

Chukotka Mining and Geological Company (CMGC) Transportation Group

Transportation and Interim Storage of Sodium Cyanide

ICMI Cyanide Code Certification Audit

SUMMARY AUDIT REPORT

Audit Dates: March 30-April 2, 2009

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

Management System Solutions, Inc.
www.mss-team.com



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SUMMARY AUDIT REPORT

Name of Operation:	Chukotka Mining and Geological Company (CMGC) Transportation Group
Audit Scope:	Truck transportation and storage of solid sodium cyanide – Port of Pevek, Siberia to KM 21 storage facility to Kupol Gold Mine
Name and contact information for Company Contact:	Patrick Dougherty Vice President / General Manager Chukotka Gold Mining Corporation pdougherty@kinross.com Tel. +7-421-279-3931

Location detail and description of operation:

The Chukotka Mining and Geological Company (CMGC) is a closed joint stock company that transports materials from the Port of Pevek in the Chukotka Autonomous Region, Russia to the Kupol gold mining operation in the Chukotka Autonomous Region, Russia. 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. Upon arrival at the Port of Pevek, 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.

The cyanide is shipped and stored in standard 20-foot metal shipping containers that together with the cyanide and the packaging weigh approximately 23.8 tons. Within the shipping containers the cyanide is packaged in 1-ton 'bag-in-box' bulk units consisting of multiple layers of polypropylene bags sealed within a plywood box.

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 is stored in a fenced-in storage area that is kept locked. Security is manned 24-hours/day and access specifically to the cyanide portion of the property is closely controlled.

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. 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 convoys vary in the number of vehicles, the convoys evaluated during this audit ranged in size from 14-25 trucks. Future convoys will be limited in size to 15 trucks. Each truck carries a single sea container on a flatbed or spider trailer. Drivers are switched out at a mid-way point to help reduce the chance for fatigue.

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. The only ice that is floating ice is that which is formed over the three river crossings 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.

CMGC Transportation Group

August 10, 2009

Name of Operation

Lead Auditor

Date

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Auditor's Finding

This operation is

- in full compliance
- in substantial compliance *(see below)
- not in compliance

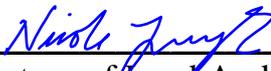
with the International Cyanide Management Code.

* For cyanide transportation operations seeking Code certification, the Corrective Action Plan to bring an operation in substantial compliance into full compliance must be enclosed with this Summary Audit Report. The plan must be fully implemented within one year of the date of this audit.

Audit Company:	Management System Solutions, Inc. www.mss-team.com
Audit Team Leader:	Nicole Jurczyk E-mail: CodeAudits@mss-team.com
Date(s) of Audit:	March 30-April 2, 2009

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



Signature of Lead Auditor

CMGC Transportation Group
Name of Operation

Lead Auditor

August 10, 2009
Date

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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 operation is **in full compliance with Production Practice 1.1**

Summarize the basis for this Finding:

The routes upon which the cyanide is transported are established by the CMGC Transportation Group Chief Engineer in coordination with local governmental authorities (Traffic Inspectorate of Chukotka). There is a single route that is defined as the “summer road” between the Port of Pevek and the interim storage facility KM21, which is 21 kilometers outside of Pevek. There is also a winter route that is defined as the “winter road” for the transport of materials from KM 21 to the Kupol mine site. Governmental permissions are obtained for each route and extensive risk assessment evaluations are done for each route. The risk assessments take into account all necessary considerations noted in the *Cyanide Code Transportation Protocol*. The information in the risk assessments and the recommended risk mitigation measures were reviewed and were found to be appropriate.

The use of risk mitigation measures such as the use of convoys, reduced speeds, and extensive radio contact were confirmed during the audit and drivers interviewed showed good awareness of these precautionary measures. The transport of cyanide in this region is seasonal and the routes are re-evaluated at the beginning of each season. Driver feedback on road conditions and the need to adjust the route or the operation is received via radio daily during normal operations.

The Pevek community is involved in the route planning through the route permitting process that occurs at the start of each transportation season. The allowable route is defined in detail and the appropriate governmental authorities sign a permit documenting their acceptance of the routes. Communications with emergency responders in Pevek prior to the convoy and during the convoy is coordinated by the local authorities who accompany the cyanide convoys when they are traveling through the city. Communications have been made between CMGC management and the Kupol emergency response team to clarify roles and responsibilities in case of an emergency on the winter road.

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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 operation is **in full compliance with Production Practice 1.2**

Summarize the basis for this Finding:

Only trained, qualified and licensed operators are used by the operation. Drivers and crane operators hold valid licenses with hazardous materials endorsements. The hazard class for cyanide (6.1) is specifically noted on the licenses. Drivers were interviewed and records and qualification paperwork and licenses were sampled and found to be complete. Part of the government qualification process for hazardous material endorsements involves a one-week training session on the handling of hazardous materials.

Drivers and crane operators receive training on the general emergency response procedures and drivers also 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. Additionally, refresher training is given at the start of each cyanide convoy to review the convoy rules and policies to ensure that drivers can perform their jobs in a manner that minimizes the potential for accidents and potential cyanide releases and exposures.

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

The operation is **in full compliance with Production Practice 1.3**

Summarize the basis for this Finding:

CMGC transports cyanide in sealed sea containers, one container per truck. This practice prevents the overloading of the equipment and ensures that the load remains within safe tolerances for the terrain it must cross. Trucks, trailers, and cranes are used to move the cyanide and technical specification information reviewed during the audit. The equipment is less than five years old and it is appropriately designed and maintained for the loads it must bear. A review of transportation logs confirmed that equipment is not being overloaded. Additionally, the ice thickness inspection records were sampled and confirmation was made that the cyanide loads sent over the winter ice road were within the calculated tolerances of the road itself at the time of the cyanide convoys.

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

The operation is **in full compliance with Production Practice 1.4**

Summarize the basis for this Finding:

Drivers perform pre-trip inspections of their trucks, trailers, and loads before starting out on a cyanide convoy. According to interviews, appropriate placards are displayed on all four sides of the transport vehicles. Pre-defined checklists showing the required maintenance tasks are used to record actions. The incoming and outgoing condition of the equipment is recorded on the checklists and associated repair orders. Records indicate that the Chief Mechanic and the Driver sign a log book prior to each departure indicating that the equipment has been checked and has been found to be road-worthy. Driver's hours are contractually limited to be less than 12-hours. Driver schedules and logistics have been arranged so that drivers are relieved of duty at a mid-way camp along the winter road to ensure that they do not become fatigued. The convoy leader is responsible for ensuring all safety and convoy requirements are met and he is also responsible for guiding the convoy to the destination. Containers are secured to trailers using a clamping mechanism that is checked during the pre-trip inspection. This practice was verified through discussions with the drivers. The Convoy Leader is empowered and directed to pullover whenever weather, fatigue or other conditions make it unsafe to continue the trip. CMGC is a "dry" operation meaning that the use of alcohol and drugs is forbidden. Drivers are given alcohol tests prior to each departure. Records were reviewed and were sufficient to demonstrate conformance to the 1.4 Code requirements.

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

The operation is **in full compliance with Production Practice 1.5**

Summarize the basis for this Finding:

CMGC Transportation Group does not ship cyanide by sea or by air. This section of the Cyanide Code does not apply to the operation.

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

The operation is **in full compliance with Production Practice 1.6**

Summarize the basis for this Finding:

All cyanide containers are transported using militia-escorted convoys. Communication systems are robust and consist of multi-channel radio systems for all trucks and satellite phone systems used by convoy leaders and military escorts. Cyanide convoys are tracked using radio communications and GPS systems. Comprehensive inventory and manifesting documentation is retained for all cyanide containers. Manifest information shows all necessary information for each container received by the operation at the Port of Pevek (container number, date of pick-up, driver name, seal numbers of container, transportation equipment numbers, amount of cyanide, and date of dispatch out of interim storage). The abovementioned information was reviewed and was found to be complete and acceptable. In addition to hard copy documentation, an electronic master database is maintained with all necessary information. Drivers carry manifest and Material Safety Data Sheets with them at all times while transporting cyanide.

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.*

The operation is **in full compliance with Production Practice 2.1**

Summarize the basis for this Finding:

The KM 21 interim storage is an open air facility that has an area that was especially designed for the storage of solid sodium cyanide in sealed sea containers. The cyanide storage area is fenced-in, locked, and guarded at all times. Warning signs are clearly posted on the fences surrounding the dedicated cyanide storage area. Access to the area is strictly controlled. Security measures were found to be appropriate. The security guard was interviewed, logs showing inventory and dates that personnel accessed the area were reviewed and were found to be acceptable.

The cyanide is completely segregated from any other materials. The solid sodium cyanide briquettes are stored in the manufacture's original bag-in-box packages inside sea containers. The containers are not opened at any time and the containers are stored in a manner to prevent unintentional opening of the doors. It is highly unlikely that the cyanide would come into

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contact with water. In the unlikely event of a spill of material, the cyanide storage location is an engineered storage and containment area with multiple layers that was especially designed to capture the potential run-off from a cyanide spill. The top layer is gravel and the area is lined. The technical specifications for the storage area indicated that the number of containers that could be stored in the area greatly exceeded the number of containers stored under normal operating conditions. The storage pad also has a water run-off 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. No cyanide was detected in lab results reviewed during the audit. There are no concerns regarding the potential build-up of cyanide gas because the facility is outside and the sea containers are not opened.

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 operation is **in full compliance with Production Practice 3.1**

Summarize the basis for this Finding:

CMGC has two documented emergency response plans, one for the winter road and another combined plan for the summer road and the KM 21 interim storage facility. The plans were found to be appropriate for the operation. Potential scenarios and necessary actions for summer road, winter road, and interim storage area emergencies are detailed in the documentation. The plans give specific information for the chemical form of the cyanide. The infrastructure of the summer and winter roads is considered in the plan. The emergency scenarios take into account the type of truck and packaging that are involved in the transport. All cyanide convoys are escorted by police and militia who would coordinate the actions of external responders in the event of an emergency.

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

The operation is **in full compliance with Production Practice 3.2**

Summarize the basis for this Finding:

All drivers and crane operators handling cyanide have received emergency response training as part of the governmental hazardous material operator authorization process. Additionally, CMGC conducts emergency response training via formal government-approved emergency response training, training drills, and pre-convoy briefings given immediately prior to the departure of the convoy. The emergency response plans were newly developed in 2009 and records indicate that CMGC has started training its personnel according to the information contained in these documents. CMGC plans to have completed all necessary emergency response training prior to its next cyanide convoys that are scheduled for the fall of 2009.

Emergency response plans maintained by the organization list the emergency response and personal protective equipment that needs to be available at the storage facility and on the cyanide convoys. One sea container with emergency equipment is kept at KM 21 and another is maintained for use during the cyanide convoys. The emergency response plan calls for a monthly inventory and inspection of the equipment to be done. A pre-convoy check of equipment is also called for by the document.

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

The operation is **in full compliance with Production Practice 3.3**

Summarize the basis for this Finding:

The emergency response plans detail 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 as the alarm is sounded over the radio. The convoys are fully escorted by police and militia who would notify external responders to request additional assistance, if necessary. The notification of regulatory agencies would also be coordinated by the police and militia escorts if an emergency were to occur during a convoy. The Summer Road / KM 21 emergency plan details that if an emergency occurs at the storage area, that it is the Emergency Response Coordinator's responsibility to make the necessary

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notifications to regulatory agencies. The Emergency Response Coordinator at the storage location is the Health, Safety, and Environmental Engineer.

The emergency response plans are reviewed for accuracy each year shortly before the arrival of the cyanide at the Port of Pevek and before the transport of the cyanide to the Kupol operation over the winter road.

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

The operation is in full compliance with Production Practice 3.4

Summarize 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 plans. 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.

Interviews with the CMGC Safety, Health, and Environmental Manager 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 CN if it has been spilled into surface waters.

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

The operation is **in full compliance with Production Practice 3.5**

Summarize the basis for this Finding:

According to the newly created emergency response plans, mock emergency drills are now required to be conducted annually within two months prior to the first winter road cyanide convoy and again within two months prior to the transport of the cyanide over the summer road. At the time of the audit, a table top drill had been conducted. Directly after the audit an emergency response drill using a scenario of an incident in the KM 21 storage area was conducted. Following the drill, emergency procedures were revised. Additionally, the formal government-approved emergency response training that was attended by several employees included a hands-on emergency response drill.

The emergency response plan is reviewed following any implementation or drill and is revised as necessary. The emergency response procedures were revised following both the March table-top drill and the May 2009 mock drill.