ICMI Production Verification Protocol (Revision June 2021)

Summary Audit Report

Cyanco Cadillac Transloading Terminal

2024 Re-Certification Audit

Submitted to:

The International Cyanide Management Institute
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USA

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Operation General Information

Operations Audited:	Cadillac Transloading Terminal Cyanco Canada, Inc. 33 Dumont Street, East Cadillac, Quebec J0Y 1C0, Canada
Name and contact information for this facility:	Eric Costello, Canada Terminal and Sales Manager Email: eric.costello@cyanco.com

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 North America.

Cyanco was an early adopter of the International Cyanide Management Code (Cyanide Code) and was first certified in October 2006. Re-certification audits were performed approximately every 3-4 years since that time.

The Cadillac transloading terminal is strategically located to provide sodium cyanide solution to mining customers in the region and has been certified to the Cyanide Code since 2007.

Description of the Operation

Cyanco's Cadillac transloading terminal is located approximately 400 km north-northwest of Ottawa, Ontario at 33 Rue Dumont Street, East in Cadillac, Quebec, Canada. The approximately 20-acre (84,241m^2) site houses the transloading facility and a control room/administrative office. A Canadian Pacific Railway track runs along the southern edge of the site, with two rail spurs entering the property (for parking loaded railcars and tanker cars, and to enter the operations building).

The facility is used for the receipt, temporary storage, and dispatch of sodium cyanide solution. Sodium cyanide is received from the Cyanco Winnemucca, Nevada and the Houston, Texas production plants in either bulk solution rail tankers or as solid briquettes in sparger railcars and ISO tanks. The in-bound ISO tanks are routed through the Solurail rail to truck transloading facility which is part of the certified Cyanco North America Rail and Truck Supply Chain. Sodium Cyanide solution is brought into the terminal building and is pumped into one of three indoor storage / transfer tanks.

Solid cyanide briquettes are dissolved in the sparger railcars or the ISO tanks. The solution is then pumped into one of the tanks and into the truck transportation equipment (bulk tanker or ISO tank). The solution is shipped to clients in road tanker trailers and ISO tanks owned and maintained by

Cyanco. Transportation is provided by experienced hazardous materials authorized transporters that are certified to the Cyanide Code through either the Cyanco North America Rail and Truck Supply Chain certification or as individual Cyanide Code Signatory certifications.

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:	February 27-28, 2024

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 Cadillac Transloading Terminal		June 14, 2024
Name of Operation	Signature of Lead Auditor	Date

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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.

There have been no changes to the design and construction of the Cyanco Cadillac transloading terminal since the previous Cyanide Code recertification audit in 2021.

As-built drawings and QA/QC documentation from the original construction of the facility are still on file and were available for review.

As determined in previous Cyanide Code audits, records, and certifications from professional engineers and appropriately qualified environmental, health, and safety professionals were available to demonstrate that appropriately qualified personnel reviewed the facility construction and approved it. All Canadian construction codes and regulations were followed during the original construction of the facility. Original permitting and QA/QC information is still maintained on file. The records reviewed during this audit were also found to be complete and acceptable.

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.

Black steel is used for cyanide storage tanks, 406 grade stainless steel is used for cyanide piping and valves. Acid resistant suction hoses are used for product transfers between the facility and rail and road tankers. The facility secondary containment structures are constructed of poly-urea epoxy coated concrete.

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, including power loss, that results in a loss of pressure. A Process Logical Control (PLC) monitors pressure gauges, temperature sensors and high-level indicators and any readings outside the normal operating ranges will shut down the process. In addition to the automatic shutdown system, there are six manual emergency stop buttons located strategically

around the plant and control room.

Records of interlock checks from the recertification period were available for review. Railcar inspections are also 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 transfer operations are conducted within concrete containment that extends over the entire building footprint. The building floor is curbed and there are two tank containment basins protected and sealed with a poly-urea coating. Any spillage would be directed to either of these tank containment basins that have sumps with dedicated pumps to return solution back to the product tanks or other containment as needed.

As confirmed during previous audits, these basins are sized to hold 110% of the largest tank volume. During the site visit, the floor and containment basins were observed to be in good condition. There is also an impermeable geomembrane under the entire building footprint that provides protection in case seepage occurred through a crack or imperfection in the concrete containment.

There are no cyanide-related activities performed outside of the building / containment area. The concrete floor was observed as being clean, in good condition, with no cracking and/or damage. No maintenance or equipment issues were noted as being deficient. The building design together with the geomembrane are expected to prevent seepage to the subsurface.

Each storage tank is equipped with a level indicator transducer, and a high-level transmitter shutoff switch to prevent overfilling during cyanide transfer operations. Also, during product transfer, the tanks are monitored by instruments and levels are displayed on the PLC control panel in the plant and on the Digital Control System (DCS) display in the control room.

These indicators and instruments are regularly inspected, maintained, and verified to be functional each time the transload operation is started.

Tanks T-100 and T-200 are used for receiving and storing sodium cyanide solution that is derived from the dissolution of solid sodium cyanide briquettes delivered to the terminal in sparger railcars. Tank T-101 is used for storage and filling truck tankers.

Interviews and observations of operations confirmed that all tank transfer operations are continuously monitored using the above-mentioned control instruments by competent personnel.

All pipelines and hoses are located within a lined retention containment area capable of holding 110% of the largest tank and associated pipelines. In the event of a pipeline or hose failure during a product transfer, the automated system would detect a pressure change and shut down the process to minimize any spillage to the containment. Spills would be pumped back to the process**.** All product transfer and storage operations are contained within the building that has a geomembrane under the concrete, and within poly-urea lined secondary containment. Storm events are not relevant to an upset condition scenario because the operations are always within a building.

Sodium cyanide is stored either in the sparger railcars (receipt of product) or in one of the three tanks inside the transload building. The rail cars are designed for transportation in any weather and are subsequently watertight. The design of the facility has the storage tanks located inside a building, on lined concrete secondary containment, on top of a geomembrane liner. These design elements were deemed to be appropriate and effective for preventing the sodium cyanide from coming into contact with unplanned moisture, such as from a rain or snow events.

The transload building has adequate ventilation to prevent the build-up of hydrogen cyanide gas. During the winter, an air heater / extraction fan is used. In the warmer months, operators open overhead doors to allow for increased air circulation. Operators reported that they check the Hydrogen cyanide (HCN) monitors at the start of each day and open the doors prior to starting work for increased circulation if levels overnight were found to be elevated.

The perimeter of the facility is completely fenced and monitored by a security firm using security cameras and entry detection systems. The entire site is kept locked to ensure that no unauthorized personnel access the site.

All cyanide-related activities occur inside the transload building and no other chemicals are stored within or near this 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 found to be complete.

Procedures for upset and contingency conditions are in place and are available at the point of use in the operation to ensure that the risk of having a release or exposure event is minimized.

Standard operating procedures in the Training and Operations Manual are used to mitigate risks and systematically shut down the production operations if there is an upset condition. The Emergency Response Plan is also in place to address more significant emergency situations. Operations personnel were interviewed, and their awareness level of emergency and contingency

procedures was very good. Operators had a very good knowledge of control systems, alarm systems, and shut down procedures.

The facility has a Management of Change (MOC) procedure (PSM-012) 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 was revised in 2022 and now requires a review and sign-off by an environmental, health, and safety professional, in addition to other signoffs. There was only one MOC processed during the recertification period. A signature was on file showing that an EHS professional was involved in processing the change. Records were reviewed and were found to be acceptable.

An inspection and preventive maintenance (PM) program is in place for all cyanide-related (critical) equipment and monitoring devices at the terminal. The maintenance program and schedule align with the recommendations of the equipment manufacturer. There have been no significant changes since the previous recertification audit.

Terminal operators conduct routine inspections which include daily readings of HCN meters and inspecting/draining compressor units, and weekly inspections and testing of safety showers, checking scrubber caustic content, and inspection of containments, pipelines, and pumps.

Inspections are tracked using a monthly wall chart and maintenance activities are tracked using an annual maintenance schedule posted on the administrative office wall that is updated monthly. Maintenance records are maintained in binders kept in the office.

Records were available to demonstrate that preventive maintenance programs have been appropriately implemented and maintained. All equipment, instruments, and devices used to manage cyanide safely are included in the preventive maintenance program.

Process parameters are monitored with the necessary instrumentation including temperature, pressure, and tank level gages. Instruments are calibrated according to manufacturer's recommendations, and at least annually. Interviews and a review of records confirmed that the transload control equipment is continuously monitored and is inspected / calibrated regularly in alignment with manufacturer's recommendations. Records were found to be complete and acceptable.

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 cyanide-containing water is collected and pumped back into the process. The relevant procedures were reviewed by the auditor and found to be appropriate for the operation.

Operators were interviewed and training records were reviewed during the audit. Awareness of the need to follow procedures and prevent cyanide discharges to the environment was very good.

The sodium cyanide briquettes, and solution are transported to the terminal in bulk sparger railcars, tank railcars, or ISO tanks. There is therefore no packaging waste associated with the product. The only waste generated that may be contaminated with cyanide is a small quantity of sediment that is carried in by rail cars and deposited on the terminal floor or washed into sumps.

The sediment is deemed to potentially contain low concentrations of cyanide and is therefore collected into several waste drums per year and sent out as hazardous waste with a licensed hazardous waste contractor. Records were available for review and were found to be acceptable.

Packaging is not used by this operation; the cyanide solution is shipped to customers using tanker trucks and ISO tanks that are specifically designed for this type of transport. Cyanco has custom engineered tanks and trailers for the safe transport of sodium cyanide. The tanker trailers are owned by Cyanco. The chemical tankers are maintained by Cyanco. The tractors are maintained by the trucking companies that are part of Cyanco's certified North American Rail and Truck Supply Chain. Proper placards, as defined by Canadian transportation laws, were observed as being used on railcars and on tanker trucks. Proper shipping requirements (such as truck weight limits) are observed for all jurisdictions through which the cyanide must pass.

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 transfer tanks, associated piping, and valves are inspected for signs of corrosion and leakage as part of daily operations and part of the weekly inspection process. The structural integrity of the tanks and associated piping and valves is formally inspected at least every five years, with the last inspections having been conducted in 2020. These practices were confirmed through a review of records, interviews, and observations.

Operators conduct daily inspections of containments for potential integrity issues, the presence of fluids and their available capacity. There is no opportunity for liquids collected in the secondary containment areas to be released into the environment. All containments are within a building and do not have any drains to the environment.

Preventive maintenance procedures and inspection records were available for all equipment during the audit of the facility. Routine inspection of pipelines, pumps and valves for deterioration and leakage are performed daily and weekly. Records are maintained from the weekly

inspections. These were available for review and were acceptable.

Cyanco maintains its own bulk transportation equipment (rail tank cars, truck tankers, and ISO tanks). 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 construction, and within 2.5 years following the in-service date of the equipment. The records from these inspections were included in the Cyanco North America Rail and Truck Supply Chain audit. The data plates for transportation equipment observed during the audit were confirmed to have current inspections.

Inspection frequencies were deemed to be sufficient to ensure that equipment is functioning within design parameters. In addition to regular inspections, equipment shutdowns during which more extensive inspection and testing is performed, are conducted at least annually. Equipment and facilities were observed to be in a well-maintained condition with no notable corrosion, leaks, or cracking. The inspection frequencies appear to be appropriate for the operation.

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 corrections if there is a repair identified as necessary and that records are retained. There were several examples of minor deficiencies that were documented and either followed-up with correction notes or with completed work orders attached in the files. 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.

The facility has implemented cyanide related procedures for transloading and shipping of cyanide, including appropriate PPE necessary to minimize worker exposure. Procedures were available for review and were found to be acceptable.

Procedures are in place for normal operations, abnormal operations, emergency, and maintenance-related activities, including appropriate PPE necessary to minimize worker exposure. Procedures are largely consolidated in the Training and Operations Manual, were most recently updated in 2024, and were found to be appropriate for the operation.

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.

Operational and maintenance procedures call for pre-work inspections, as applicable. The pre-work inspections are in place to ensure that workers and the environment are safe from chemical and physical hazards prior to performing a task. Examples include pre-load inspections of equipment in operations and pre-maintenance inspections of equipment prior to performing maintenance tasks that involve line breaks and working with energized equipment. Procedures were available for review and were found to be acceptable.

Cyanco solicits worker input during the review and development of health and safety procedures. Operators were interviewed and reported that they add comments to the printed-out procedures as needed. These comments are reviewed with the management team and the procedures are formally updated at least annually. Employees also participate in the review of proposed process and operational changes and modifications for their potential impacts on worker health and safety which include the necessary worker protection measures. These practices were confirmed through interviews.

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 4.7 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 in the transload building. Procedures defining personal protective equipment requirements are also in place and were reviewed by the auditor and found to be acceptable.

The terminal is equipped with four fixed HCN monitors and six portable HCN monitors. The stationary monitors are in appropriate locations in the terminal. The HCN monitors are set to alarm at 4 and 10 parts per million (ppm) on an instantaneous basis and at 4 ppm continuously over an 8-hour period. If the HCN monitors alarm at 4 ppm, employees are instructed to stop cyanide solution flow (if any), put on additional personal protective equipment (PPE) and investigate the issue. The operators will also open the overhead doors to ventilate the area, as necessary. 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. Appropriate PPE would be used to ensure worker safety and the upset condition would be resolved.

Cyanco maintains, tests**,** and calibrates the cyanide monitoring equipment as directed by the manufacturer. The stationary HCN monitors are calibrated every six months. The personal HCN monitors are bump tested every day using a docking station before use with an automatic bump tester and calibrated every 30 days with the automatic calibration equipment. Records were available for the recertification period.

Cyanco uses the buddy system for all tasks that are potentially hazardous. Personnel who are in the process area are required to work in teams of two or be in radio contact with a second person who may be working in the nearby office. Contractors are also supervised when they are working in the transload areas for any reason.

The facility evaluates its employees' health upon hire and periodically thereafter. Health exams are used to evaluate the employee's general health and confirm fitness for duty. Personnel who may need to wear respirators undergo fit testing to confirm that they can safely do so. Fit testing thereafter is performed at least every two years, or as necessary. Vision, hearing, blood pressure, and respiratory checks are part of the health monitoring program.

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 also shower before leaving the terminal. Operators demonstrated the appropriate donning and hygienic practices required with the use of PPE during the audit.

Cyanide warning signage was observed as posted on the gate at the entrance to the site and on each door to the plant. Cyanide placards and/or warning signage are posted on the railcars, road tanker trailers and process tanks to alert workers of the proximity of cyanide.

Warning signs that advise workers of potential hazards due to the presence of cyanide and that suitable personal protective equipment must be worn are posted in appropriate locations in the transload areas. There is also signage throughout the facility reminding personnel that eating,

drinking, smoking, and open flames are prohibited in the transload areas. Other signs limit access to the transload area and require that visitors enter through the main office.

Employees showed very good awareness of the restrictions and of the potential dangers of not following the rules. Eating is allowed in the office and the control room. Smoking is restricted to a designated smoking area. Employees showed good operational discipline and followed terminal safety rules.

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.

The facility is equipped with six shower/ eyewash stations located strategically throughout the operation. The shower / eyewash stations are tested weekly. The stations are connected to the Programmable Logic Controllers (PLC) system so that the process will immediately shut down if an emergency shower or eye wash station is activated.

Ten ABC Powder fire extinguishers and a first aid box are in the terminal building and in the office. The extinguishers and first aid equipment are typically inspected weekly, and at least monthly, by the operators and the extinguishers are also checked on an annual basis by an external contractor. Records for the recertification period and were found to be complete and acceptable.

The facility has water, oxygen, resuscitator, antidote, and a means of communication readily available at strategic points on site. The antidote on hand is a CyanoKit (hydroxocobalamin) and is maintained in the temperature-controlled control room. The antidote was in date at the time of the audit.

Oxygen is maintained in the control room. The antidote and oxygen are checked as part of the weekly Friday inspection of emergency equipment. Cyanco inspects its first aid equipment weekly to ensure that it is available when needed.

First-aid and emergency response equipment is stored and tested as directed by their

manufacturers and replaced on a schedule that ensures they will be effective when used.

The Cyanokit antidote is stored in the control room. The emergency equipment was observed as being in acceptable locations for the operation and is available for immediate deployment in the event of an emergency.

The Safety Data Sheets, first aid procedures and other information on cyanide safety for each of 98% solid briquette sodium cyanide and 30% cyanide solution are provided in both English and French, with French being the common language of this workplace. In addition, cyanide warning signage is posted on the gate at the entrance to the site and on each door to the plant. Cyanide placards and/or warning signage are posted on the railcars, road tanker trailers and process tanks to alert workers of the proximity of cyanide. There is signage and pictorial graphics on the plant entrance from the control room stipulating the minimum required PPE to enter the plant (i.e., safety glasses, gloves safety shoes and in the event of an emergency, a respirator. Signage is posted prohibiting drinking, eating**,** and smoking in the plant.

Transfer tanks, transportation equipment, and piping containing cyanide are properly identified to alert employees of their contents. All piping observed during the audit was very well marked and showed the direction of flow using yellow/black markings and arrows.

The facility has decontamination procedures for employees, contractors and visitors leaving areas with the potential for skin exposure to cyanide. The operation also has a clothing change policy for employees, contractors**,** and visitors to areas with the potential for cyanide contamination of clothing. Procedures state that potentially contaminated clothes are to be changed and decontaminated washed using onsite dedicated washing machines). Workers must take a shower upon removing contaminated clothing before putting on fresh clothing.

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 a 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.

All employees at this operation receive training in cyanide safety which includes first aid procedures for cyanide exposure. All operators are trained to administer oxygen. Cyanco relies on external emergency medical personnel to administer the antidote that is maintained onsite.

Cyanco maintains a detailed ERP that includes the procedure for transporting exposed workers to local qualified medical facilities. The ERP was most recently updated in 2024. The medical staff of the local hospital have been involved in the development and training of the Cyanco employees for first aid response. Cyanco has an agreement with the local qualified hospital to accept cyanide exposure victims and has developed a detailed procedure and process for the transport of an exposed worker. The ERP includes a detailed procedure and process, including flowcharts for the treatment and transport of exposed worker(s) to the hospital using local Emergency Medical Responders (EMRs).

Cyanco has an agreement with the local qualified hospital to accept cyanide exposure victims and has developed a detailed procedure and process for the transport of an exposed worker.

The ERP includes a detailed procedure and process, including flowcharts for the treatment and transport of exposed worker(s) to the hospital using local Emergency Medical Responders (EMRs). Cyanco has worked with the medical professionals for years to develop first aid training and emergency plans. This is a mining region, and the hospital is very aware and capable of responding to a cyanide exposure emergency.

Cyanco maintains a formal Incident Investigation Procedure and uses a software tool to investigate incidents. Examples of incident investigations were available for review. There were no cyanide exposure incidents during the certification period. Incident investigations following minor process upsets demonstrated that the process is used to identify root cause, determine which actions are needed, and that actions were completed. The need to revise procedures and/or practices to improve safety and worker health is part of the overall process.

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 direct or indirect discharge to surface water. All transloading operations are conducted within a concrete containment area inside a building on a geomembrane. Any spills would be captured within the containment and returned to the process.

The beneficial use of the groundwater in the remote area where the terminal is located is agricultural, not drinking water.

Indoor hydrogen cyanide gas concentrations are monitored using stationary HCN detectors. There is no solid sodium cyanide transloaded at this location, all solid briquettes are dissolved into solution before transloading. The terminal protects the health of workers and the community by using a wet scrubber system prior to discharging air emissions via a stack on the roof of the terminal.

There are no federal or provincial regulations regarding HCN emissions and no permit requirements for operation of a scrubber. The unit was installed during construction of the

terminal and is operated as a best practice to minimize potential environmental effects from the displacement of gas from tanks during transfer of product.

The scrubber operates by passing the gas through a caustic solution to destroy HCN gas present. As a result of the scrubber, the potential for HCN emissions affecting workers or the community is extremely low. Procedures are in place to check the caustic level in the scrubber weekly to ensure the effective operation of the scrubber. Test records are recorded in a logbook. The records indicate that addition of caustic is only required periodically, indicating that a weekly check of caustic levels is adequate to maintain the efficiency of the scrubber. Logbook records for the recertification period were available for review and were acceptable.

The requirement for a surface water and groundwater monitoring program has not been deemed necessary. Although air emissions monitoring is not regulated or deemed necessary for the current operation, the concentration of caustic in the scrubber is checked weekly to ensure the unit is operating efficiently and the results are entered in a logbook.

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 terminal trains its workers to understand the hazards of cyanide and refresher training is conducted annually. Cyanco has a defined training program that includes cyanide safety training prior to the start of work and training on the following topics: personal protective equipment (PPE) use, Stop Work Authority, incident reporting and investigation, hazard communication, portable HCN gas monitors, first aid, waste management, and emergency response procedures. New workers are required to complete classroom training before going into operational areas where cyanide is present. The training program includes cyanide hazards and safety precautions. The annual cyanide safety training is given using computer-based training videos with a short quiz. The training program is well organized, and records are maintained and were found to be complete for the recertification period.

The terminal trains its employees in the use of personal protective equipment, when and where this equipment is required. This is part of the classroom safety training and the on-the-job training

done by supervisors. Tests are given and employees are observed to confirm that they thoroughly understand PPE requirements and the proper use requirements prior to starting work in an area with potential exposure to cyanide.

The facility trains employees to perform their normal production tasks with minimum risk to health and safety and in a manner that prevents unplanned cyanide releases. Employees are trained to perform normal production tasks on each procedure of their job assignment to minimize risks to personal safety and the environment. Personnel are trained procedure by procedure and tests are given to confirm competence.

On-the-job training is given with supervision by experienced workers. Safe operating procedures and cautionary statements can be found throughout the documents used to operate the plant.

On-the- job training has these phases: a) read the procedure; b) Perform the job with the instructor; c) Do the work with an observer d) Pass a test. Operators interviewed were aware of the procedures that pertained to their jobs. Tests and training records were sampled for the recertification period. Records showed that employees had received appropriate training.

New workers are required to complete classroom training before going into operational areas where cyanide is present. Classroom and on-the-job training is done prior to being asked to work independently in the production area. The training program includes cyanide hazards and safety precautions. The training program is well organized, and records are maintained.

Cyanco developed a Training and Operations Manual that has been in use since 2015. The manual is reviewed annually and was most recently updated in 2024. Each employee is required to sign that they certify that they have read the manual entirely and acknowledge that they will follow procedures. There is a Cyanco requirement for this initial training and subsequent annual training to ensure that the workers understand the processes and hazards of cyanide prior to performing work. Training records were found to be complete.

The training requirements for each employee at the terminal are generally the same. There are four cross-trained employees who manage all aspects of the operation. The only specialized operations are filling ISO tanks and managing low concentration rail cars. Additional training, testing, and signoffs were available for the individuals tasked with these job duties. The training elements necessary for each job task are identified in the Training and Operations Manual, the document used to train and run the operation. All operational procedures are included in the manual and employees are required to refresh their training on the procedures annually.

Training is provided by appropriately qualified personnel. Experienced employees, professional trainers, or supervisors administer training to employees. The supervisor leads the training and then it is continued by an experienced operator. Trainers were found to be appropriately qualified and competent.

The effectiveness of cyanide related training is tested using a written test. Based on the tests results, Cyanco determines if employees must be retrained or if they can be authorized to work independently. Depending on the training topic, a skill demonstration may also be requested by the trainers. Paper records are retained for the testing results. Training records and test results

from the recertification period were available for review and found to be complete.

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.

Cyanco trains its workers to respond to worker exposure to cyanide and cyanide releases. Routine drills are used to test and improve their response skills. The plant performed several mock drills during the recertification period to test and improve employee response skills. Employees are trained in how to respond to a worker exposure to cyanide and cyanide releases and drills are conducted annually to ensure that skills stay fresh.

Detailed training records are retained in each employee file documenting the training they have received and including the names of the employee and the trainer, the date of training, the topics covered, and how the employee demonstrated an understanding of the training materials. Training tests records were sampled during the audit. Records are maintained for at least as long as the employee works at the site. All records pertaining to cyanide safety were sufficiently detailed to be found compliant to Cyanide Code and internal requirements.

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 Cyanco Cadillac terminal has developed an Emergency Response Plan (ERP) to address potential releases of cyanide that may occur onsite. The terminal maintains a detailed emergency preparedness program and ERP to address the potential release of cyanide during an incident. Detailed response actions for transportation incidents are contained in the Cyanco Global Transportation Emergency Response Plan (GTERP). The GTERP was audited and found to be acceptable in during the certification audit of the Cyanco North American Rail and Truck Supply Chain.

The site ERP is reviewed at least once each year, and revised as necessary, with the most recent revisions made in 2024 following this on-site audit. The statements throughout this section of the report reflect the evaluation of the revised ERP that was submitted after the audit.

The terminal has an 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. Specific actions are also included in the ERP for power outages and equipment failures. The scenarios were found to be appropriate by the auditor. The ERP was available for review during the audit.

There are no ponds or waste treatment facilities, but actions required to respond to potential overtopping of tank or transportation equipment events are addressed by the ERP.

The ERP was found to have an acceptable level of detail to address relevant emergency scenarios. Specific response actions are detailed in the ERP for relevant emergency scenarios, including the evacuation of site personnel. It was deemed to be highly unlikely that the plant could potentially impact the community, especially due to the remote location of the plant and the absence of waterbodies. Notification procedures for the county and the local hospitals, etc. are, however, included in the ERP.

Section 4.9 of the ERP is entitled “First Aid” and it details the steps to be taken if a person is exposed to cyanide. The terminal maintains a Cyanokit but relies on external emergency responders to administer the antidote. First Aid in the form of oxygen therapy is given by site personnel until an ambulance arrives.

The ERP provides information regarding the control of a cyanide release at its source, containment, assessment, and mitigation. Future prevention of releases is the topic of the ERP

review process and the periodic emergency response drills.

In addition, Cyanco has a detailed accident investigation procedure that requires identifying the root cause of the accident and establishing corrective and preventive actions to prevent accident recurrence.

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 terminal has involved its workforce and stakeholders, including potentially affected communities, in the emergency response planning process. The Cyanco Emergency Response Plan (ERP) was developed with input from employees. Comments are considered for inclusion in the program with respect to their applicability with regulatory and company standards. Employees are asked for feedback on the ERP during the revision process and are involved in the emergency response program by being active emergency response team members.

The terminal makes potentially affected communities such as the local government, environmental authorities (including Transport Canada), the mayor, fire brigades, police, and hospitals aware of the ERP and their roles within the ERP. These outside entities are well informed of the nature of the hazards and risks of the cyanide production facility. In the emergency response planning process, the terminal provides these outside responders with registered copies of the ERP.

The terminal has involved local response agencies, the local hospital, and the contracted emergency response company (GFL) in the emergency planning process. The ERP identifies roles of external responders and annual training is provided to terminal personnel by the emergency response contractor GFL. The tabletop drill records from the recertification period were reviewed. The roles of the different responders versus the anticipated roles and actions of Cyanco personnel are discussed in detail. The terminal also held an extensive hands-on emergency response drill with Cyanco personnel and 15 local emergency responders (fire crew members) in 2024. The ambulance staff were invited but did not attend. 2 fire engines, a hazmat truck, and hazmat trailer were involved in the drill. The photos and records from the drill were extensive and showed that hazmat turn-out gear was used, and that there was full involvement

by all who participated.

The operation engages stakeholders, especially the fire department and the emergency response contractor, GFL, on a periodic basis to ensure that its emergency plans remain current and address changing conditions. 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 weekly. Records were available. 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 is detailed.

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 (local fire department) participated in the 2024 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 procedures and contact information for notifying management, regulatory agencies, outside response providers and medical facilities for emergencies, as appropriate. Phone numbers for local response agencies are maintained in a table at the front of the ERP. The information is updated at least annually and was last updated in 2024. The information was found to be accurate.

The ERP includes procedures and contact information for notifying potentially affected communities of an incident and response measures and for communication with the media. The ERP has a list of external stakeholders that need to be notified depending on the nature of the emergency.

The ICMI significant cyanide incident reporting procedure and significant cyanide incident evaluation criteria were added to Section 3 of the ERP. The procedure calls for ICMI to 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 terminal 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.

It is unlikely that this terminal would need to decontaminate solids because surfaces are generally washed down with water and cyanide wash water is pumped back into the process. Confirmation was made that potentially contaminated sediment from the rail cars and trucks is handled as hazardous waste by an appropriately licensed hazardous waste disposal firm.

According to Cyanco corporate procedures, decontamination of surfaces, soil, and equipment is done using a 50/50 hydrogen peroxide solution, as described in the corporate decontamination policy. 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.

It is unlikely that there would be contaminated soil because all operations are undertaken within the transload building, but if there are contaminated solids (such as dirt or sediment) it is recovered and contained in drums. According to corporate procedures, in the event of a spill, the contaminated materials are collected until samples show that cyanide is no longer detectable. Sampling details, including how samples are to be taken and the analysis to be performed are described in the corporate procedures.

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 managed by an authorized hazardous waste

disposal company.

The terminal is provisioned with drinking water from the city potable water plant. 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 corporate emergency procedures state 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 Cyanco corporate emergency procedures, the Global Transportation Emergency Response Plan (G-TERP), and the contractor emergency procedures prohibit the use of chemicals such as sodium hypochlorite, ferrous sulfate**,** and hydrogen peroxide to treat cyanide that has been released into surface water or that could reasonably be expected to enter surface water. The Cadillac terminal is not near any water bodies and this statement is therefore not applicable to the terminal-level emergency procedures.

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. The ERP also calls for review and revision following drills and incidents, as appropriate.

Mock emergency drills are conducted annually as part of the ERP evaluation process. The terminal conducts periodic emergency drills, tabletop exercises, holds drill critiques, and evaluates the need for further training or adjustment to the emergency procedures.

Drill records were available for the recertification period. During the pandemic tabletop exercises were conducted each year, but in 2024 a full hands-on emergency response drill was conducted together with local emergency responders. Records were complete, detailed, and contained multiple photos showing the full extent of the human exposure / release drill.

The emergency plans were evaluated and revised as necessary in response to drill critiques and incidents during the recertification period. The most recent revisions to the ERP were in 2024, directly following the drill.

There are provisions to evaluate the ERP after any emergency that requires its implementation, for revising it as necessary after drills and actual emergencies.

Cyanco conducts emergency drills, holds drill critiques, and evaluates the need for further training or adjustment to the emergency procedures. Records were available to show that drills with external stakeholders were conducted. The emergency plans were evaluated and revised as necessary in response to drill critiques and incidents during the recertification period.

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

☒ Full Compliance ☐ Substantial Compliance ☐ Non-Compliance