

**ICMI CYANIDE CODE
SUMMARY AUDIT REPORT
RE-CERTIFICATION AUDIT**

CYANIDE PRODUCTION

**CYANCO SODIUM CYANIDE
TRANSLOADING TERMINAL**

**33 DUMONT STREET, EAST
CADILLAC, QUÉBEC, J0Y 1C0
CANADA**

**Submitted to:
International Cyanide Management Institute
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ICMC Summary Audit Report

Cyanco Sodium Cyanide Transloading Terminal, 33 Dumont Street, East; Cadillac, Québec, J0Y 1C0, Canada

Name of Cyanide Production Facility: Cyanco Sodium Cyanide Transloading Terminal
Name of Facility Owner: Cyanco Company LLC
Name of Facility Operator: Cyanco Canada Inc.
Name of Responsible Manager: Roy Norcross
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Location detail and Description of operation:

The Cyanco Transloading facility is located at 33 rue Dumont Est, in the borough of Cadillac, in the town of Rouyn-Noranda, QC, next to the Canadian National Railway (CNR) tracks. The purpose of this terminal is to receive, store, dissolve from solid to liquid the sodium cyanide prior to deliver by tank trailers to the customer and to receive, store liquid sodium cyanide prior to delivery by tank trailers to the customers.. The facility is specialized in handling of sodium cyanide (NaCN) used in the international gold mining industry. The receiving, storing, dissolving of cyanide is completed in several steps. The facility also needs to fulfill several tasks and services, in particular related to energy and pressurized air supply, steam, water and cooling water supply, general environmental management services, wastewater treatment, waste management, security, medical services, emergency preparedness including fire brigade (external service) and fire water retention. The services retained are governed by an appropriate service contract. The Cyanco terminal is completely involved into an Emergency Response Plan and into the corresponding mock drills.

The present report describes the results of the second re-assessment of the ICMC.

Auditor's Finding

This operation is

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

with the International Cyanide Management Code.

This operation has maintained full compliance with the International Cyanide Management Code throughout the previous three-year audit cycle.

* For cyanide production 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	LULU Intelligent Organization
Audit Team Leader	Dr. Benno Steinweg
Email	Benno.Steinweg@googlemail.com
Names / Signatures of other auditors ...	n/a
Date of audit	Feb 12, 2013

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

I 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 Production Operations and using standard and accepted practices for health, safety and environmental audits.

PRINCIPLE 1 – OPERATIONS:**Design, construct and operate cyanide production facilities to prevent release of Cyanide****Production Practice 1.1: Design and construct cyanide production facilities consistent with sound, accepted engineering practices and quality control/quality assurance procedures.**

This operation is ☒ in full compliance with
☐ in substantial compliance with Production Practice 1.1
☐ not in compliance with

Summarize the basis for this Finding:

The Cyanco facility was built using sound, accepted engineering practices and quality control processes by the pre-owner Degussa-Evonik. Extensive QC & QA records regarding the construction of the facilities were reviewed and were found to be acceptable. Appropriate quality assurance and quality control, management of change documentation, drawing control, equipment sign-offs and usage of a data control computerized system (DCS) were available to demonstrate compliance to Code requirements. Acceptable materials of construction are formally defined in Evonik / Cyanco's Engineering Standards and a review of records confirmed that materials used conform to internal requirements, and they still do – also during maintenance and replacing measures. All operations and process equipment are in a closed building and under one roof building within lined concrete secondary containment areas with concrete sumps. The operational / storage area has appropriate containment systems that ensure full containment with sufficient capacity in case of a storm event bringing rain water / snow. Alarms and interlock systems keep the mixing / solution / dilution process under control in the event that there is an upset condition or a container that is being loaded becomes full. Cyanco uses management system procedures and standard forms to inspect their interlocks, process equipment, and containment systems regularly to ensure functionality and integrity.

Production Practice 1.2: Develop and implement plans and procedures to operate cyanide production facilities in a manner that prevents accidental releases.

This operation is ☒ in full compliance with
☐ in substantial compliance with Production Practice 1.2
☐ not in compliance with

Summarize the basis for this Finding:

The facility has a full set of procedures that describe the standard practices necessary for its safe and environmentally sound operation, for contingencies during upsets in its activities that may result in cyanide exposures or releases. All further work instructions are still maintained, updated and valid. Preventive maintenance programs are in place. The facility runs a procedure for the management of change with a corresponding form sheet. In case of planned changes or planned engineering work /

projects the site management needs to sign it to release the change suggestion. To assure a safe and stable production in-line measurement devices instrumentation such as HCN detectors, transducers, level transmitters etc. are installed. Cyanide solution is / are recycled within the process and thus do not generate waste. Contaminated solids and other materials are shredded, washed and collected in waste drums which are labeled according to local legislation and are transported and disposed by authorized waste-companies. The storage locations are constructed at all sides with full protection against rainfall. All the water (rain or melting snow dripping from the tank trailers or railcars, and the water from hosing down the floors gather in the sumps) and gets fully used / re-used in the process. Fire fighting with water is prohibited. Inside the building HCN detectors / indicators are in place. The storage of the final goods is located inside vessel within the building. The storage area/s are located within an fenced and supervised property, that is –in general- protected by a restricted access control system. The Terminal receives hopper railcars with solid sodium cyanide and tank cars with liquid sodium cyanide. Terminal personnel will move these railcars using a track-mobile on Terminal property only. Tank trailers are also moved inside the terminal perimeter using a shunt truck. Inside the Terminal building, the solid material will be dissolved with warm water and transferred into one of the three storage tanks. Liquid sodium cyanide tank cars are offloaded using air. A railcar normally consists of three compartments. The average net weight for a sodium cyanide hopper railcar and tank car is 80, 000 kg. Each inside storage tank can hold up to 108 cubic meter of sodium cyanide solution. The concentration of this sodium cyanide solution is normally at between 24% and 31 %. A tank trailer with a maximum capacity of 28.8 cubic meters (7653 USG) is loaded inside the Terminal building for delivery to the customer.

Production Practice 1.3: Inspect cyanide production facilities to ensure their integrity and prevent accidental releases.

This operation is ☒ in full compliance with
☐ in substantial compliance with Production Practice 1.3
☐ not in compliance with

Summarize the basis for this Finding:

The facility runs routine inspection and maintenance programs to assure the functionality of all equipment. Besides the inspections (required by legislation or by Cyanco regulations) for tanks, pipelines, containments, etc. routine inspections are performed regularly by shift leaders and operating personnel throughout the facility. Preventive controls incl. statutory driven controls such as metering the thickness of tank and container surfaces are considered and are part of the maintenance program; inspection plans are determined The performed inspections are sufficient and are in compliance with local legislation. Frequencies are defined by law or by risk assessments. The facility conducts a routine inspection program for tanks, valves, pipelines, containments and other cyanide handling and storage facilities. In general, these inspections are in accordance to Canadian regulation and legislation. These requirements are very strict and equivalent or more demanding than expected by the Code; all verified inspections were without any complaint. A Technical Measurement system is in place to deal with deficiencies coming out of inspections or technical checks.

PRINCIPLE 2 – WORKER SAFETY

Protect workers' health and safety from exposure to cyanide

Production Practice 2.1: Develop and implement procedures to protect plant personnel from exposure to cyanide.

This operation is ☒ in full compliance with
☐ in substantial compliance with Production Practice 2.1
☐ not in compliance with

Summarize the basis for this Finding:

In accordance to Canadian dangerous goods transportation law the Cyanco Canada Inc. organization is enforced to perform a danger and risk analysis in which all relevant aspects regarding safety on work are considered. All working places and all employees such as operational manager, shift leaders or shift-workers have been analyzed. As a result of this analysis, different measures and actions concerning personal protective equipment (PPE), monitoring devices, technical equipments, inspection routines, procedures, instructions, emergency plans, warning signs, medical check-ups were developed and implemented in cooperation with medical experts and safety engineers. The danger and risk analysis docs are reviewed routinely (HSEQ engineer and plant supervisor, as well as medical function as required), periodically by internal audits or safety inspections, partially together with the employees. In addition to this analysis job safety procedures are implemented. All workers in the production and storage area have to wear a personnel portable HCN detector and further PPE. Within these procedures all items of verification protocol chapter 2.1 are taken into account.

Production Practice 2.2: Develop and implement plans and procedures for rapid and effective response to cyanide exposure.

This operation is ☒ in full compliance with
☐ in substantial compliance with Production Practice 2.2
☐ not in compliance with

Summarize the basis for this Finding:

The cyanide plant has developed and implemented an operational alarm and emergency response plan in accordance ICMC. This includes the specific conditions and measures in the plant, e.g. summary of the most important responsibilities for emergency cases, behaviour in case of emergency, cooperation with external cyanide emergency response partners. Antidote management system and handling standard operation procedures are in place. Material Safety Data Sheets (MSDS) are available in local language (English, French), e.g. for sodium cyanide solution. Additional advices in writing regarding worker's operational activities on site are available on that place where cyanide handling is performed. These advices are basis of routine trainings. First-aid equipment is in place at the plant. The emergency facilities are inspected periodically, records are available and in place. Medical support with all required equipments is implemented. First aid and emergency response equipment is stored and in maintenance as recommended by the experts. The local nurse cooperates with local hospitals and neighboured industry. Beside these activities, in cooperation with local fire-

brigades mock-drills are conducted routinely on the site. Lessons learned are derived from those drills and the corresponding operating procedures are updated, as required.

PRINCIPLE 3 – MONITORING

Ensure that process controls are protective of the environment

Production Practice 3.1: Conduct environmental monitoring to confirm that planned or unplanned releases of cyanide do not result in adverse impacts.

This operation is ☒ in full compliance with
☐ in substantial compliance with Production Practice 3.1
☐ not in compliance with

Summarize the basis for this Finding:

The Cyanco Terminal facility at the Cadillac, Canada site has no direct and no indirect discharge to surface water. Process waste water and any other spills (storm water, melting snow from hopper cars etc.) is re-cycled completely into the process. The complete building is installed in a secondary containment system; construction is made of steel and concrete, finished with appropriate coatings. The groundwater regime was well investigated during erection period approx. 17 yrs. ago, due to the submission of an application for groundwater abstraction.

Cyanco is following the requirements of an EHS management system according to ISO 14001. The Cyanco's operations are regulated by a permission according to the Canadian legal requirements (May 1997), as outlined in the list of permissions.

Generally all filling processes are controlled by suction units in the immediate surrounding of the scales. The emissions are finally treated in a gas scrubber. Current allowable workplace concentrations are met. The site operates in compliance with the permit requirements stipulated for air emissions.

PRINCIPLE 4 – TRAINING

Train workers and emergency response personnel to manage cyanide in a safe and environmentally protective manner

Production Practice 4.1: Train employees to operate the plant in a manner that minimizes the potential for cyanide exposures and releases.

This operation is ☒ in full compliance with
☐ in substantial compliance with Production Practice 4.1
☐ not in compliance with

Summarize the basis for this Finding:

Based on their professional education, the operating employees are qualified as skilled chemical workers. They went through professional training, especially training-on-the-job. This education is the basis for the further training concept which is specified to the requirements of the certain function of each employee. One of the many further trainings are basic safety trainings which are enforced by Canadian legislation or which are in accordance to the risk analysis, such as: handling of hazardous materials, usage of PPE, alarm and emergency response plans, emergency drills, cyanide exposures and releases or operating procedures/instructions. These trainings are partially mandatory and have to be repeated routinely, held by specially qualified trainers. The trainings are focussing on the specifics of the dangerous materials, e.g. cyanides. A training schedule is maintained, based on requirements of the jobs and also based on the skills of each individual. The trainings are offered and performed for external contractors, craftsmen etc., too.

Production Practice 4.2: Train employees to respond to cyanide exposures and releases.

This operation is ☒ in full compliance with
☐ in substantial compliance with Production Practice 4.2
☐ not in compliance with

Summarize the basis for this Finding:

All employees at the Cyanco facility undergo periodical training lessons regarding safety issues when cyanide handling occurs. This includes potential exposures and releases. The training contents are mostly an outcome of the Emergency Response Plan. The risk scenarios are practised by routine drills and by demonstrations via DVD movie. Corrective actions are derived, defined and realized. The Cyanco terminal employees are involved throughout the complete mock drill activities to improve their skills and to optimise their awareness. Following the specific requirements of ISO 9001 ch. 6.2 resp. ISO 14001 ch. 4.4.2 the trainings are documented as required: to be traced back personally to each individual, covering the subjects trainer, topic, date, duration and kind of verification of understanding resp. effectiveness.

PRINCIPLE 5 – EMERGENCY RESPONSE

Protect communities and the environment through the development of emergency response strategies and capabilities

Production Practice 5.1: Prepare detailed emergency response plans for potential cyanide releases.

This operation is ☒ in full compliance with
☐ in substantial compliance with Production Practice 5.1
☐ not in compliance with

Summarize the basis for this Finding:

All relevant and potential failure scenarios are regulated through a local emergency response plan. The local plan works in conjunction with the Global Transportation Emergency Response Plan of Cyanco Corp. Crisis and emergency response management is regulated in detail. The local emergency responders such as fire brigade and medical functions are involved in the process of developing these Emergency Response Plan. Objectives and contents of the ERP are defined and described. In all emergency situations the central fire-brigade, the locally installed nurse being on duty / on call and the hospital are alarmed; they are present on site within a few minutes in order to control releases, to extinguish fires, to give first aid measures and cyanide antidotes.

Production Practice 5.2: Involve site personnel and stakeholders in the planning process.

This operation is ☒ in full compliance with
☐ in substantial compliance with Production Practice 5.2
☐ not in compliance with

Summarize the basis for this Finding:

In addition to the ERP regulation a documentation and an emergency response system is in place to respond to transport accidents with cyanides within Canada. The site is obliged to inform the neighbourhood on potential hazards, emissions and other safety risks. Especially the risks resulting from cyanide releases are obligate part of these evaluations. Beside this, potentially affected communities such as local government and environmental authorities, the mayor, fire-brigades, police or hospitals are involved and well informed about the nature of the risks of the cyanide production facility. The ERP contains a list of the industrial neighbours which may be affected in case of cyanide release. Their activities, addresses, contact dates and contact names are listed. Some communication activities with interested parties and stakeholders are initiated to assure that the relevant information and updates concerning the actuality of emergency response plans are addressed.

Production Practice 5.3: Designate appropriate personnel and commit necessary equipment and resources for emergency response.

This operation is ☒ in full compliance with
☐ in substantial compliance with Production Practice 5.3
☐ not in compliance with

Summarize the basis for this Finding:

Crisis and emergency response management is clearly defined and trained. The ERP is the core document to describe / reference to the relevant activities in case of incidents. Part of these documents are the determination of tasks and responsibilities and the description of certain functions such as security personnel, fire-brigade, medical department, 24-hour-standby duty service team or site crisis team. The specific members of these teams are named, listed and kept up to date. The responsible coordinator and functional leaders are defined as well, e.g. the Cadillac site manager and his backup, the head of the fire-brigade or the Corporate HSEQ manager. Call-out procedures are included and 24-hour contact information for the response team members is ensured. Alert chains and internal / external reporting lines are implemented. According to the ERP and to detailed procedures appropriate trainings for the staff of the fire-brigade are exercised. All emergency respond equipment including it's inspection is listed in corresponding work instructions as a part of the EHS management system. The cooperation with outside responders is also part of the ERP; telephone numbers, addresses and contact persons (includes internal contacts and external contacts such as authorities, police, neighboured companies, public institutions, transport companies, hospitals and medical support, public media) are listed and kept up to date. In addition to the ERP regulation a documentation and an emergency response system is in place to respond to transport accidents with cyanides within Canada.

Production Practice 5.4: Develop procedures for internal and external emergency notification and reporting.

This operation is ☒ in full compliance with
☐ in substantial compliance with Production Practice 5.4
☐ not in compliance with

Summarize the basis for this Finding:

According to the North American "2012 Emergency Response for First Responders During the Initial Phase of a Dangerous Goods/ Hazardous Materials Transportation Incident" (released by US Dept. of Transportation, Transport Canada and Mexican Secretariat of Transport and Communication) the site is obliged to inform the neighbourhood on potential hazards, emissions and other safety risks by a defined information that contains assignments and directions for behaviour in case of emergency in detail. According to Canadian legislation any accident, spill etc. must be reported and documented in a specific kind to MDDEP (Canadian governmental organisation). The guideline also regulates the involvement of neighbouring communities in permitting issues and potential risk information.

Production Practice 5.5: Incorporate into response plans and remediation measures monitoring elements that account for the additional hazards of using cyanide treatment chemicals.

This operation is ☒ in full compliance with
☐ in substantial compliance with Production Practice 5.5
☐ not in compliance with

Summarize the basis for this Finding:

The local emergency response plan includes remediation measures as integrated requirements. The measures are focussing to solid spill and liquid spill. The use of chemicals is regulated in the procedures. An impact on surface water is not possible, due to the design of the terminal site. Furthermore, if negative environmental impact may occur from cyanide accidents, monitoring instruments, methods, parameters and locations have to be identified to check the current situation and to figure out an appropriate action plan for remediation activities.

Production Practice 5.6: Periodically evaluate response procedures and capabilities and revise them as needed.

This operation is ☒ in full compliance with
☐ in substantial compliance with Production Practice 5.6
☐ not in compliance with

Summarize the basis for this Finding:

The routine and the non-routine process for plan reviewing procedure is described in the emergency response plan. Intensive and routinely performed mock emergency drills have been conducted with all necessary resp. interested parties as described in the previous chapters of this report. Resulting findings and room for improvement analysis are part of systematic evaluation process of the emergency response plans. This is the basis for the continuous improvement of the safety and security situation at the Cyanco installation at the Cadillac site. Routine reviews on the ERP document and processes are performed, but does lead to changes in ERP only when changes in processes or requirements occur.