SUMMARY AUDIT REPORT

for the October 2020
CYANIDE PRODUCTION
International Cyanide Management Code Recertification Audit

Prepared for:
Cyanco Canada Inc.
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Submitted to:
International Cyanide Management Institute
1400 I Street, NW, Suite 550
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FINAL REPORT
4 March 2021

Prepared by:

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SUMMARY AUDIT REPORT

Name of Plant: Cadillac Transloading Terminal

Name of Plant Owner: Cyanco Canada Inc.

Name of Plant Operator: Cyanco Canada Inc.

Name of Responsible Manager: Eric Costello, Canada Terminal and Sales Manager

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Location details and description of operation:

Cyanco International Ltd (CIL) owns and operates a sodium cyanide transloading terminal located at 33 Rue Dumont Est in Cadillac, Quebec, Canada. The site, situated on an approximately 20-acre parcel (84,241 m^2), is approximately 400 km north-northwest of Ottawa, Ontario. The site consists of an approximately 465 m^2 building, located on the eastern portion of the property. This building houses the process plant, cyanide storage, product quality control laboratory, and control room/office. A gravel yard for tanker trailers and employee parking area lies west of the building. A Canadian Pacific Railway track runs along the southern boundary of the site. Two rail spurs enter the property, specifically one for parking loaded railcars and tanker cars, and another which enters the site and building where operations take place. The administrative office was moved into a portacabin that was recently installed just west of the building.

The facility is used for the receipt, temporary storage and dispatch of sodium cyanide. The sodium cyanide is received primarily as solution in rail tankers containing 80,000 kg of solution (made up of approximately 26,000 kg of solid cyanide). Cyanide is also received as solid briquettes in sparger railcars. Since early 2020 cyanide solution of 20% to 25% concentration is received on a more regular basis from Cyanco production plants. The concentration is adjusted up to 30% prior to distribution to mining clients. This has resulted in the need for handling more solid cyanide sparger railcars.

The railcars are brought inside of the terminal building on the rail spur using a diesel fuelled Trackmobile™. The solution received in tanker railcars is heated to 27º Celsius (heating is generally only required during the winter months) using a water heat transfer system to allow the solution to better flow during transfer. The cyanide is transferred to Tanks T-100, T200, or T101. The solid cyanide sparger railcars consist of three compartments for a total net load weight averaging 80,000 kg of cyanide briquettes. Water is heated in a gas-fired water heater to 27º Celsius and is pumped directly into the railcar compartment in turn using flexible hoses. The water dissolves the briquettes and as the solution is formed, it is pumped into either storage tank T-100 or T-200). To rinse the sparger railcars and rail tankers clean water is pumped through the cars. Water is discharged to the main sump and pumped back to T-100 for recycle. The railcar is dried using a blower. A scrubber system is connected to the rail hopper and storage tanks to control emissions of hydrogen cyanide.

After the solution has been prepared for shipment it is pumped into the loading tank (T-101). A sample of the solution is taken from the loading tank and analysed for cyanide concentration (30%), density, and pH, for quality control. A small bench laboratory located in the process area is used for quality control testing. Solution is shipped to clients using road tanker trailers owned and maintained by Cyanco and transported using tractors/drivers of Transport Nord-Ouest or Quality Carriers, under contract to Cyanco. Both these companies are International Cyanide Management Code (ICMC)-certified cyanide transporters. Emissions from the tank trailers are vented through the scrubber system as the tankers are filled.

In the last three years the number of employees at the facility has increased from three (manager and two operators) to a team of six: four operators (working as teams of two on three-10-hour day rotations); an administrative assistant, and a new terminal manager who took up the position in March 2020 and reports to a manager in Winnemucca, Nevada.

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Auditors' Finding

The operation is: ■ in full compliance
in substantial compliance
not in compliance

with the *International Cyanide Management Code* and has not experienced any cyanide releases or incidents in the previous three-year audit cycle.

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Date(s) of Audit: 8 and 9 October 2020

I attest that I meet the criteria for knowledge, experience and conflict of interest for Code Verification Audit Team Leader, established by the International Cyanide Management Institute and that all members of the audit team meet the applicable criteria established by the *International Cyanide Management Institute* for Code Verification Auditors. I attest that this Summary Audit Report (SAR) accurately describes the findings of the verification audit. I further attest that the verification audit was conducted in a professional manner in accordance with the latest version of the *International Cyanide Management Code Verification Protocol for Cyanide Production* and using standard and accepted practices for health, safety and environmental audits.

Cadillac Transloading Terminal — Name of Facility
Signature of Lead Auditor
4 March 2021 — Date

SUMMARY AUDIT REPORT

1. OPERATIONS: Design, construct and operate cyanide production facilities to prevent release of cyanide.

Production Practice 1.1 Design and construct cyanide production facilities consistent with sound, accepted engineering practices and quality control/quality assurance procedures.

The operation is:
- ■ in full compliance with Production Practice 1.1.
- in substantial compliance
- not in compliance

Describe the basis for the Finding/Deficiencies Identified:

There have been no significant changes to the design and construction of the Cyanco Cadillac transloading terminal since the 2016 ICMC recertification audit. Changes have been limited to the installation of a dye mixing tote and transfer pump/lines for dye addition, and the expansion of the administrative office into a new portacabin near the plant building. At the time of the 2016 ICMC recertification audit, all as-built drawings and QA/QC documentation were gathered and archived at the Terminal. Cyanco has since contracted WSP Engineering to maintain the drawings.

As described in the 2016 Detailed Audit Findings Report, the cyanide transloading plant at the Cadillac site was designed and built according to local Canadian laws and regulation. Each step of construction, implementation, start-up and running of the production and storage facilities were regulated by construction permits. A QA/QC program had been implemented during construction of the facility and construction supervision and inspection were carried out by qualified personnel. All equipment and facilities are constructed with materials that are compatible with solid cyanide and cyanide reagent solutions. These include black steel for cyanide storage tanks, 406 grade stainless steel for cyanide piping and valves and acid resistant (Chemflex) suction hoses for product transfer between the facility and rail and road tankers). The facility containments are constructed of poly-urea epoxy coated concrete).

Automatic systems and interlocks are incorporated into the operating system design to shut down the process in the event of a malfunction or an emergency. 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.

All cyanide transfer operations are conducted within concrete containment that extends over the entire building footprint that comprises the curbed building floor and 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.

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.

All pipelines and hoses are located within this containment. 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.

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

The operation is:
- ■ in full compliance with Production Practice 1.2.
- in substantial compliance
- not in compliance

Describe the basis for the Finding/Deficiencies Identified:

Cyanco has developed and implemented plans and procedures for the operation of the Cadillac Terminal. These continue to be managed within an integrated management system for quality and environmental management that was based on ISO 9001:2008 and ISO 14001:2004. Cyanco no longer maintains certification of this system as it did at the time of the 2016 ICMC recertification audit. The integrated system organization and overarching policies and procedures are set out in a Quality, Environment, Safety and Health Management Handbook and all associated manuals, plans, procedures, and other documentation are stored on the Cyanco Information Centre (CIC) corporate intranet site accessible to terminal personnel. Operating procedures are incorporated in a Training and Operations Manual that includes an overview of the process and detailed descriptions of the process equipment including the water system, compressed air system, ventilation and heating system, scrubber system, cyanide storage tanks, pumps, process controls and emergency stops and cyanide transport tank trailers. In addition, other plans and procedures are in place for safe operation of the facilities, including, inspection and safety, general safety, management of change, and emergency response.

In addition to the automatic shutdown system, there are manual emergency stop buttons located strategically around the plant. This safety feature is used in cases such as gasket or hose leaks or ruptures, or another emergency situation. If a HCN monitors alarm, notification is provided on the control panels and action is taken by the operators.

A Management of Change (MOC) Procedure is in place to address changes to the process, equipment, or procedures. Only one change has occurred since the 2016 ICMC recertification audit that triggered a MOC, dated 15 January 2020. A gas, determined to be ammonia, was detected evolving from the sparger railcars during sparging operations. As a result, procedures were changed to monitor ammonia levels and don respirators with ammonia cartridges as needed. A formal MOC was not used for the dye addition system as it required minimal installation or change to the existing plant configuration.

An inspection and preventative maintenance program is in place for critical equipment. Inspections are tracked using a monthly wall chart and maintenance activities using an annual maintenance schedule posted on the administrative office wall that is updated monthly. Terminal operators conduct routine inspections including 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.

The maintenance program aligns with the recommendations of the equipment manufacturer and is generally unchanged since the 2016 ICMC recertification audit. Maintenance of equipment is primarily undertaken by appropriately experienced contractors. Maintenance records are maintained, and records reviewed covering the past three years show that, with one exception of an annual calibration of a laboratory scale in 2018, the maintenance has been conducted as scheduled. Process monitoring devices including high-level switches, temperature sensors, level indicators, pressure gauges, and micro-motion flow meter are checked and calibrated on an annual preventative maintenance schedule, and the HCN meters on a bi-annual schedule.

The plant has been designed to prevent unauthorized/unregulated discharge to the environment. All cyanide storage and transfer activities are undertaken within the plant building which is provided with concrete containment. Any spillage that may occur would be pumped to one of the storage tanks. The containments were observed to be in good condition. The facility is on a municipal water supply and to prevent the possibility of a backflow from the process plant, the supply line is fitted with a backflow prevention device.

All product is transported to the terminal as bulk in railcars, so no packaging waste is produced. The only potential cyanide waste generated is a small quantity of sediment that is carried in by rail cars and deposited on the plant floor or washed into sumps. This sediment may contain low concentrations of cyanide and is therefore collected in waste

drums (four or five drums generated a year) and transferred to a licenced waste management facility where it is treated or destroyed.

The terminal only operates during a standard working day. Due to the potential for build-up of HCN gas during the night, a procedure is in place requiring that the building be checked for HCN gas each morning and vented by opening the overhead doors to allow air circulation as needed before work begins. During the working hours, the overhead doors generally remain open to minimize the potential for build-up of HCN gas. In the winter when temperatures limit the time the doors are open, the building is ventilated using the air heater/extraction fan. Air vented from the cyanide storage tanks is scrubbed with caustic prior to being vented to the atmosphere. HCN detectors are used to monitor the workplace and procedures are in place for operators to vacate and ventilate the area if an alarm is triggered.

The facility is located within a securely fenced and locked compound. The compound is monitored by security cameras which report to the control room. The perimeter is equipped with a laser detection system which is monitored 24/7 by an outside contractor.

Cyanco supplies the liquid cyanide to customers using six road tanker trailers. The tanker trucks are pulled by tractors owned and operated by Transport Nord-Ouest or Quality Carriers, both ICMC-certified transporters. The railcars and road tanker trailers observed during the site visit were all placarded as required by Canadian regulation.

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

The operation is:
- ■ in full compliance with Production Practice 1.3.
- in substantial compliance
- not in compliance

Describe the basis for the Finding/Deficiencies Identified:

The facility has an effective inspection and maintenance program to ensure that equipment operates safely and as intended. The operators conduct daily inspections of containments, pipelines, pumps, storage tanks, hoses and other equipment for potential integrity issues, as well as for general housekeeping to ensure the walkways and work areas are free from trip hazards and safety risks are minimized. During the site visit, the facility was observed to be clean and tidy: tank containments were competent and dry, no leaks, cyanide salt or notable corrosion was evident on any piping, valves, pumps or hoses; sumps appeared clean and well maintained; and signage and labelling on tanks and piping was clean and readable: all suggesting that inspection and maintenance schedules are sufficient to ensure the facility is well maintained and equipment is functioning within design parameters.

Since the 2016 ICMC recertification audit, the facility continued to use an interactive monthly wall chart for tracking and recording routine and planned inspection and maintenance. The chart is marked up with the operator or contractor name, date, any issues identified and date of resolution. Auditors were advised that an operator photographed the completed chart at the end of each month as a record and the image was stored on the computer database. However, these records were accidentally deleted and were not available for review during the audit. Based on the tidy and well-maintained condition of the facility, routine inspections and maintenance were being undertaken. To ensure that the records are safely maintained and available for future review, the auditors recommended that record keeping procedures for routine inspections be modified. After the site visit, Cyanco developed and implemented an inspection form to replace the wall chart for documenting routine inspections. Both hard copies and electronic copies of the completed form are retained. The facility provided operator training records for using the new inspection form and six weeks of completed records as evidence that the new procedure had been implemented.

Other than routine operator inspections, specialist service contractors are retained as part of monthly, quarterly, semi-annual, or annual maintenance, depending on the equipment. The records of these inspection/maintenance programs are maintained in ring-binders in the office and were available covering the past three years and include the company, date of service, contractor name, the nature of the work undertaken, and results of any testing or calibration.

2. WORKER SAFETY: Protect workers' health and safety from exposure to cyanide.

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

The operation is:
- ■ in full compliance with Production Practice 2.1.
- in substantial compliance
- not in compliance

Describe the basis for the Finding/Deficiencies Identified:

There are no special dedicated areas in the facility with a potential for HCN exposure higher than 4.7 ppm. Nevertheless, it is a requirement that all workers and contractors wear designated personal protective equipment (PPE) and personal HCN monitor in process areas and particular additional PPE when undertaking specific tasks where there is a potential for exposure to HCN. A protocol is in place for actions to be taken when fixed or personal HCN monitors alarm at 4 ppm or 10 ppm.

Written procedures specify the minimum personal protective equipment (PPE) that must be worn for various tasks. A clothing change policy is in place that requires employees to

change from street clothes before working on the process side of the building and to change, wash and launder work clothes before leaving the terminal at the end of the day. No contaminated clothing or used gloves are permitted in the office or control room (which are the only areas of the facility where food and drink are allowed).

A management of change (MOC) procedure applies to all modifications to equipment, procedures, raw materials, and processing conditions outside approved limits other than "replacement in kind". The Authorization log includes requirements for review by various departments as applicable and sign-off by the Canada Terminal and Sales Manager. The procedure has only been used once since the 2016 ICMC recertification audit as there have been no other significant changes during this period. The change related to a new procedure to monitor ammonia levels and don respirators with ammonia cartridges as needed, after a pungent gas was noticed evolving from the sparger railcars during sparging operations.

Since the 2016 ICMC recertification audit, the number of employees at the facility has increased from three (manager and two operators) to a team of six. Cyanco requires that all new hires complete a medical examination to confirm that the hire is fit to perform the job. The team works closely together, and opportunities to discuss and provide input into improving work tasks and health and safety practices are provided through morning tailgate meetings and health and safety meetings. Cyanco corporate management encourage and support free exchange of ideas and suggestions for improvement.

The facility is equipped with fixed and portable HCN gas monitors to alert workers of potential elevated HCN. The fixed monitors are calibrated twice a year and the sensors changed out, if required, by an external contractor. Records are filed in the maintenance binder. The monitors will alarm at 4 ppm to warn workers of elevated HCN and 10 ppm for evacuation of the building. The portable monitors are tested and calibrated routinely onsite using a docking station and calibration gas.

In the event of exposure to solid or liquid cyanide, the facility is equipped with shower/ eyewash stations located strategically about the plant. The operation of the stations is tested weekly. The stations are connected to the PLC system so that the process will immediately shut down if a station is used. Procedure requires that the buddy system be applied for all process steps. No person is permitted to perform tasks alone without a knowledgeable and trained second person in attendance on the floor or in the adjoining control room. All contractors are pre-approved by Cyanco and must follow Cyanco procedures and meet Canadian and Quebec health and safety regulations.

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 also posted on the railcars, road tanker trailers and process tanks to alert workers of the proximity of cyanide. Signage is present prohibiting drinking, eating, and smoking in the plant. This prohibition is also stressed during cyanide awareness training. All signs were observed to

be in good condition.

Production Practice **2.2 Operate unloading, storage and mixing facilities using inspections, preventive maintenance and contingency plans to prevent or contain releases and control and respond to worker exposures.**

The operation is: ■ in full compliance with Production Practice 2.2.
in substantial compliance
not in compliance

Describe the basis for the Finding/Deficiencies Identified:

Cyanco maintains a comprehensive Emergency Response Plan (ERP), initially developed in 1997, with the latest version dated 3 March 2020, and an associated addendum memo dated 12 January 2016. Subsequent to the site visit, on 14 December 2020 the ERP and the addendum memo were combined. The ERP addresses all terminal activities, which include the dissolving, transfer and loading of liquid sodium cyanide, as well as emergency response actions in event of a cyanide release or exposure. The terminal maintains a separate ERP for the transportation of Cyanco cyanide throughout Canada. Cyanco has distributed controlled copies of their ERP to the local Fire department and hospital. In emergency situations, Cyanco depends on outside assistance in responding to and mitigating emergencies associated with sodium cyanide at the terminal site.

In the event of exposure to solid or liquid cyanide, the facility is equipped with shower/ eyewash stations located strategically about the plant, and tested weekly. ABC Powder fire extinguishers, a first aid box, and medical oxygen and resuscitator are located in the terminal building and appropriately identified. They are inspected monthly by operators, and on an annual basis by an external contractor.

There have been no substantial changes in procedure since the 2016 ICMC Recertification Audit. Antidote management and handling are in place, including access to additional Cyanokits through the Mining Association of Quebec and the town of Rouyn-Noranda and Val d'Or. The operators have awareness training in how the Cyanokit is to be administered, however they are not permitted by medical regulations to administer, as this is carried out by outside medical responders. Subsequent to the site visit, Cyanco has a written agreement with a local mine for additional Cyanokits in case of an emergency and on a mutual aid basis. The facility has potable water.

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, appropriate cyanide warning signage is posted, including the direction of cyanide flow in pipes indicated using markings and arrows.

The minimum personal protective equipment to be worn in the plant includes a hard hat, safety glasses, safety shoes or boots and rubber gloves. In addition, a chemical suit, goggles and chemical resistant gloves are required whenever there is a potential for exposure to solid or liquid sodium cyanide. The clothing change policy and rules prevent poisoning with sodium cyanide from contaminated soiled clothing or hands.

Cyanco terminal employees have training to provide first aid assistance, including the immediate use of medical oxygen, to a worker exposed to cyanide, prior to the arrival of the fire department/paramedics from Rouyn. Due to COVID-19, the scheduled update training for four of the six personnel was pending. The medical staff of the Centre de santé et de services sociaux de Rouyn-Noranda (CSSS) are involved in the development and training of the Cyanco employees for first aid response, including the safe handling of the Cyanokits for use by medically trained personnel.

Cyanco provided a detailed procedure and process for the transport of an exposed worker following the 2016 audit, and it was not included in the March 2020 update of the ERP, due to change of site personnel responsible. Subsequent to the site visit, on 14 December 2020, the ERP and the addendum memo were combined and updated to incorporate the detailed procedure and process to the hospital using local Emergency Medical Reponses (EMR) ambulance and fire department.

Cyanco procedures call for annual mock emergency drills to test response procedures for various exposure scenarios. A full-scale meeting was held on 11 September 2019 and reported by their facilitator. The purpose of the exercise was to evaluate how Cyanco personnel and their support personnel respond to a sodium cyanide release in Canada. The exercise scenario included shipping and off-loading containers with sodium cyanide, and a collapsed shore crane while the load was suspended over the dock area in Halifax. The report provided a comprehensive evaluation with observations and recommendations. Local mock scenarios had not been routinely performed since the last recertification audit due to changes in personnel. Subsequent to the site visit, mock simulations were carried out with each crew team. The exercise, which involved a cyanide exposure included crew reaction to a closed vent pipe causing a tanker to pressurize and pop the relief valve which stopped the loading pump. Lessons learned were documented and subsequently reviewed with each team, and will be incorporated into the next version of the ERP.

There have been no changes to the status of cyanide exposure incidents at the terminal facility since the 2016 ICMC recertification audit. There have been no exposures since the operation began in 1998.

There is an incident investigation online procedure for reporting and evaluating incidents and near misses including cyanide exposures. There was a high potential near-miss incident that occurred in July 2019 that involved the overfilling of a sparger car. An incident report was not filed at the time of the incident, and Cyanco head office was not made aware until September 2019. An official incident report was submitted on 2

November, 2020, after the auditors site visit. During the process of dissolving cyanide in a hopper car, solution was seen overtopping the hopper, with approximately 100 L spilled onto the concrete floor in the building. The situation was mitigated and the area cleaned. The Winnemucca Plant Manager provided the auditors with email documentation with Cyanco head office pertaining to the incident and corrective actions undertaken to address the deficiency. A root cause investigation determined that the ultrasonic level indicator and manual float hi-alarm indicator had not been installed in the railcar dissolving compartment, as per the Training and Operations Manual procedure. At the time of the incident, the Operations Manual was only available in English. Cyanco rectified the situation with a change of personnel, and retrained staff in the sparging procedure to prevent such an incident from reoccurring. The Cyanco Cadillac Training and Operations Manual was translated into French and staff were trained to file incident reports. Because, after the incident was reported, a root cause investigation was conducted and measures were taken to bring the operation back into compliance, the auditors consider this deficiency has been corrected and the operation is in full compliance with this production practice.

3. MONITORING: Ensure that process controls are protective of the environment.

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

The operation is:
- ■ in full compliance with Production Practice 3.1.
- in substantial compliance
- not in compliance

Describe the basis for the Finding/Deficiencies Identified:

The facility is designed as a zero-discharge operation and there is no direct discharge to surface water. All offloading and loading transfer operations are conducted within a concrete containment area and any spills would be captured within the containment and returned to the process. The only wastewater discharge from the site is sanitary sewage which is fully independent from the process and collection sumps within the plant.

Because the facility is designed with primary and secondary containment (process operations are only undertaken within contained areas; and the operation has an effective inspection and maintenance program in place), no continuous surface water or groundwater monitoring program has been required by the regulators or deemed necessary for this operation. There have been no spills outside of the containment since the operation began in 1998.

The potential for HCN gas emissions is monitored using fixed HCN monitors located strategically about the plant and the use of portable HCN monitors when conducting tasks where there is a potential for cyanide exposure. Gases from the transfer process are

collected and passed through a wet scrubber prior to discharge to the atmosphere via a stack on the roof of the plant. The wet scrubber is not required by Federal or provincial regulation and was installed and operated as a best practice by Cyanco. The potential for HCN emissions affecting workers or the community is therefore considered by the auditors to be extremely low.

Procedures are in place to weekly check the caustic level in the scrubber and periodically add caustic as required to ensure the effective operation. Logbook records show 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. However, records revealed that caustic checks had not been entered during a period extending from April 2018 and February 2020. The deficiency was corrected by the current Canada Terminal and Sales Manager and caustic checks have been logged as required since February 2020. Although this program failure may have resulted in a reduction in scrubber efficiency, it would not have resulted in a significant impact to health or safety or impact to the environment. Because the issue was identified, measures taken to bring the operation back into compliance with procedure and prevent a recurrence, and records show that the operation has maintained compliance for several months, the auditors consider this deficiency has been corrected and the operation is in full compliance with this production practice.

4. TRAINING: Train workers and emergency response personnel to manage cyanide in a safe and environmentally protective manner.

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

The operation is:
- ■ in full compliance with Production Practice 4.1.
- in substantial compliance
- not in compliance

Describe the basis for the Finding/Deficiencies Identified:

No substantial changes in operating practices have occurred since the 2016 ICMC Recertification Audit. The requirements and accountability for training and development are outlined in the Cyanco Quality, Environment, Safety and Health Management Handbook, dated 31 December 2014. Cyanco developed a Training and Operations Manual issued November 2015, and updated in September 2020, that provides a step-by-step process description with photographs for each of the process equipment (21 standard operating procedures); office area (clean-dirty system); railcars; product quality and traceability; monitoring customers; tractor tracking system; ventilation procedures; general safety; maintenance; description of individual process steps (old method); new dissolving mode process description (new method); analytical procedures; sodium

cyanide properties and chemistry; corrective actions; management of change; contractor pre-qualification process; tracking contractor procedures; purging railcar heating system; transferring from tank car to tanks T-100 and T-200 using pump; offloading tank cars using compressed air; tanker trailer offloading procedure; tank trailer hose test procedure. 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. Employees are instructed prior to working with cyanide at the plant. Training on the selection, use and care of PPE is included in the operator training. New employees are integrated into their job by a defined process; for example, the newest operator received all training in a 3-day time period.

Training was carried out in February and May 2020 when new operators were hired. The most recent training on the Operations Manual was carried out on 29 and 30 September 2020 for each of the four operators (three new operators) by the Canada Terminal and Sales Manager.

Other required training is carried out using several learning methods, including written materials, in-classroom (with CSSS), Cyanco created videos and on-line courses. The Canada Terminal and Sales Manager has over 16 years of cyanide handling experience as terminal operator/manager, receives annual Cyanco internal training in Train-the Trainer and undertakes cyanide training for Cyanco customers.

All training records and certificates are documented and kept in a ring-binder in the office. A master record is maintained. The workers are trained to perform their normal production tasks with minimum risk to themselves and their co-workers. Training effectiveness is evaluated on an individual basis, and includes practical or written tests, observation, and reinforcement within the team.

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

The operation is:
- ■ in full compliance with Production Practice 4.2.
- in substantial compliance
- not in compliance

Describe the basis for the Finding/Deficiencies Identified:

Workers complete annual refresher training in the ERP. The Plan includes procedures to be followed if a cyanide release occurs. In addition, the Training and Operations Manual issued November 2015 that provides a step-by-step process description with photographs for each of the process, is reviewed and signed-off annually by each operator.

As per Production Practice 2.2, Cyanco conducts mock emergency drills to test response procedures for various exposure scenarios. A full-day meeting (September 2019) included table-top exercises with participation of staff from Corporate Cyanco and responder contractor. Since the last recertification audit, meetings were held on 11 September 2019, and exercises in November 2020 included cyanide exposure scenarios of a blocked/closed vent pipe which caused the tanker to pressurize and pop the relief valve, shutting down the loading pump automatically stops. With the hiring of three new operators in 2020, meetings are conducted to discuss and review scenarios and determine readiness and confirm knowledge and skills. Each emergency drill has minutes that include lessons learned.

All training records and certificates for the last three years are documented and kept in a ring-binder in the office. A master record is maintained. A copy of training records is maintained with Cyanco in Houston. These records include the name of the employee and indicate the trainer, date of training, topics covered and include a certificate of training completion.

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

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

The operation is:
- ■ in full compliance with Production Practice 5.1.
- in substantial compliance
- not in compliance

Describe the basis for the Finding/Deficiencies Identified:

As provided in Production Practice 2.2, Cyanco maintains a comprehensive ERP, initially developed in 1997, with the latest version dated 3 March 2020, and an addendum memo dated 12 January 2016. There were no interim revisions since the last certification audit, with the previous ERP dated 29 January 2016. Subsequent to the site visit, on 14 December 2020 the ERP and the addendum memo were combined. The ERP addresses all terminal activities, which include the dissolving, transfer and loading of liquid sodium cyanide, as well as emergency response actions in event of a cyanide release or exposure. The terminal maintains a separate ERP for the transportation of Cyanco's cyanide throughout Canada. In emergency situations, Cyanco depends on outside assistance in responding to and mitigating emergencies associated with sodium cyanide at the terminal site.

The ERP does consider failures but was not specific to scenarios or specific response actions. Cyanco provided evidence and documentation which addressed each listed

potential failure, following the 2016 audit, but it was not included in the March 2020 update of the ERP, due to change of site personnel responsible. Subsequent to the site visit, on 14 December 2020, the ERP and the addendum memo were combined, and the ERP was updated to provide details for each of the listed potential failures and response actions for catastrophic releases of HCN; releases during loading and dissolution operations; releases during fires and explosions; pipe, valve and tank ruptures; power outages and equipment failures; and overtopping of tanks.

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

The operation is:
- ■ in full compliance with Production Practice 5.2.
- in substantial compliance
- not in compliance

Describe the basis for the Finding/Deficiencies Identified:

Cyanco continues to make its workers and potentially affected communities such as the local government, environmental authorities, the mayor, fire brigades, police and hospitals aware of the ERP and their roles within the Plan. Workers and potentially affected communities are informed of the nature of the hazards and risks associated with the cyanide production facility operation. Operators are encouraged to provide input and feedback after mock simulations. In the emergency response planning process, Cyanco provides all outside entities with a response role with registered copies of the ERP, provided as a hardcopy and via registered mail/courier requiring signature at delivery.

To address current conditions and risks, Cyanco has a written agreement, dated 29 October 2020, with a mine located approximately 6 km away for additional Cyanokits in case of an emergency and on a mutual aid basis.

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

The operation is:
- ■ in full compliance with Production Practice 5.3.
- in substantial compliance
- not in compliance

Describe the basis for the Finding/Deficiencies Identified:

As provided in Production Practices 2.2 and 5.1, Cyanco includes the requirements of the designation of emergency response coordinators responsibilities, the training for first response, call-out procedures and 24-hour contact information, a list of emergency response equipment and its inspection, and the roles of outside responders. Cyanco provides outside responders with a role in the ERP with registered copies of the most

recent ERP. Outside responders have been invited but have not participated to date in the emergency mock drills.

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

The operation is:
- ■ in full compliance with Production Practice 5.4.
- in substantial compliance
- not in compliance

Describe the basis for the Finding/Deficiencies Identified:

In any emergency situation which invokes the ERP, Cyanco Corporate and the Cyanco Plant Manager in Winnemucca, Nevada would be notified. In emergency situations, Cyanco depends on outside assistance in responding to and mitigating emergencies associated with sodium cyanide at the terminal site. Cyanco provides them with registered copies of the most recent ERP. Contact information is provided in the ERP. In an emergency, the parties listed in the ERP would be contacted. The Quebec Ministry of Sustainable Development, Environment and Parks would be contacted in the instance of a sodium cyanide release to the environment.

Emergency situations are addressed in the current ERP and include the up-to-date contact information for notifying local communities, stakeholders and communication to the media.

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

The operation is:
- ■ in full compliance with Production Practice 5.5.
- in substantial compliance
- not in compliance

Describe the basis for the Finding/Deficiencies Identified:

Process hazards are identified in the *Hazard Analysis* document, as identified in the ERP, and addresses recovery of solution. As discussed in Production Practice 1.1, all cyanide transfer operations are conducted within the concrete containment that extends over the entire building footprint. Mud and sand brought into the containment areas and washed from tanker trucks is cleaned up and temporarily stored in drums prior to being transported offsite by a licenced waste management contractor and appropriately managed at an approved hazardous waste facility. The drums are analysed prior to disposal and, although the waste is managed as a hazardous waste, are generally identified to contain low concentrations of cyanide. This hazardous waste disposal

procedure would be used to dispose of other sodium cyanide solid wastes if such were to be generated.

No cyanide is released into surface water, as the facility is designed as a zero-discharge operation.

The ERP references the 2016 Emergency Response Guidebook, Guide 157 for Toxic and/or Corrosive Substances (non-combustible/water-sensitive) and for the Initial Isolation and protective action Distances. Documentation was provided to address the decontamination and collection of soil and the potential need for environmental monitoring following the 2016 recertification audit but was not included in the March 2020 update of the ERP, due to the change of site personnel responsible. Subsequent to the site visit, on 14 December 2020 the ERP and the addendum memo were combined and updated to include details for environmental monitoring. A Cyanco contractor would carry out the requisite sampling to identify the extent and effects of a release. The sampling methodology, parameters, laboratory and number of sample locations, dependent on the size of cyanide spill impact, were detailed. The required PPE and tools are included.

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

The operation is: ■ in full compliance with Production Practice 5.6.
in substantial compliance
not in compliance

Describe the basis for the Finding/Deficiencies Identified:

Cyanco had planned to incorporate the sections addressed during the 2016 audit but it was not included in the March 2020 update of the ERP due to the change of site personnel responsible. Subsequent to the site visit, on 14 December 2020 the ERP and the addendum memo were combined and included the next annual review and revision date of 14 December 2021. As indicated in Production Practice 2.2, Cyanco conducts mock emergency drills to test response procedures for various exposure scenarios. Emergency review and planning meetings are conducted to discuss and review scenarios and determine readiness.

There have been no changes to the status of emergencies or incidents at the terminal facility since the 2016 ICMC recertification audit. There have been no emergencies since the operation began in 1998. However, if an emergency did occur that required the implementation of the ERP, the ERP would be evaluated and revised, as necessary.