International Cyanide Management Code

Gestión en Transportes

Re-Certification Audit of:

Transportes Verasay
Sodium Cyanide Solution Transportation Operations

Summary Audit Report

Submitted to:
The International Cyanide Management Institute
1400 I Street, NW – Suite 550
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USA

2016 Audit Cycle

Verasay Cyanide Transportation Operation Summary

Company Names & Contact Information

Name and location of Operation:	Transportes Verasay Ltda. Domicilio: Copayapu #5751 Copiapó, Región de Atacama, Chile
Responsible Manager for Operation:	Roberto Contreras – Responsible Manager rcontreras@verasay.cl
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Operational Overview

Transportes Verasay Ltda. (Verasay) is a sodium cyanide transporter to mines in Chile. Verasay transports cyanide to different mining operations within Chile in sealed containers, from the ports of Valparaiso, Mejillones, Antofagasta and San Antonio. The cyanide is transported directly to the mines, without stopping at secondary storage facilities. Verasay transports cyanide produced by Chemours, among others.

Cyanide is transported to Chile by ship and is delivered by the cargo company to the port of Valparaiso or San Antonio (the preferred ports for mines in central Chile), and the port of Antofagasta or Mejillones (the preferred ports for mines in northern Chile). Unloading of the cargo ships is performed by the Port Authority which releases the container by placing it on a truck's platform. At this point, the cyanide becomes the responsibility of Chemours. Currently, the cyanide is transported directly to the mines, without stopping at a secondary storage facility. The transport routes from Chile's Ports to the different mines are from 163 to 1,232 km long. The preferred ports are those with the shortest route to the mines.

Audit Implementation and Conclusions

This audit was comprised of the ground transportation operations from the moment the Port releases the cyanide to its delivery to the client's facility. Verasay was first certified in 2010 and re-certified in 2014. Records were reviewed from the date of the previous audit to December 2016.

Cyanide is packaged by the producers in a super-sack within a polyethylene bag to protect the material from water and humidity and placed in a wooden box. No less than 20 boxes are placed in a standard 20-foot shipping container; an exact number of boxes are placed to prevent boxes lateral movement in the container. In addition, blocking and bracing is applied to the cargo. The manufacturers seal the container with a tag with serial number at the production facility to prevent material losses. These seals are only removed at the mine.

This operation is in FULL COMPLIANCE with the International Cyanide Management Code.

Auditor's Finding

The cyanide management practices for Verasay transportation were evaluated for ICMC compliance using the *ICMI Cyanide Transportation Verification Protocol.* Verasay's internal standards, policies, practices, and procedures regarding the transportation of cyanide were reviewed.

The auditor found that the overall level of preparedness and understanding of ICMI Cyanide Code requirements was excellent. Management systems upon which the operation is based were found to be very mature and personnel demonstrated excellent operational discipline. This operation has not experienced any cyanide incidents or compliance problems during the previous three-year audit cycle.

The results of this operational certification audit demonstrate that Transportes Verasay Ltda. transportation company and all cyanide-related operations are in FULL COMPLIANCE with International Cyanide Management Code operational requirements.

Audit Company:	MSS Code Certification Service, a Division of Management System Solutions, Inc. www.mss-team.com Email: info@mss-team.com
Audit Team Leader and Technical Expert:	Bruno Pizzorni
Date(s) of Audit:	December 20 – 22, 2016

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 Audit Report accurately describes the findings of the verification audit. I further attest that the verification audit was conducted in a professional manner in accordance with the International Cyanide Management Code Verification Protocol for Cyanide Transportation Operations and using standard and accepted practices for health, safety and environmental audits.

Verasay Transportation Certification Audit Results

1. TRANSPORT: ***Transport cyanide in a manner that minimizes the potential for accidents and releases.***

Transport Practice 1.1: *Select cyanide transport routes to minimize the potential for accidents and releases.*

The operation is
- ☑ in full compliance with
- ☐ in substantial compliance with
- ☐ not in compliance with

Transport Practice 1.1

Summarize the basis for this Finding:

Verasay Route Evaluation Procedure plus its appendices "Route Evaluation" and "Risk Assessment" procedures considers population density, infrastructure, pitch & grade, proximity to water bodies, and the prevalence and likelihood of poor weather and resulting poor driving conditions. Chemours and Verasay work together with customers to determine the safest and best route for transport.

The Verasay procedure for route evaluation includes two appendices Route Evaluation and Risk Assessment. Risks such as pitch and grade of roads, traffic congestion, seasonal traffic issues, and proximity to water bodies were considered during the development of the routes. The routes are evaluated prior to the first delivery and periodically thereafter. In addition, routes are evaluated after each cyanide delivery.

Risk mitigation measures are noted on the route document "Verification List – Cyanide Code Transport Practice", where applicable. Risk mitigation measures focus primarily on the avoidance of social unrest, high traffic times of day and the avoidance of roads that are dangerous in poor weather conditions.

Interviews demonstrated that stakeholders are involved in the selection of routes and the implementation of risk mitigation measures. The transport procedure establishes that all shipments from the port to the mines are performed in convoys and with at least one safety escort vehicle. Verasay largely manages communications with local emergency responders. Chemours has formal communication and provides training every 2 years with local emergency responders and hospitals. Records from community interactions for 2014, 2015, and 2016 in Copiapó, Antofagasta

and Santiago were available for review. Verasay does not subcontract any portion of its cyanide transportation operations.

Transport Practice 1.2: *Ensure that personnel operating cyanide handling and transport equipment can perform their jobs with minimum risk to communities and the environment.*

The operation is
- ☑ in full compliance with
- ☐ in substantial compliance with Transport Practice 1.2
- ☐ not in compliance with

Summarize the basis for this Finding:

All Verasay drivers are licensed to operate the transport equipment according to jurisdictional requirements, they have a professional A-5 class driver's license. Drivers transporting cyanide have an initial intensive two days training which includes hazardous materials transport, defensive driving in high mountains, risks evaluation, safety standards in cyanide management of cyanide. Chemours also provides training in safe cyanide management and emergencies management.

Operational training is given upon hire and there is a skills evaluation process to ensure that drivers are competent to perform their jobs and to drive the designated route prior to their first solo delivery. Safety-related training is given at defined intervals to ensure that all personnel operating cyanide transportation equipment can perform their jobs in a manner that minimizes the potential for cyanide releases and exposures. The training is carried out using videos, computer-based training, and classroom sessions. Training records were reviewed and found to be acceptable. Drivers were interviewed and were found to have an appropriate level of knowledge and safety awareness.

Verasay does not subcontract any portion of its cyanide transportation operations.

Transport Practice 1.3: *Ensure that transport equipment is suitable for the cyanide shipment.*

The operation is
- ☑ in full compliance with
- ☐ in substantial compliance with Transport Practice 1.3
- ☐ not in compliance with

Summarize the basis for this Finding:

Equipment labels were reviewed during the audit. All available tractors and trailers were checked and are rated for weights that exceed maximum loaded weights. The container loading into trucks

is performed by the port operator and the unloading of cyanide boxes is performed by the mine. Prior and after any cyanide transport operation, every vehicle is checked for visible potential failures and loose parts. The drivers submit a trip report where any vehicle failure or parts needing attention is reported to the maintenance area.

Truck inspections and preventive maintenance actions are performed regularly to ensure that the equipment is safe to operate and that it can continue to carry the loads for which is it designated. The transport procedure establishes that each platform will be loaded with only one container and that each truck can only haul one platform trailer. This is consistent with the information included in the inspection checklist.

Verasay does not subcontract any portion of its cyanide transportation operations.

Transport Practice 1.4: *Develop and implement a safety program for transport of cyanide.*

The operation is
☑ in full compliance with
☐ in substantial compliance with Transport Practice 1.4
☐ not in compliance with

Summarize the basis for this Finding:

Verasay transports only solid cyanide in sealed containers. The transport procedure establishes that the load cannot be altered during the transportation process. To ensure this, tags are placed on the ocean container's locks at the manufacturing facility. These tags can only be removed at the mine. Appropriate placards showing UN 1689 (solid cyanide) are displayed on all four sides of the sea containers. Drivers visually inspect the containers prior to each movement. Equipment markings were found to be adequate and conformant.

Drivers conduct pre-trip inspections before the vehicle departs to the port facility for loading (documented through the vehicle inspection checklist). Verasay has implemented a procedure for preventive maintenance of its vehicles and platforms. The trucks are maintained every 30,000 km, in addition, platforms are inspected every 6 months.

Verasay limits the drivers' hours of operation. Drivers are informed of the legal requirements regarding limits on driving hours. Operators must rest at least 8 hrs. prior to a trip, should not drive for over 12 consecutive hours, and take a 10-minute break approximately every two hours.

The transport procedure establishes that load shifting within the container is not considered possible as all containers are filled with 20 boxes and block and brace is applied at the cyanide

production plant to prevent load movement. At the same time, trailers have pins where the container is embedded, preventing it from shifting.

Prior to departure, the convoy leader assesses the weather conditions and gets information about political issues on the road. If he deems it necessary, he can postpone the trip and this decision is communicated to the mine and the cyanide provider. Drivers and convoy leaders are empowered to pull over whenever weather, fatigue or other conditions are unsafe to continue a trip.

Prior to the departure of every shipment the drivers are given an alcohol test (blow tests documented in the convoy leader report). Records were available to demonstrate that the ICMI Transport Practice 1.4 requirements had been fulfilled. Verasay does not subcontract any portion of its cyanide transportation operations.

Transport Practice 1.5: *Follow international standards for transportation of cyanide by sea and air.*

The operation is
☑ in full compliance with
☐ in substantial compliance with Transport Practice 1.5
☐ not in compliance with

Summarize the basis for this Finding:

Verasay does not ship cyanide by sea or by air. This section of the ICMC does not apply to the operation

Transport Practice 1.6: *Track cyanide shipments to prevent losses during transport.*

The operation is
☑ in full compliance with
☐ in substantial compliance with Transport Practice 1.6
☐ not in compliance with

Summarize the basis for this Finding:

Cyanide shipments are tracked using a GPS tracking system that is monitored by Verasay. Drivers log into the system to communicate the status of the delivery. The convoy leader is provided with a cellular phone and a satellite phone. The convoy leader also has a radio and he is responsible for communicating an emergency, should one occur. Verasay drivers also have cell phones as a back-up means of communication.

The communication and tracking equipment is part of the pre-trip inspections, and is maintained along with the formal preventive maintenance program for each tractor. To cover communications in areas with no cellular coverage, the convoy leader carries an Iridium satellite phone which has coverage all along the route. In addition, trucks have a two-way radio transmitter.

Verasay has a communication and GPS tracking system and a full-time operator which allows continuous monitoring of the location of the convoy. The convoy leader communicates with Verasay upon dispatch, upon arrival at the customer sites, and after unloading is complete.

The transport document (Dispatch guide) issued by the cyanide provider, the Safety Data Sheet (SDS), and emergency response information is carried by each driver and a copy is carried by the convoy leader. The transport document includes the number of the container and net weight. The mine stamps the transport document as received when it arrives. This document is used for invoicing.

Verasay does not subcontract any portion of its cyanide transportation operations.

2. INTERIM STORAGE: ***Design, construct and operate cyanide trans-shipping depots and interim storage sites to prevent releases and exposures.***

Transport Practice 2.1: *Store cyanide in a manner that minimizes the potential for accidental releases.*

The operation is
- ☑ in full compliance with
- ☐ in substantial compliance with Transport Practice 2.1
- ☐ not in compliance with

Summarize the basis for this Finding:

Verasay does not have any interim storage responsibilities. Additionally, no trucks containing cyanide can be stored at the terminal. If a delivery is interrupted, loaded cyanide trucks would be stored in a secure location. There is no storage of cyanide within a building. Therefore, there is no possibility for buildup of hydrogen cyanide gas within a structure.

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

Transport Practice 3.1: *Prepare detailed emergency response plans for potential cyanide releases.*

The operation is
- ☑ in full compliance with
- ☐ in substantial compliance with Transport Practice 3.1
- ☐ not in compliance with

Summarize the basis for this Finding:

Verasay uses a documented emergency response plan (ERP) that addresses all the Code requirements for the transportation of cyanide. The ERP was found to be acceptable for the Verasay defined routes: Peñón, Coipa, Refugio and Florida. Verasay drivers only have a first response and notification role in emergency response. The ERP takes into consideration the only form of cyanide that is transported: solid cyanide. The ERP addresses the only mode of transportation: by truck.

The differences in infrastructure for the defined routes are addressed in the ERP. As there are not multiple modes of transportation, the different road types such as highway, public, private, and rugged mine site were considered.

The ERP does not specifically mention the design of the transport vehicle. The emergency response actions outlined in the ERP are primarily notification actions. Professional emergency responders would be responsible for addressing issues involving the way in which the structure of the container should be managed in an emergency.

The role of the driver is described in the ERP. The driver is responsible for securing the scene and making necessary notifications. Chemours is responsible for directing emergency responders. The role of this external partner is clearly stated in the ERP. The ERP identifies the roles of outside responders.

Transport Practice 3.2: *Designate appropriate response personnel and commit necessary resources for emergency response.*

The operation is
☑ in full compliance with
☐ in substantial compliance with Transport Practice 3.2
☐ not in compliance with

Summarize the basis for this Finding:

Both drivers and convoy leaders are trained annually. Training records were reviewed from 2014 through 2016 and were found to be acceptable in emergency response, operators level HAZEP and first aid.

The ERP clearly establishes the responsibilities for the members of the response team (convoy leader, operations base, traffic controller, and other internal roles during the emergency). Verasay has defined the materials required for emergency response during transportation along the route including spill response equipment in the ERP. The convoy leader transports a box with all the emergency equipment listed. The contents of the emergency equipment box is listed on a checklist.

Verasay drivers receive an appropriate level of training to enable them to fulfill their role in emergency response, which is limited to notification. The ERP defines what equipment must be available in the convoy leader vehicle and extra personal protective equipment is in the trucks. A procedure is used to inspect emergency equipment boxes on a regular basis when trucks are brought in for maintenance and inspections.

Verasay does not subcontract any portion of its cyanide transportation operations.

Transport Practice 3.3: *Develop procedures for internal and external emergency notification and reporting.*

The operation is
☑ in full compliance with
☐ in substantial compliance with Transport Practice 3.3
☐ not in compliance with

Summarize the basis for this Finding:

The notification procedures, including telephone numbers, the flow of communication and people to be contacted in an emergency are described in the ERP. The notification information is reviewed each year or as necessary for accuracy.

The ERP is reviewed and tested (by means of a drill and/or table top exercise) once each year. During this activity, the phone numbers are checked for accuracy. Records were available to show that this is done. The ERP establishes that it must be reviewed whenever modifications are required or, at least, once a year.

Transport Practice 3.4: *Develop procedures for remediation of releases that recognize the additional hazards of cyanide treatment chemicals.*

The operation is
☑ in full compliance with
☐ in substantial compliance with Transport Practice 3.4
☐ not in compliance with

Summarize the basis for this Finding:

Verasay has its emergency brigade plus the external contracted services of Suatrans for emergency care and remediation. The plan addresses exposure scenarios such as transportation incidents, spills, and exposure to cyanide. The plan describes procedures for evacuation, decontamination, , emergency contact information, cleaning measures and final disposal of contaminated materials. Verasay Emergency Response Plan includes text that addresses the remediation and neutralization of cyanide solutions and solids. General information is given and the hazards associated with using cyanide treatment chemicals are recognized. Neutralization chemicals are not allowed to be used in or near surface water bodies.

Transport Practice 3.5: *Periodically evaluate response procedures and capabilities and revise them as needed.*

The operation is
☑ in full compliance with
☐ in substantial compliance with Transport Practice 3.5
☐ not in compliance with

Summarize the basis for this Finding:

The Emergency Response Plan states that the procedures will be reviewed annually and that drills are to be conducted annually. Cyanide transport-related exposures and releases. related emergency drills have been held annually during the re-certification audit period. The drills included scenarios of human exposure and cyanide spill, with testing of decontamination procedures. The auditor reviewed the drill reports and found them to be complete. Interviews and written procedures confirmed that the ERP would also be reviewed after any deployment. Any necessary changes would be made.