
International Cyanide Management Code

cyanco

Pre-Operational Certification Audit of:

Cyanco Cheyenne Transloading Facility

Summary Audit Report

Submitted to:
The International Cyanide Management Institute
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USA

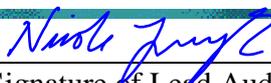
2016 Audit Cycle



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Cyanco Cheyenne Transloading Facility Summary

Company Names & Contact Information

Name and location of Operation:	Cyanco Cheyenne Transloading Facility Swan Ranch Industrial Park 6143 Tundra Drive Cheyenne, WY 82007
Names and contact information for this facility:	<p>Scott Goldblatt Safety & Health Manager Office: 775.623.1214 ext. 105 Email: scott.goldblatt@cyanco.com</p> <p>Phil Bennett Winnemucca Terminal Manager / Bulk Carrier Specialties, Inc. Contact Person Tel. 775-623-0707 winnemuccanv@transwood.com</p>

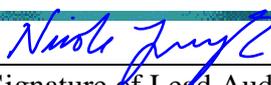
Operational Overview

The Cyanco Cheyenne Transload Facility is located in Cheyenne, Wyoming. At the time of the audit, Cyanco had leased the land, designed the transloading facility, and was finishing construction. The facility will be operated by Bulk Carrier Specialists, Inc., a subsidiary of TransWood Inc. The Cheyenne transload building is over 8000 square feet. Cyanide solution will be transported by rail car from Winnemucca to Cheyenne, moved on-site into a fenced area, and then loaded into ISO container trailers for truck transport to mines. Cyanco plans to complete the facility and begin transloading at this location at the end of 2016.

Audit Implementation and Conclusions

The pre-operational state of the facility was evaluated, construction information and records, as well as draft policies and procedures were reviewed, and personnel who will be working at the facility were interviewed. The audit was conducted through discussions and interviews with senior management, operations management, engineering, and environmental, health & safety (EH&S) staff. Personnel involved in the audit represented Cyanco, TransWood, and Bulk Carrier

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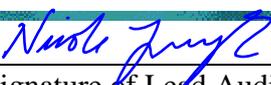
Specialties, Inc. The auditor used the ICMI “Cyanide Production Pre-Operational Verification Protocol” to evaluate International Cyanide Management Code (ICMC) compliance.

Locally defined draft procedures were largely in place and were evaluated during this audit. The assessment was based on random samples of information and therefore deficiencies may exist which have not been identified. The depth to which records and data were sampled was typical of an environmental, health and safety (EH&S) management system audit. Although legally required records were sampled in order to evaluate ICMC compliance, legal compliance with federal, regional, and local regulations was not part of the scope of this evaluation.

The Cyanco Cheyenne pre-operational certification audit was performed by an independent third-party auditor who is pre-approved by the ICMI as Lead Auditor for all types of International Cyanide Management Code (ICMC) audits and as a technical expert for ICMC audits of cyanide transportation and production operations. Cyanide was not yet present at the time of the pre-operational audit.

All aspects of the cyanide operations in its pre-operational state noted above were included in this ICMC Pre-Operational Certification Audit. The operation was found to be in FULL COMPLIANCE with ICMC Cyanide Production Pre-Operational requirements.

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Cyanco Pre-Operational Certification Audit Results

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.*

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

Summarize the basis for this Finding:

Cyanco has implemented quality control and quality assurance programs as part of the Cheyenne transload facility construction project. Personnel interviewed during the audit confirmed that the company is committed to maintaining all quality control and quality assurance records from the construction of the cyanide transload facility.

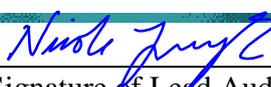
Records were available to demonstrate that appropriately qualified personnel are reviewing the facility construction process at frequent intervals to confirm that all stages of the facility conform to engineering plans. Quality control and quality assurance records were reviewed during the audit and were found to be acceptable.

The materials of construction for the cyanide transload facility are compatible with reagents that will be used for the planned transload processes. Materials of construction specifications were sampled during the audit and were found to be acceptable. Interlock information was reviewed during the audit. The transloading equipment is designed to prevent releases in the event of a power loss or other process upset.

The facility was constructed with a 30 millimeter PVC liner and a 12-inch double reinforced concrete floor. All transload activities will be done on a concrete surface within a building. There will be no cyanide-related activities performed outside of the building.

There are no storage tanks at this facility. The sodium cyanide solution is delivered in a rail car and is directly transloaded into an ISO tank mounted on a chassis. Interviews and a review of a sample of specifications and drawings confirmed that Cyanco is committed to ensuring that the transload equipment has level indicators that will be used to confirm that the iso tank is not overfilled. The transload equipment is a closed loop system that continuously cycles from the rail car to the iso tank and back again when the iso tank is full. In this way, the possibility of overfilling the iso tank is prevented.

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Cyanco has constructing its facility to include a sump and a sloped floor that would act as secondary containment, in the event of a spill. In the event that pressure is lost during a transload activity, interlocks in the system close off the rail car and the iso tank.

The only time solution is flowing at this operation is during the offloading of the rail car into a chassis-mounted ISO tank. The operation will be manned at all times. The transloading system is designed so that overfilling of the ISO tank is not possible. When the ISO tank is full, the excess solution flows back to the rail car through the closed-loop system. The progress of the transload is carefully monitored at all time. An emergency stop button will be present in the area. The system will be tested regularly to ensure that it is operational at all times. When the operators are not transloading, all piping to the rail car and the ISO tank will be disconnected and all openings will be properly secured. The secondary containment is sufficient to hold the cyanide that could be in the piping during an upset condition. The operation is completely within a building, which means that the containment of rainwater is not of concern in this operation.

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

The operation is in full compliance with Production Practice 1.2

Summarize the basis for this Finding:

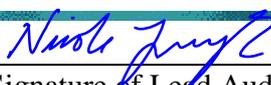
Cyanco has draft plans and procedures for the Cheyenne transload facility that describe the standard practices necessary for its safe and environmentally sound operation. Operational and emergency response procedures have been drafted by Cyanco specifically for this operation. Procedures that address normal operations, upset conditions, and emergency events are addressed in the documentation.

Management, engineering, and EH&S personnel were interviewed during the audit. All personnel audited demonstrated a high level of procedural awareness. Cyanco plans to use a modified Cyanco MOC process for the facility and will use the TransWood MOC process for transportation-related operations.

Interviews confirmed that Cyanco is committed to complying with this ICMC practice. A preventive maintenance program was under development during the audit. All draft procedures reviewed were found to be appropriate for the operation. Cyanco is planning to monitor indoor air quality with stationary HCN monitors.

Cyanco is committed to implementing procedures to prevent discharges of cyanide-contaminated water to the environment and for managing and disposing of cyanide-contaminated solids in an environmentally sound manner.

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The building will have adequate ventilation to prevent the build-up of hydrogen cyanide gas. Ridge vents are in place for ventilation. The building has a low temperature alarm that is monitored by the facility and the Cyanco Winnemucca control room. This is an important monitoring point to ensure that the water pipes in the building do not freeze in the event that the heating equipment fails or someone leaves an unattended bay door open. All cyanide transload activities will be done under roof to prevent contact with water. The perimeter of the facility is completely fenced and the gates will be locked when cyanide is present. Cyanco control room operators have 24/7 access to security cameras from this facility to ensure that no unauthorized personnel access the site.

Cyanco is committed to ensuring that all cyanide packages are labeled in the appropriate languages for the countries through which the material is transported.

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

The operation is in full compliance with Production Practice 1.3

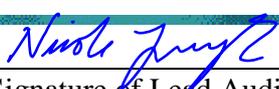
Summarize the basis for this Finding:

Cyanco is committed to developing a program to conduct routine inspections of all cyanide transloading equipment and the transload building including: valves, pipelines, and containments. This inspection program was under development at the time of the audit. As part of their regular preventive maintenance, the program will include inspections. There are no tanks planned for this operation. Secondary containments will be assessed for their integrity, the presence of fluids and their available capacity, and to ensure that any drains are closed to prevent accidental releases to the environment.

The perimeter of the facility is completely fenced and locked with 24/7 monitored security cameras to ensure that no unauthorized personnel access the site.

Pipelines, pumps and valves will be inspected for deterioration and leakage. Cyanco is committed to inspecting its transloading facility at frequencies that are sufficient for ensuring that equipment is functioning within design parameters.

Cyanco is committed to retaining all records necessary to fulfill ICMI inspection record requirements, including the documentation of corrective actions in the event that deficiencies are found during an inspection. This information was confirmed through interview and a review of draft procedures and plans.

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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.

The operation is in full compliance with Production Practice 2.1

Summarize the basis for this Finding:

To minimize worker exposure under normal operations, the facility is developing, and is committed to implementing, cyanide related procedures for: transloading and shipping cyanide solution.

Procedures are being drafted for normal operations, abnormal operations and maintenance-related activities. Draft operational and maintenance procedures were available for review.

Cyanco is committed to developing and implementing procedures for preventive maintenance which are supported by periodic inspections of the facility and equipment. The procedures will address periodic maintenance of a number of different types of equipment including cyanide detectors, firefighting equipment, and medical response equipment.

The operation will use a modified Cyanco Management of Change procedure to review proposed operational changes as necessary. Changes in documentation, installations and operational changes will be processed using this procedure. According to interviews, Management will involve operators in the development and roll-out of procedures and encourage operators to provide feedback on procedures and changes at the facility.

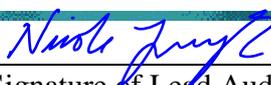
The facility is committed to using stationary monitoring devices in the cyanide transloading area. Plans are in place to calibrate HCN monitors according to manufacturer's specification. Maintenance and calibration will be performed by internal personnel and an external service provider.

Cyanco is committed to performing calibration of its HCN monitors in accordance with the manufacturer's recommendations. Calibrations will be performed internally and externally as required. Records will be retained for at least one year.

Cyanco is committed to confirming that safe working conditions exist and that cyanide levels are below 4.7 ppm. The facility will be evaluated for elevated HCN exposure potential. Initial personal protective equipment requirements have been developed and are defined in draft procedures.

Cyanco is committed to ensuring that at least two people work in the operation at all times and that radio contact between operators is maintained. Interviews confirmed that the health of employees

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will be evaluated to determine their fitness to perform their specified work tasks. Records will be maintained.

A clothing change policy is being drafted which requires that employees involved in the transload process remove PPE and work boots upon leaving the operational area. According to draft procedures, operators will remove any PPE and/or clothing that has potentially been in contact with cyanide before leaving the facility.

Cyanco is committed to ensuring that appropriate cyanide warning signs and PPE signs are present in operational areas. Eating, drinking, smoking, and open flames will be prohibited where there is a potential for cyanide contamination. Management showed very good awareness of the restrictions and of the potential dangers of not adhering to those restrictions. Cyanco is committed to finalizing and implementing a procedure which prohibits eating, smoking, and open flames in the production and storage areas.

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

The operation is in full compliance with Production Practice 2.2

Summarize the basis for this Finding:

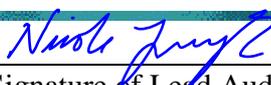
Cyanco has drafted a comprehensive Emergency Response Plan (ERP) for rapid and effective response to cyanide exposure. Draft procedures were reviewed and were found to be comprehensive and included procedural steps to be followed in the event that cyanide is ingested, skin or eye contact made, and/or if cyanide dust or gas is inhaled.

Two shower / low-pressure eye wash stations are planned on the catwalk and one on the ground level in the transload building. ABC powder fire extinguishers will be placed throughout the facility. The facility plans to do a regular check of equipment. Cyanco is committed to maintaining records of these inspections.

Cyanco is committed to having water, oxygen, resuscitator, antidote and a means of communication readily available for use in the facility at all times. Cyanco is planning to inspect and appropriately maintain emergency response equipment and cyanide antidote to ensure availability during an emergency. The antidote will be maintained according to manufacturer recommendations. Emergency response equipment plans were found to be acceptable.

Cyanide Safety Data Sheets and first aid procedures will be available to workers in the operational and storage areas of the plant in English. The safety information will also be published as posters in the facility. The facility is committed to alerting workers to equipment and piping that contain cyanide. The direction of cyanide flow in pipes will also be identified.

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The operation is committed to drafting a decontamination procedure that requires that all personnel change out of their personal protective equipment (PPE) and work boots after performing the transload operation. Management demonstrated a good understanding of the need for safety precautions.

Cyanco is committed to provide first aid or medical assistance to workers who are potentially exposed to cyanide. The Emergency Coordinator (Facility Manager) calls 911 in order to transport exposed workers to locally available qualified off site medical facilities. The facility plans to make contact with the Cheyenne Regional Medical Center – West Campus and alert them to the plan to have cyanide at this facility.

The facility has developed draft instructions in the emergency response plan to manage a cyanide-exposure scenario and transport the person to a locally qualified off-site medical facilities. Cyanco is committed to assessing the capabilities of the local medical facilities with respect to the availability of qualified personnel, necessary equipment, and expertise to respond to cyanide exposures.

Emergency drills of the site's ability to respond to exposure scenarios are planned to be conducted periodically. The Cyanco draft ERP calls for at least one emergency exposure drill per year. Project personnel indicated that these drills will be conducted at the very start of operations to ensure that personnel are appropriately trained in emergency response procedures.

Cyanco has drafted, and is committed to implementing, an incident investigation procedure for investigating, evaluating and reporting incidents, including cyanide exposure cases.

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.

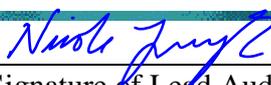
The operation is in full compliance with Production Practice 3.1

Summarize the basis for this Finding:

According to interviews, there are no plans for this facility to have direct or indirect discharge to surface water or groundwater. In the unlikely event that impact to groundwater occurs, Cyanco is committed to performing remedial activities to protect the groundwater's beneficial use.

Indoor air cyanide concentrations will be monitored using stationary HCN detectors. Cyanco has committed to limit atmospheric process emissions of hydrogen cyanide gas such that the health of workers and the community are protected.

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No cyanide had been introduced to this facility at the time of the audit. In the unlikely event of a release of cyanide to the environment in the future, the operation is committed to engaging the appropriate resources to ensure that any remediation needs are fulfilled.

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.

The operation is in full compliance with Production Practice 4.1

Summarize the basis for this Finding:

Cyanco is committed to training all personnel to ensure that they understand the hazards of cyanide. The training will be given prior to working with cyanide and training will be refreshed on an annual basis. The training will include information on a full range of training topics related to cyanide. This material will be used for the cyanide safety training along with face to face training sessions that will be given annually.

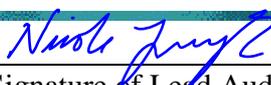
Site personnel will receive training regarding the use, storage and cleaning of the personal protective equipment (PPE) required by each activity or task. Cyanco is committed to training its workers to perform their normal transloading tasks with minimum risk to worker health and safety and in a manner that prevents unplanned cyanide releases. Internal training in the operational procedures will be delivered to all relevant personnel prior to cyanide being introduced to the operation.

Cyanco is developing transloading procedures; the draft procedure was available for review during the audit. Training will be given on the loading of trailers and unloading at the customer mine site. A senior driver will be the trainer. New hires will train 7-8 days before they are released to work independently. Experienced operators / trainers will be present during the commissioning and start-up. Tests will be available for review.

The training elements necessary for each job will be identified in the training materials. The facility will use the work procedures to supplement training materials. The auditor confirmed through interviews that the individuals who will be involved in the development and delivery of training are highly qualified and capable of providing safety and operations training.

Cyanco will train all personnel on cyanide awareness prior to their beginning work in the operation. Records will be retained. The facility plans to evaluate the effectiveness of cyanide training by testing and performance evaluations done after the initial training sessions. Evaluation records will be kept by the site.

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

The operation is **in full compliance with Production Practice 4.2**

Summarize the basis for this Finding:

Cyanco is committed to training all personnel on its emergency response procedures. The draft ERP was reviewed. The document details what is to be done in the event that a cyanide release is discovered. The facility is committed to training workers to respond to worker exposure to cyanide and to use routine drills to test and improve their response skills.

Drills will be conducted at least annually to test general response to chemical emergencies, including cyanide exposure. Cyanco is committed to processing corrective actions and revising emergency procedures as necessary following the drills or actual plan deployment. Drill results will be evaluated from a training perspective to determine the need for revisions to training materials or training approaches.

The site is committed to maintaining training records and evaluation results of all trained workers. Training records will be maintained for at least as long as the employee is working at the site and will fulfill all ICMI training record requirements.

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

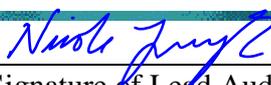
Production Practice 5.1: *Prepare detailed emergency response plans for potential cyanide releases.*

The operation is **in full compliance with Production Practice 5.1**

Summarize the basis for this Finding:

Cyanco has developed draft emergency plans that consider the potential failure scenarios appropriate for its site-specific environmental and operating circumstances, including potential releases of cyanide from the operation, cases of fire and explosion, and situations where equipment may malfunction. The scenarios were found to be appropriate by the auditor. The draft ERP was available for review during the audit.

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The draft emergency plan will specify the telephone numbers and the notification procedure to be followed in the event of an emergency. The draft ERP describes first aid measures to be taken in the event of a cyanide exposure. The plans will also call for the control of releases at their source. The emergency plan will describe the necessary actions to take for release containment, assessment, mitigation and prevention.

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

The operation is in full compliance with Production Practice 5.2

Summarize the basis for this Finding:

Cyanco is committed to involving its workforce and external responders in the emergency response planning process. Records were available to demonstrate that initial discussions have already taken place.

The operation is committed to training local agencies such as the Fire Department and the local hospital. Cyanco is committed to engaging stakeholders on a regular basis to ensure that its emergency plans remain current and address changing conditions. The operation plans to interface with the Local Emergency Planning Committee (LEPC).

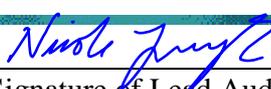
Production Practice 5.3: Designate appropriate personnel and commit necessary equipment and resources for emergency response.

The operation is in full compliance with Production Practice 5.3

Summarize the basis for this Finding:

The Cyanco ERP will designate primary and alternate emergency response coordinators with explicit authorities and responsibilities. Operators will be trained to stop operations and evacuate the transload building in the event of a release. The operation will not have its own emergency responders, but rather coordinate with external responders and Cyanco and its emergency response / remediation contractors. The facility manager is responsible for internal communications in case of emergency. Corporate Cyanco personnel would respond to media concerns. Responsibility, authority, and duties for managing an emergency situation will be clearly described in the emergency procedures.

The ERP will include the responsibilities and training needs of personnel. The draft ERP includes 24-hour telephone numbers of the local emergency response agencies and Cyanco representatives. The telephone list with emergency telephone numbers was found to be up-to-date. The responsibilities, authorities and duties for managing an emergency situation are clearly described in the plan. The ERP lists the emergency response equipment that will be maintained by the site.

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The role of outside responders will be explained in the ERP. The emergency response equipment will be inspected regularly using a checklist. Its availability and operability will be confirmed during the operational audit. Completed checklists will be available for review. Interviews were used to confirm management awareness and commitment to fulfilling requirements.

Cyanco is committed to confirming that outside entities included in the ERP are aware of their involvement. External responders will be invited to the emergency response drills. Interactions and planned discussions with external responders were found to be appropriate for the operation.

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

The operation is in full compliance with Production Practice 5.4

Summarize the basis for this Finding:

The ERP will include up-to-date emergency telephone numbers. Cyanco is committed to including the telephone numbers of the nearest hospital and local emergency agencies, as well as Cyanco emergency numbers. The plan will also establish who is responsible for calling the external responders and authorities.

The production is located within an industrial park, however, the adjacent facilities were empty at the time of the audit. There are no residential communities near the facility. The plan will include information about who needs to make the notifications (in the event of an emergency) to Cyanco and TransWood personnel and authorities.

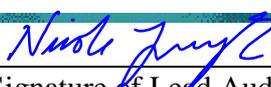
Production Practice 5.5: Incorporate into response plans and remediation measures monitoring elements that account for the additional hazards of using cyanide treatment chemicals.

The operation is in full compliance with Production Practice 5.5

Summarize the basis for this Finding:

Cyanco is committed to ensuring that its emergency plans describe specific, appropriate remediation measures, such as recovery or neutralization of solutions or solids, decontamination of soils or other contaminated media and management and/or disposal of spill clean-up debris, and provision of an alternate drinking water supply, as appropriate.

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The draft ERP for the facility prohibits the use of chemicals such as sodium hypochlorite, ferrous sulfate and hydrogen peroxide to treat cyanide that has been released into surface water. Plans will also address the potential need for environmental monitoring.

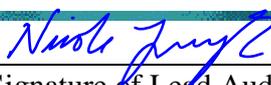
Production Practice 5.6: Periodically evaluate response procedures and capabilities and revise them as needed.

The operation is in full compliance with Production Practice 5.6

Summarize the basis for this Finding:

The draft ERP states that the emergency plans are reviewed at least once a year and an emergency cyanide spill with worker exposure drill will be performed at least once a year. Lessons learned from the emergency drills will be considered when updating the ERP and emergency procedures. Emergency plans will be reviewed and updated after any emergency or recommendations following an emergency response drill.

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