ICMI Production Verification Protocol (Revision June 2021)

Summary Audit Report

Cyanco Cheyenne Transloading Terminal

2023 Re-Certification Audit

Submitted to:

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

www.cnauditing.com

Table of Contents

Operation General Information

Operations Audited:	Cyanco Cheyenne Transloading Terminal Swan Ranch Industrial Park 6143 Tundra Drive Cheyenne, WY 82007
Audit Scope:	Sodium Cyanide Solution Rail to Truck Transload Operations
Names and contact information for this facility:	Brent Holley Cyanco 2245 Texas Drive, Suite 500 Sugar Land, Texas 77479 E-Mail: brent.holley@cyanco.com Clint Metz 820 Terminal Manager Cheyenne, Wyoming TransWood Carriers, Inc.

Company Background Information

Cyanco maintains its international headquarters in Sugar Land, Texas and its production facilities in Winnemucca, Nevada and Alvin, Texas. Distribution terminals, interim storage, and office locations are maintained in several locations in the United States and Canada.

Cyanco was an early adopter of the International Cyanide Management Code (Cyanide Code) and has been certified since October 2006. This operation has been certified since 2017.

Description of the Operation

The Cyanco Cheyenne Transload Terminal located in Cheyenne, Wyoming is a sodium cyanide transloading facility operated by TransWood Inc. The Cheyenne transload building where all transloading operations are carried out is over 8,000 square feet in size. Cyanide solution is transported by rail car via the Union Pacific railroad from Winnemucca to Cheyenne, moved on-site into a fenced area, and then loaded into ISO container trailers for truck transport to mines. Sodium cyanide solution is then transported by truck to mines in the United States by TransWood, a Cyanide Code certified cyanide transporter.

This operation was confirmed to be in **FULL COMPLIANCE** with the International Cyanide Management Code.

Auditor's Finding

The cyanide management practices for Cyanco were evaluated for Cyanide Code compliance using the 2021 version of the *ICMI Cyanide Production Verification Protocol.* Cyanco internal standards, policies, practices, and procedures regarding the management of the cyanide operations were reviewed.

The results of this re-certification audit demonstrated that Cyanco Cheyenne Transloading Terminal activities are in **FULL COMPLIANCE** with International Cyanide Management Code requirements.

Compliance Statement

This operation did not experience any compliance issues or significant cyanide incidents during the recertification period.

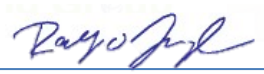
Auditor Information

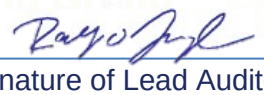
Audit Company:	CN Auditing Group www.cnauditing.com
Lead / Technical Auditor:	Ralf Jurczyk, Ph.D. E-mail: rj@cnauditing.com
Dates of Audit:	November 7-8, 2023

Auditor Attestation

I attest that I meet the criteria for knowledge, experience, and conflict of interest for a Cyanide Code Certification Lead Auditor, 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 this Detailed Audit Report accurately describes the findings of the re-certification audit. I further attest that the re-certification audit was conducted in a professional manner in accordance with the International Cyanide Management Code *Cyanide Production Verification Protocol* and using standard and accepted practices for health, safety, and environmental audits.

Cyanco Cheyenne Transloading Terminal		March 1, 2024
Name of Operation	Signature of Lead Auditor	Date

Cyanco Cheyenne Transloading Terminal		March 1, 2024
Name of Operation	Signature of Lead Auditor	Date

Principles and Standards of Practice - Cyanide Production Verification Protocol

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.

The operation implemented quality control and quality assurance programs as part of the Cheyenne transload terminal construction project. Confirmation was made during the original certification audit that engineering records, including quality control and quality assurance records, are on file and readily accessible. The terminal hand-off, sign-off, commissioning, and Certificate of Completion for the terminal were reviewed during the original re-certification audit and were found to be acceptable. Extensive design and build records were also reviewed during the pre-operational audit and were found to be complete and acceptable. There were no structural or procedural changes to the operation during the re-certification period. This was confirmed through observation and interview.

Records were available during the original certification audit to demonstrate that appropriately qualified personnel reviewed the facility construction process at frequent intervals to confirm that all stages of the facility conformed to engineering plans. Confirmation was made during this re-certification audit that records continue to be maintained and are still retrievable.

The materials of construction for the cyanide transload facility are compatible with reagents that are used in the transloading processes. Materials of construction specifications were sampled during the audit and were found to be acceptable.

Interlock information was reviewed during the audit. Each critical system has an interlock mechanism. The interlocks stop the flow of cyanide and prevent releases in the event of a system upset that results in a loss of pressure. A power outage is not expected to immediately stop the flow of cyanide because the pressurized closed loop system will run until the pressure is no longer present. The cyanide would, however, be expected to simply circulate between the rail car and the ISO tank until the system is no longer pressurized.

Additionally, emergency stop buttons are present in the transloading area. Records of third-party testing and calibrations of these systems from the recertification period were available for review. Rail car inspections are conducted on every inbound and outbound rail car when they are placed

and prior to their removal from the transload facility. All piping is secured when transloading is complete. Interviews with operators confirmed this practice.

All cyanide transload activities are conducted on a concrete surface to prevent seepage to the subsurface. The facility was constructed with a 30-millimeter PVC liner and 12-inch double reinforced concrete. There are no cyanide-related activities performed outside of the building / containment area. The concrete floor in the transload building was observed as being clean, in good condition, and no cracking and/or damage.

All equipment and concrete surfaces were found to be in very good condition during the audit. No maintenance or equipment issues were noted as being deficient.

Transload equipment has level indicators that are used to ensure that the ISO tank is not overfilled. These indicators are regularly inspected, maintained, and verified to be functional each time the transload operation is started. The sodium cyanide solution is delivered in a rail car and is directly transloaded into an ISO tank mounted on a chassis. The transload operation 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. There are no storage tanks at this facility.

The transloading facility has a sump and a sloped floor that function as secondary containment in the event of a spill. 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.

The only time solution is flowing at this operation is during the offloading of the rail car into a chassis-mounted ISO tank. The transloading operation is always manned. The progress of the transload is continuously monitored. Emergency stop buttons are present in the transloading area at each of the emergency doors. The emergency equipment log was reviewed and indicated that inspections of the equipment were conducted monthly for the re-certification period.

Inspections of rail cars are done prior to unloading and dispatch. The rail cars are inspected for safety equipment, secure valves, fittings, condition of car, and the amount of product that is left in the rail car after unloading. When the operators are not transloading, all piping to the rail car and the ISO tank is disconnected and all openings are properly secured.

All cyanide piping at the facility is within the building and containment area; there is a dip in the floor and a monitoring well installed that can be used to determine if there has been any loss of cyanide to the membrane.

The production building has adequate ventilation to prevent the build-up of hydrogen cyanide gas. Ridge vents are in place for ventilation. The ventilation system was approved by the State. The building has a temperature alarm (low temperature) at 40 degrees. An alarm would be sent to Winnemucca if someone left the door open and the temperature fell below an acceptable level.

All cyanide transload activities are conducted under roof to prevent contact with water.

The perimeter of the facility is completely fenced to ensure that no unauthorized personnel access

the site. The Cyanco Winnemucca control room operators have 24/7 access to security camera information.

There is no storage of cyanide solution at this terminal. The solution is received in a rail car and transloaded into the truck transportation equipment (e.g., ISO tank). No chemicals other than cyanide are stored within or near the transload building.

Finding: Is the operation in full compliance, substantial compliance, or non-compliance with Production Practice 1.1?

☒ Full Compliance ☐ Substantial Compliance ☐ Non-Compliance

Production Practice 1.2

Develop and implement plans and procedures to operate cyanide production facilities in amanner that prevents accidental releases.

The operation has procedures in place that describe the standard practices necessary for its safe and environmentally sound operation in a manner that prevents accidental releases. Procedures for normal operations and a clearing procedure for use prior to maintenance activities were made available during the audit and were found to be complete.

Procedures for upset and contingency conditions are in place and are available at the point of use at the operation.

Procedures were reviewed and provide information about minor process upset issues. The Emergency Response Plan (ERP) describes the procedures to be followed in the event of a fire, explosion, and exposure or cyanide release.

Operations personnel were interviewed, and their awareness level of emergency and contingency procedures was very good.

The facility has a Management of Change (MOC) procedure that is used to identify risks when site operating practices change from those of the initial design to any part of the operation. The procedure requires a review and sign-off by an environmental, health, and safety professional, in addition to other signoffs.

The MOC form was initially approved for use in 2017 and was reviewed during the audit and found to be appropriate for the operation. MOCs were reviewed during the initial certification audit and were found to be complete. There were reportedly no changes to the operation during this re-certification period. This was confirmed through physical observation of the operation and through interviews with operators.

A preventive maintenance program was developed for the facility. The maintenance procedure was reviewed and was found to be appropriate for the operation**,** including all equipment and devices necessary for cyanide production and handling. The primary maintenance and inspection activities are focused on pumps, pipelines, sump systems, alarms, and hoses. Records were available for the re-certification period and were found to be acceptable.

Process parameters are monitored with the necessary instrumentation. Instruments are calibrated according to manufacturer's recommendations. Process control equipment is continuously monitored by Operators and is inspected regularly.

The operation has implemented a process to monitor critical process parameters such as: hydrogen cyanide (HCN) readings, pressure**,** and temperature of water; natural gas supply pressure; plant air system - "TransWood Cheyenne Equipment Readings". These forms are filled out once a day (one shift per day). This operation does not have any process instruments that require calibration. Records of HCN monitor calibrations from the re-certification period were reviewed during the audit and were found to be complete.

Controls are in place to prevent unauthorized/unregulated discharge to the environment of any cyanide-contaminated water that is collected in a secondary containment. The operation has implemented procedures for disposing of contaminated water resulting from cyanide operations. The relevant procedures were reviewed by the auditor and found to be appropriate for the operation. The contaminated water is put into either the flush tank or the floor sump. The cyanide-containing water is pumped back into the railcars after they have been emptied and it is sent back to the Cyanco Winnemucca production plant for re-processing. Procedures were reviewed and were found to be appropriate.

The operation has procedures in place for the management and disposal of contaminated solids in an environmentally sound manner. The relevant procedures were reviewed by the auditor and found to be appropriate for the operation. The contaminated solids are decontaminated and put into the NaCN contaminated waste. This practice was confirmed through interview.

Formal processes are in place to ensure that the cyanide is packaged and labeled as required by the political jurisdictions through which the packaged cyanide will pass.

The operation ensures that all ISO tanks are placarded and marked in the appropriate languages and according to regulations for the countries through which the material is transported.

Finding: Is the operation in full compliance, substantial compliance, or non-compliance with Production Practice 1.2?

☒ Full Compliance ☐ Substantial Compliance ☐ Non-Compliance

Production Practice 1.3

Inspect cyanide production facilities to ensure their integrity and prevent accidental releases.

Preventive maintenance procedures and inspection records were available for all necessary equipment. The only tank at the facility that contains cyanide is the flush tank used to temporarily hold wash water that is contaminated with low concentrations of cyanide. The flush tank, associated piping, and valves are inspected as part of the daily inspection process. This was confirmed through interviews and observations. The secondary containment system inspection is part of the emergency equipment inspection checklist. Inspections were conducted monthly during the re-certification period. Records were sampled and were found to be complete.

Routine inspection of pipelines, pumps and valves for deterioration and leakage are performed. There is a set frequency of inspections and requirements on how these inspections will be documented. Records were available for review and were acceptable. Cyanco maintains its own bulk transportation equipment (rail tank cars and ISO tanks for this operation). Equipment is inspected according to regulatory requirements. All bulk transportation equipment is inspected at least every three years and thickness testing is done at least every 10 years. Rail cars are inspected by authorized rail inspectors. ISO tanks are inspected before they are put into service, within five years of constructions, and within 2.5 years following the in-service date of the equipment.

Routine inspection of pipelines, pumps and valves for deterioration and leakage are performed. There is a set frequency of inspections and requirements on how these inspections will be documented. Daily, monthly, and annual inspection frequencies have been established, depending on the type of equipment being inspected. Frequencies were found to be sufficient. Records were available for review and were acceptable.

Inspections are documented and show the date of the inspection, the name of the inspector, and any observed deficiencies.

Records reviewed included the date of the inspections, the name of the inspector, and any observed deficiencies. Interviews confirmed that the operators will note the results of corrective actions if there is a repair identified as necessary and that records are retained. There were no examples of deficiencies found during inspections. The equipment appeared to be in good working order during the audit.

Finding: Is the operation in full compliance, substantial compliance, or non-compliance with Production Practice 1.3?

☒ Full Compliance ☐ Substantial Compliance ☐ Non-Compliance

Principle 2 | WORKER SAFETY

Protect workers' health and safety from exposure to cyanide.

Production Practice 2.1

Develop and implement procedures to protect facility personnel from exposure to cyanide.

Procedures are in place for normal operations, abnormal operations, emergency, and maintenance-related activities, including appropriate PPE necessary to minimize worker exposure. Maintenance procedures call for the decontamination of equipment prior to maintenance. The only equipment that would need to be decontaminated prior to maintenance would be the cyanide pumps and valves. This equipment is decontaminated through a triple rinse process prior to performing maintenance, such as repair and/or replacement. Procedures were available for review and were found to be acceptable.

Maintenance contracts are in place for air compressors (every 6 months) and the boiler (every year). Records for the re-certification period were sampled and were found to be complete.

Cyanco solicits worker input during the review and development of health and safety procedures.

The terminal solicits and considers worker input via the monthly safety meeting for TransWood personnel. Records of these meetings were available for review during the audit.

The operation ensures that safe working conditions exist and that cyanide levels are below 4.7 parts per million (ppm). The primary activity with a risk of having an instantaneous HCN concentration of 10 ppm or higher is the opening of the rail car dome. PPE requirements ensure that operators are not exposed, a buddy system is used for this higher risk activity, and there is an emergency shut off button to facilitate a quick response to an upset condition. The facility has stationary HCN monitors in place to protect against elevated HCN exposure potential at the ground level and the upper level in the transload building. Procedures defining PPE requirements are in place and were reviewed by the auditor and found to be acceptable.

The emergency inspection checklist contains a requirement to calibrate the HCN monitors quarterly. These monitors help protect against elevated HCN exposure potential for employees and contractors involved in the transloading operation.

The HCN monitors are set to alarm at 4.7 and 10 parts per million (ppm) on an instantaneous basis and at 4.7 ppm continuously over an 8-hour period. If the HCN monitors alarm at 4.7 ppm, employees are instructed to stop cyanide solution flow (if any), ventilate the area, and leave until the alarm is cleared. In the unlikely event that the alarm would sound at 10 ppm, the operators would stop cyanide activities, open the building doors, and leave the building immediately until the upset condition (release) is resolved.

The operation is performing calibration of its HCN monitors quarterly, as recommended by the equipment manufacturer. Calibration records were available for review during the audit and were acceptable. Records are retained for the recertification period.

Operating procedures ensure that at least two people always work in the operation and that radio contact between operators is maintained. This practice was confirmed through an interview with the Terminal Manager. There must be at least two people in the transload building and one person in the office during transload operations. Operators must always have a radio with them when in the transload building. There are also video cameras throughout the transloading facility and at the gates. The cameras are monitored in the office.

Interviews confirmed that the health of employees is evaluated to determine their fitness to perform their specified work tasks. Health checks include assessments of pulmonary function, hearing, and vision. Pre-employment health checks and medical checks at least once every three years are conducted, and records are maintained. Annual respirator fit testing is performed if an employee is required to wear a respirator to perform job duties. At the time of the audit, there were no jobs or tasks that required the use of a respirator.

Operating procedures include the requirement that employees involved in the transload process remove personal protective equipment (PPE) and work boots upon leaving the operational area. PPE requirements for contractors and visitors to the transload area were clearly defined and communicated. Operators remove any PPE and/or clothing that has potentially been in contact with cyanide before leaving the facility and no PPE is allowed to leave the building. Operators demonstrated the donning and proper hygienic practices required with the use of PPE during the audit.

The facility has appropriate warning signs including “Caution” and PPE requirements. Cyanide warning signs were observed on the perimeter fence. Appropriate signage is in place in the transload building on each door indicating that eating, drinking, smoking, and open flames are prohibited.

Signage was observed in the transloading building indicating that eating, drinking, smoking, and open flames are 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. Eating, smoking, and smoking are allowed only in the office building.

Interviews with transload operators confirmed that there is no tolerance for eating, drinking, smoking, chewing tobacco in the transloading building. Consumption of water is also not allowed in the transload building. Working breaks and scheduling of activities was deemed sufficient to support the adherence to these requirements.

Finding: Is the operation in full compliance, substantial compliance, or non-compliance with Production Practice 2.1?

☒ Full Compliance ☐ Substantial Compliance ☐ Non-Compliance

Production Practice 2.2

Develop and implement plans and procedures for rapid and effective response to cyanide exposure.

The operation has an Emergency Response Plan (ERP) in place for rapid and effective response to cyanide exposure. Procedures were reviewed and were found to be comprehensive and included procedural steps to be followed if 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 in place on the catwalk and one on the ground level in the transload building. Safety showers and eyewash stations are checked daily. Interviews with operators and records reviewed during the audit confirmed this practice. ABC powder fire extinguishers were observed throughout the facility. Shower and eyewash stations are confirmed to be functional at the start of every shift. The operation also checks all safety equipment monthly using the emergency equipment inspection checklist. Records of monthly inspections were reviewed and found to be complete.

The operation has the following in place: water, oxygen (with mask) in both buildings, an Automated External Defibrillator (AED), and a resuscitator. The facility keeps two Cyanokits (hydroxocobalamin for injection) in the transload building vestibule that is temperature-controlled. The antidote would be provided to the paramedic at the time of arrival, in the event of an emergency. The Cyanokits were observed to be in-date and suitably stored according to manufacturer recommendations. The ERP contains instructions for communicating an emergency to facility, emergency response, and regulatory personnel.

The operation inspects its emergency equipment monthly and records were available demonstrating these inspections were conducted regularly during the re-certification period. The antidote (Cyanokit) is maintained according to manufacturer recommendations, in a temperature controlled area. Emergency response equipment inspection records were found to be acceptable.

Cyanco sodium cyanide solution safety data sheets (SDSs) and first aid procedures are available to workers in the office building in English, the language of the workforce. SDSs are maintained in an SDS book. Operators and office personnel have ready access to the SDSs.

The facility has markings in place alerting workers to equipment and piping that contains cyanide. Markings indicating the direction of cyanide, water and air flow in pipes were observed during the audit.

The operation has a decontamination procedure that requires all personnel to change out of their personal protective equipment (PPE) and work boots after performing the transload operation. All PPE must be decontaminated and is kept in the transload building. Contractors and visitors are not allowed in areas where there is a potential for cyanide exposure or contamination. In an abnormal operating condition in which contractors and/or visitors were in potentially contaminated work area, they would be required to decontaminate prior to leaving the transload building. This

policy was confirmed through interviews and field observations.

The operation provides first aid and administers oxygen to decontaminated workers who are potentially exposed to cyanide and would use emergency response procedures to obtain further medical assistance by calling 911 in the event of an emergency.

Procedures are in place to obtain transport for exposed workers to locally available qualified off-site medical facilities in the event of an emergency. The Emergency Response Plan directs the Emergency Coordinator (Facility Manager) to call 911 for medical assistance and transport, to unlock the facility gate, and to give the Cyanokit to emergency responders upon their arrival.

Cyanco has made arrangements with the local emergency responders and hospital for the treatment of potential cyanide exposure victims. When the facility was initially built, Cyanco communicated with the local medical facility, Cheyenne Regional Medical Center – West Campus, to alert them of the possibility of cyanide victims at the facility. Cyanide Safety Awareness Training was conducted with hospital staff at that time.

During this recertification period, Cyanco invited emergency responders including the Paramedic Supervisor, Fire Department personnel, and a 911 dispatcher. The scenario included loss of containment and human exposure. The after-action report from the emergency response drill was available for review. The drill was held in 2023.

The operation has an incident investigation procedure for in place investigating, evaluating, and reporting incidents, including cyanide exposure cases. There were no incidents or exposures during the re-certification period. Procedures for investigating and evaluating exposure incidents appear to be appropriate for ensuring facility programs protect worker health and safety. The operation is quite small and there were no incidents of any kind that required the investigation of root cause during the recertification period. This was confirmed through interviews with Terminal personnel.

Finding: Is the operation in full compliance, substantial compliance, or non-compliance with Production Practice 2.2?

☒ Full Compliance ☐ Substantial Compliance ☐ Non-Compliance

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.

The facility does not have any direct or indirect discharge to surface water. There are no surface water bodies near the facility.

Operations are compliant with Cyanide Code requirements and the operations do not impact groundwater. There are no environmental discharges from the facility, and there no groundwater monitoring requirements associated with this operation. No beneficial uses other than agricultural uses are relevant in this remote area.

In the unlikely event that impact to groundwater occurs, Cyanco is committed to performing remedial activities to protect the groundwater's beneficial use for agricultural uses.

Indoor hydrogen cyanide gas concentrations are monitored using stationary hydrogen cyanide (HCN) detectors. There is no solid sodium cyanide at this location. The terminal operates a closed loop transloading system which is designed to limit atmospheric process emissions of hydrogen cyanide gas such that the health of workers and the community are protected.

The auditor found that the operation conducts monitoring at frequencies adequate to characterize the medium being monitored and to identify changes in a timely manner.

Finding: Is the operation in full compliance, substantial compliance, or non-compliance with Production Practice 3.1?

☒ Full Compliance ☐ Substantial Compliance ☐ Non-Compliance

Principle 4 | TRAINING

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

Production Practice 4.1

Train employees to operate the facility in a manner that minimizes the potential for cyanide exposures and releases.

The operation has provided training to all personnel on the Emergency Response Plan to ensure that they understand the hazards of cyanide and how to respond to an incident. Transload training is given initially to personnel who work with cyanide and this training is refreshed annually. Training records were available for review and were found to be complete.

Site personnel receive training regarding the use, storage and cleaning of the personal protective equipment (PPE) required by each activity or task. The operation trains 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. All employees are given internal training in the office building for several days prior to being allowed into the load out building where cyanide is located. PPE training is given to all employees and records were available that demonstrated this.

The operation has operational standard operating procedures (SOPs) in place. A review of the SOP training records, including test results, was found to be complete for employees who work with cyanide.

Confirmation was made that the individuals who are involved in the development and delivery of training are highly qualified and capable of providing safety and operations training. Individuals providing the training have many years of cyanide operational, safety, and health experience. Training materials are developed by Environmental, Health, and Safety professionals from Cyanco. Interviews during the audit were used to confirm this information.

Employees are re-trained in critical tasks and skills on an annual basis to ensure that they can continue to perform their work in a safe and environmentally protective manner. Types of training include procedural refresher training, lockout tag out training, cyanide awareness, and emergency response. Testing results are maintained with training records. Records were reviewed for the recertification period and were found to be acceptable.

The training elements necessary for each job are identified in the training materials. The facility uses the SOPs to supplement cyanide awareness training materials. A training plan was provided for review and was found to be acceptable.

Finding: Is the operation in full compliance, substantial compliance, or non-compliance with Production Practice 4.1?

☒ Full Compliance ☐ Substantial Compliance ☐ Non-Compliance

Production Practice 4.2

Train employees to respond to cyanide exposures and releases.

The operation trains all personnel in its emergency response plan and records were reviewed and found to be complete. The ERP was reviewed. Detailed action steps are included for cyanide exposure and environmental release scenarios.

The facility trains all employees in the ERP and conducts hands on drills at least once each recertification period to test general responses to chemical emergencies, including cyanide exposure. The operation had planned to perform emergency drills annually, but this was not possible during the pandemic. The most recent hands-on emergency response drill that tested a release and human exposure scenario was conducted in 2023. This situation was accepted by the auditor.

Training records are maintained electronically and in paper format at the facility and records reviewed were found to be conformant with Cyanide Code requirements. The operation keeps training records for at least as long as the employee is working at the terminal.

Finding: Is the operation in full compliance, substantial compliance, or non-compliance with Production Practice 4.2?

☒ Full Compliance ☐ Substantial Compliance ☐ Non-Compliance

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.

The operation has an Emergency Response Plan (ERP) that considers 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 during transloading and/or storage in the rail car prior to transloading. The scenarios were found to be appropriate by the auditor. The ERP was available for review during the audit. The ERP document was available for review during the audit and was last revised on March 1, 2023.

The ERP specifies the telephone numbers and the notification procedure to be followed in the event of an emergency. The ERP describes first aid measures to be taken in the event of cyanide exposure and actions to be taken to stop an environmental release at its source. The ERP also includes an evacuation procedure for site personnel. The facility has no immediate residential or industrial neighbors.

The ERP describes how to use cyanide antidotes and first aid measures to be taken in the event of a cyanide exposure and addresses both conscious and unconscious victim scenarios. The instructions on how to use the cyanide antidote would be given to a responding paramedic in the event of a cyanide exposure.

The ERP calls for the control of releases at their source and provides information on the use of the emergency stop button in the transload building. The use of this emergency button would immediately stop all cyanide solution from flowing and shut down in a “safe” or “closed” state.

The ERP describes the necessary actions to take for release containment, assessment, mitigation, and prevention. Cyanide remediation is addressed in the plan and contact information for an environmental services company is included.

Finding: Is the operation in full compliance, substantial compliance, or non-compliance with Production Practice 5.1?

☒ Full Compliance ☐ Substantial Compliance ☐ Non-Compliance

Production Practice 5.2

Involve site personnel and stakeholders in the planning process.

The operation involves its workforce and external responders in the emergency response planning process. Records were available to demonstrate that interactions with the county, city and appropriate emergency services organizations have taken place. The operation also met with and conducted a joint man-down drill with the local emergency responders during the re-certification period.

Planning meetings and drills have been held with local stakeholders including city, county, and emergency response organizations, including paramedics that would administer a cyanide antidote, if necessary. The operation has also coordinated with the Local Emergency Planning Committee on a periodic basis.

Records of communications with stakeholders were available for review for the re-certification period.

Finding: Is the operation in full compliance, substantial compliance, or non-compliance with Production Practice 5.2?

☒ Full Compliance ☐ Substantial Compliance ☐ Non-Compliance

Production Practice 5.3

***Designate appropriate personnel and commit necessary equipment and resources for* emergency response.**

The ERP designates primary and alternate emergency response coordinators with explicit authorities and responsibilities. Operators are trained to stop operations and evacuate the transload building in the event of a release.

The operation does not have its own emergency responders, but rather coordinates with external responders and Cyanco and its emergency response / remediation contractors. The facility manager is responsible for internal communications in case of emergency.

All facility personnel have been trained on the ERP. The ERP includes the responsibilities and training needs of personnel.

The ERP includes 24-hour telephone numbers for the terminal managers, local emergency

response agencies, and Cyanco personnel including leadership. The telephone list with emergency telephone numbers was found to be up-to-date.

The responsibilities, authorities, and duties for managing an emergency are clearly described in the plan.

The ERP lists the emergency response equipment that is maintained by the site. The list was confirmed to be accurate during the onsite field audit.

The emergency response equipment is inspected monthly using the emergency equipment inspection checklist. A sample of completed checklists were available for review for the re-certification period. Interviews confirmed management awareness and commitment to fulfilling requirements.

The role of outside responders is explained in the ERP. Records exist confirming that outside entities included in the ERP are aware of their involvement. Interactions and discussions with external responders were found to be appropriate for the operation. Cyanco also maintains its Global Transportation Emergency Response Plan in which the role of the emergency response contractor are detailed. Cyanco has a contract in place with Garner Environmental Services, Inc. (GESI) specific to sodium cyanide response in its supply chain. Cyanco management will determine if a given incident requires activating the Cyanco Global Transportation Emergency Response Plan (GTERP). Garner contact information is included in Appendix A of the Emergency Response Phone List. If a cyanide tanker is involved in an accident, the Cyanco management staff together with GESI and TransWood will determine the level and extent of the response.

The operation has confirmed that outside entities included in the ERP are aware of their involvement. External responders are included in the emergency response drills. Records were available to demonstrate that emergency responders, including the local fire department and the local emergency medical team (EMT) participated in the 2023 hands-on drill. Interactions and discussions with external responders were found to be appropriate for the operation.

Finding: Is the operation in full compliance, substantial compliance, or non-compliance with Production Practice 5.3?

☒ Full Compliance ☐ Substantial Compliance ☐ Non-Compliance

Cyanco complies with all applicable elements of Production Practice 5.3. Cyanco has developed procedures for internal and external emergency notification and reporting.

Production Practice 5.4

Develop procedures for internal and external emergency notification and reporting.

The ERP includes up-to-date emergency telephone numbers for the hospital, local emergency agencies, and Cyanco emergency numbers. The ERP assigns responsibility for notification of the all stakeholders, 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 includes information about who needs to make the notifications (in the event of an emergency) to Cyanco and TransWood personnel and authorities as well as media contact responsibilities, as warranted.

The ICMI significant cyanide incident criteria were added to the Cyanco Global Transportation Emergency Response Plan (GTERP) Injury/Chemical Release Reporting Matrix with the instructions that ICMI must be notified within 24 hours if there is a significant cyanide incident.

There were no significant cyanide incidents experienced by this operation during the recertification period.

Finding: Is the operation in full compliance, substantial compliance, or non-compliance with Production Practice 5.4?

☒ Full Compliance ☐ Substantial Compliance ☐ Non-Compliance

Production Practice 5.5

Incorporate remediation measures and monitoring elements into response plans and account forthe additional hazards of using cyanide treatment chemicals.

The operation's ERP describes 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. The ERP includes contact information for an environmental services company.

According to Cyanco procedures, decontamination of surfaces, soil, and equipment is done using a 50/50 hydrogen peroxide solution, as described in the site decontamination policy SM-26. Equipment is to be soaked in this decontamination solution for approximately an hour. Spills inside containment are managed using existing transfer infrastructure to collect the cyanide back into storage before any decontamination of contaminated surfaces. This ensures that the maximum amount of cyanide can be recovered instead of needing to be disposed of as

hazardous waste. The storage and handling of the hydrogen peroxide is defined in the procedure. A Cyanco procedure on this topic is detailed and described the mixing, ratio, and safe handling considerations.

Contaminated soil is recovered and contained in drums. In the event of a spill, the contaminated materials are collected until samples show that cyanide is no longer detectable. According to Cyanco procedures, a low-level cyanide test method called CYN3 is required to be carried out until a non-detect limit is reached (CYN3 concentration is less than 0.2 mg/l). Sampling details, including how samples are to be taken and the analysis to be performed are described in the procedures.

Contaminated material is offered to customers to be used on their leach pads. Contaminated waste which is not suitable for the customer's use is managed by an external contractor that is authorized for hazardous waste transport and disposal by incineration. Cyanco policy PO-4 (solid waste management) is very detailed and describes how hazardous waste is managed.

The remediation management contractor procedure was reviewed. The document includes language that addresses decontamination, management, and disposal of cyanide-contaminated materials. The ultimate destination for the materials is under the control of Cyanco, as per the procedures summarized above. Useable cyanide is offered to customers, contaminated materials are sent offsite as hazardous waste, which is incinerated with an authorized hazardous waste disposal company.

The terminal is provisioned with drinking water from the city potable water plant, not well water. Bottled water is also available to personnel onsite. The beneficial use of the groundwater in the remote area where the terminal is located is agricultural, not drinking water. The ERP states that in the highly unlikely event that cyanide contaminates a water source used for drinking water, that it would work with authorities to ensure that an alternative drinking water supply is provided to affected personnel.

The 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. The ERP includes contact information for an environmental services company. The facility does not have direct or indirect discharge to surface water and there are no surface water bodies near the facility. Cyanco works with the same response contractor across multiple sites and has confirmed that its remediation contractor's procedures also ban the use of cyanide destruction chemicals in surface water.

The ERP indicates that Cyanco, along with regulatory authorities and the environmental services firm, will determine the required environmental monitoring in the event of a release requiring monitoring and/or remediation.

Finding: Is the operation in full compliance, substantial compliance, or non-compliance with Production Practice 5.5?

☒ Full Compliance ☐ Substantial Compliance ☐ Non-Compliance

Production Practice 5.6

Periodically evaluate response procedures and capabilities and revise them as needed.

The ERP states that the emergency plans are reviewed at least once a year and an emergency cyanide spill with worker exposure drill shall be performed at least once a year. Due to personnel changes, records from drills during the pandemic were not available during the audit. Records were available for a combined release / exposure drill that was held in 2023 with emergency responders. The ERP calls for the results of the drills to be evaluated to confirm the effectiveness of training and the availability of resources. An after-action report (drill critique), ERP training records, and a combined release and exposure drill record were reviewed as part of the audit.

Lessons learned from the emergency drills are considered when updating the ERP and emergency procedures. According to the ERP, emergency plans are reviewed and updated after any emergency or recommendations following an emergency response drill. The primary action that was identified following the emergency response drill was that the cyanide antidote and oxygen needed to be stored in the transload building instead of the office because it took too long to retrieve the safety equipment during the drill. The evaluation confirmed that there was a suitable temperature-controlled location in the transload building to store the equipment. The implementation of the self-identified action / improvement was observed during the audit.

Finding: Is the operation in full compliance, substantial compliance, or non-compliance with Production Practice 5.6?

☒ Full Compliance ☐ Substantial Compliance ☐ Non-Compliance