be taken in the event of such an emergency situation is provided in the plan.

The Emergency Response plan states that several external groups may be called upon for support if a cyanide incident occurs. Following is a summary of external groups and their role in case of a cyanide event.

Kupol Mine Operation may be called upon to deliver additional spill response equipment, and additional trained emergency responders if necessary. The Operation may be called upon to provide air transportation if any medical evacuation or additional medical support is necessary, or additional medical support.

National Militia escort the cyanide convoys, providing security and traffic control. If a cyanide event occurs, the militia may reroute the convoy and may aid in communicating with other agencies of the state.

Pevek Clinic may provide medical support in case of human exposure to cyanide, after initial emergency response and stabilization by emergency responders with the convoy.

The cyanide is transported in convoys that are escorted by police and militia. The role of the escort in notifying any necessary external responders or community personnel is described in the emergency response plans. In the event of an emergency, police or militia, in coordination with the convoy leader, would contact the necessary response agencies if outside response support was needed.
**Transport Practice 3.2:** Designate appropriate response personnel and commit necessary resources for emergency response.

The management of Ocean Transport is: ☑ in full compliance with Transport Practice 3.2

☐ in substantial compliance

☐ not in compliance

Summary of the basis for this finding:

<table>
<thead>
<tr>
<th>All personnel involved with cyanide storage and shipment, including the emergency response team (ERT) members are required to complete the CMGC Transportation Group training program entitled “Transportation, storage and handling of sodium cyanide”, on an annual basis. This 16-hour approved program includes emergency response and is conducted prior to a cyanide transport campaign. 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 quarterly emergency response drills, including drills involving cyanide spills and worker exposure.</th>
</tr>
</thead>
<tbody>
<tr>
<td>The emergency response plan call for the designation of personnel for each convoy to fill the roles of the Emergency Response Supervisor, the Emergency Coordinator, the Convoy Leader and drivers, among others. The response duties and responsibilities of these personnel are described in the plan and in the specific scenario descriptions that are attached to the plans.</td>
</tr>
<tr>
<td>An emergency response equipment inspection checklist lists out all necessary equipment in the emergency response plan. The checklist includes details for personal protective equipment, spill control materials, and containers that are to be maintained and accompany all cyanide convoys.</td>
</tr>
<tr>
<td>The operation maintains a sea container with emergency supplies at the Km 21 interim facility that travels with the cyanide convoys. On-duty drivers carry an emergency bag with PPE (coveralls, gloves, full-face respirator and filter cartridges). Interviews during the audit indicated that the emergency response equipment and personal protection equipment identified as necessary accompanied all cyanide convoys.</td>
</tr>
</tbody>
</table>
Additional training for driving, transporting dangerous good and cyanide is provided twice a year for all transport vehicle operators prior to start-up of the summer and/or winter transport campaigns. The program is designed by CMGC to meet Russian safety and worker right-to-know requirements and is approved by the Director of Operations at Pevek. In addition to cyanide awareness, this program includes training in fire extinguisher use, symptoms of cyanide exposure, cyanide first aid, cyanide emergency response, and cyanide spill response and remediation.

The emergency response plan states that the General Emergency Response Equipment for use by the Transportation Group is stored within sea containers at the KM 21 facility. The Emergency Response Container Inventory and Checklist (table included in the plan) is to be completed on a monthly basis by the Emergency Response Coordinator or his delegate. The Emergency Response Coordinator or his delegate will be responsible for inspections, inspection records, and follow-up on any necessary actions.

Two containers of Emergency Response Equipment are kept at KM 21. Only one of the containers is taken on a CN convoy so that sufficient material will be available both on the road as well as at the storage facility.
**Transport Practice 3.3:** Develop procedures for internal and external emergency notification and reporting.

The management of Ocean Transport is:

- ☑ in full compliance with Transport Practice 3.3
- □ in substantial compliance
- □ not in compliance

Summary of the basis for this finding:

<table>
<thead>
<tr>
<th>The emergency response plan details the responsibilities for external notifications and list the contact phone numbers for key agencies. The transport of the cyanide is somewhat unique in this operation because the shipper is the organization itself and the receiver is the Kupol operation. CMGC and the Kupol operation both monitor the radio channels and would be alerted to any problems during the convoy as soon the alarm is sounded over the radio.</th>
</tr>
</thead>
<tbody>
<tr>
<td>The plan 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 centers, emergency responders, government organizations and company directors and managers. The convoys are fully escorted by police and militia who would notify external responders to request additional assistance, if necessary.</td>
</tr>
<tr>
<td>The emergency response plan is reviewed annually within two months of the first cyanide convoys, as stated in the plan. All information in the plans is checked for accuracy and continued suitability.</td>
</tr>
</tbody>
</table>
Transport Practice 3.4: Develop procedures for remediation of releases that recognize the additional hazards of cyanide treatment chemicals.

The management of Ocean Transport is: ☑ in full compliance with Transport Practice 3.4
☐ in substantial compliance
☐ not in compliance

Summary of the basis for this finding:

Clean-up and remediation steps that need to be taken in case of a cyanide spill are outlined in the emergency response plan and in Instruction No.41, regarding rehabilitation activities in case of cyanide spills. The decontamination of solids is addressed by the plan and decontamination materials are on the list of emergency response equipment that is to be available in the storage area and for cyanide convoys.

Spills of sodium cyanide briquettes would be cleaned up by the transport operation Emergency Response Team personnel trained in the proper handling of cyanide. Appropriate personal protective equipment must be worn when responding to a release of sodium cyanide. The Health, Safety, and Environmental Coordinator for the Emergency Response Team would manage the clean-up of any spilled cyanide.

Any spilled sodium cyanide is to be cleaned up with brooms and shovels and placed in appropriate containers. The cyanide would then be relocated to an area where it can be recycled through use in the milling circuit. If necessary, the area of the spill would be neutralized using calcium hypochlorite.

Damaged packaging that no longer contains cyanide is also subject to decontamination using an aquatic solution of calcium hypochlorite and lime. In the event that sodium cyanide would come into contact with a water body, water samples would be collected and analyzed, and the question of decontamination of the water body would be reviewed after the results of water samples are available. Remediation and monitoring of cyanide levels would be continued until the toxic danger is completely eliminated.
Interviews with the Vice President EHS Russia at Kinross confirmed awareness of the hazards of using de-contamination chemicals in surface waters. The emergency response plan clearly forbids the use of use sodium hypochlorite, ferrous sulfate and hydrogen peroxide to treat cyanide if it has been spilled into surface waters. Instruction No.41 also 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.

The management of Ocean Transport is:  
☑ in full compliance with Transport Practice 3.5
□ in substantial compliance
□ not in compliance

Summary of the basis for this finding:

The emergency response plan is reviewed annually within two months of the first cyanide convoy. All information in the plan is checked for accuracy and continued suitability. This requirement was verified through review of the plan and discussion with the Health and Safety Manager and the Deputy Winter Road Superintendent.

Cyanide mock emergency drills are conducted annually within two months prior to the first cyanide convoy over the winter road and again within two months prior to the transport of the cyanide over the summer road. Mock emergency drills are conducted to test the plan and response effectiveness of the rescue team and voluntary fire-fighters.

Records were available for the cyanide related mock drills undertaken during the 3-year period since the previous ICMC recertification audit. Drills simulated a truck that caught fire while transporting cyanide at Km 21 where the cargo was transloaded to other truck, no spills or cyanide exposition reported. Other mock drill was about a container rollover without cyanide spill. Other was about a container rollover but this time with cyanide spill and exposure to HCN gas. Evidence of mock drills minutes included record of participants, deficiencies identified during the drill and a corrective action plan and date and sign-off when corrective actions have been completed.
The plan states to be 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. The emergency response plan was found to be up to date at the time of the audit. There were no cyanide-related transportation accidents or emergencies during the recertification period. Reviews of the plan were therefore regularly scheduled reviews, not “post-deployment” reviews. This was found to be acceptable by the auditor.