TRANSPORTES VERASAY LTD

Cyanide Code Principle 2
Transportation Summary Audit Report

PROJECT NO. 0207695

DECEMBER 2013
# TABLE OF CONTENTS

1 GENERAL SUMMARY

1.1 INFORMATION ON THE AUDITED OPERATION 1

1.2 OVERALL AUDITOR’S FINDING 2

2 TRANSPORTES VERASAY REPORT 3

2.1 TRANSPORT: TRANSPORT CYANIDE IN A MANNER THAT MINIMIZES THE POTENTIAL FOR ACCIDENTS AND RELEASES 3

2.1.1 Transport Practice 1.1: Select cyanide transport routes to minimize the potential for accidents and releases. 3

2.1.2 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. 4

2.1.3 Transport Practice 1.3: Ensure that transport equipment is suitable for the cyanide shipment. 5

2.1.4 Transport Practice 1.4: Develop and implement a safety program for transport of cyanide. 5

2.1.5 Transport Practice 1.5: Follow international standards for transportation of cyanide by sea and air. 8

2.1.6 Transport Practice 1.6: Track cyanide shipments to prevent losses during transport. 8

2.2 INTERIM STORAGE: DESIGN, CONSTRUCT AND OPERATE CYANIDE TRANS-SHIPPING DEPOTS AND INTERIM STORAGE SITES TO PREVENT RELEASES AND EXPOSURES. 9

2.2.1 Transport Practice 2.1: Store cyanide in a manner that minimizes the potential for accidental releases. 9

2.3 EMERGENCY RESPONSE: PROTECT COMMUNITIES AND THE ENVIRONMENT THROUGH THE DEVELOPMENT OF EMERGENCY RESPONSE STRATEGIES AND CAPABILITIES 10

2.3.1 Transport Practice 3.1: Prepare detailed emergency response plans for potential cyanide releases. 10

2.3.2 Transport Practice 3.2: Designate appropriate response personnel and commit necessary resources for emergency response. 11

2.3.3 Transport Practice 3.3: Develop procedures for internal and external emergency notification and reporting. 12
2.3.4 Transport Practice 3.4: Develop procedures for remediation of releases that recognize the additional hazards of cyanide treatment chemicals.

2.3.5 Transport Practice 3.5: Periodically evaluate response procedures and capabilities and revise them as needed.
1 GENERAL SUMMARY

1.1 INFORMATION ON THE AUDITED OPERATION

Name of Cyanide Transportation Facility: Transportes Verasay Ltd ground transportation operations in Chile
Name of Facility Owner: Transportes Verasay Ltd
Name of Facility Operator: Transportes Verasay Ltd
Name of Responsible Manager: Mr. Roberto Contreras
Address: Copayapu No. 5751, Copiapo
State/Province: Atacama Country: Chile
Telephone (052)222028-227281 E-Mail: rcontreras@verasay.cl

Location detail and description of operation:

Transportes Verasay Ltd. (Verasay) is a sodium cyanide transporter in Chile. Currently, Verasay transports cyanide from different ports to mines located in Chile.

Verasay receives the cyanide at the Valparaiso (preferred port for mines in southern Chile), San Antonio, Mejillones (the preferred port for the mines in northern Chile) or Antofagasta Port. Verasay responsibility starts when the Port Authority releases the container by placing it on a Verasay’s platform. The cyanide is transported directly to the mine, without the intervention of secondary storage facilities. The transportation routes operated from Chile’s Ports to Verasay’s clients are from 163 to 1,232 km long; the preferred ports are those that represent the shortest route from one port to the client site.

This audit comprises the ground transportation operations from the moment the Port Authority releases the cyanide to its delivery at the client’s facility. Verasay initial certification was published on 21 September 2010. Records from the previous audit performed in July 2010 to date to this audit were reviewed.

Currently, Verasay transports cyanide produced by different manufacturers. Cyanide is packaged by the producers in the following way: primary packaging in a polypropylene super-sack filled up to 1 ton. The super-sack is then placed in a polyethylene bag to protect the material from water and humidity; finally the packaged material is placed in a wooden box. No less than 20 boxes are placed in standard 20-feet shipping containers (the containers); the exact number of boxes is to prevent lateral movement of the boxes within the container. To further prevent movement a block and brace is applied consisting of placing wood beams between the last box and the container’s door. Prior to shipping, the manufacturer seals the container with a tag with serial number at the production facility to prevent material losses. These seals are only removed at the mine.

Transportes Verasay
Name of Facility
Signature of Lead Auditor
24 to 25 July 2013
Date
Page 1 of 13
1.2 **OVERALL AUDITOR’S FINDING**

This operation is

- ✓ in full compliance
- □ in substantial compliance *(see below)*
- □ not in compliance

with the International Cyanide Management Code.

* For cyanide transportation operations seeking Code certification, the Corrective Action Plan to bring an operation in substantial compliance into full compliance must be enclosed with this Summary Audit Report. The plan must be fully implemented within one year of the date of this audit.

Audit Company: ERM Mexico, S. A. de C. V.
Audit Team Leader: Juan Carlos Rangel Lopez E-mail: juancarlos.rangel@erm.com
Names and Signatures of Other Auditors: ____________________________
Date(s) of Audit: 24 to 25 July 2013 ____________________________

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 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.

According to the interviewed personnel and the records reviewed, no cyanide related incidents, exposures or releases occurred during the audit period.
2 TRANSPORTES VERASAY REPORT

This operation is

√ in full compliance
☐ in substantial compliance
☐ not in compliance

with the International Cyanide Management Code.

2.1 TRANSPORT: TRANSPORT CYANIDE IN A MANNER THAT MINIMIZES THE POTENTIAL FOR ACCIDENTS AND RELEASES

2.1.1 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 Transport Practice 1.1
☐ not in compliance with

Summarize the basis for this Finding/Deficiencies Identified:

Verasay has the following procedures:
- P2-10 “Sodium Cyanide Ground Transportation from Ports to Mines” (latest revision April 2013, hereinafter referred as the transport procedure). This procedure results from the simplification of their management system which formerly included one procedure for each client).

The route assessment procedure establishes that to assess the route a physical inspection of the same must be performed by the convoy leader and, optionally, a representative from the producer and one from the mine.

During the inspection, the scheduled and rest stops are selected, as well as the places where the vehicles and drivers can stay overnight, the communication services available, emergency numbers, gas stations, police offices, sensitive areas, and communities are also identified. The areas where accidents are most likely to take place are also identified.
Based on the route inspection, a risk assessment is performed and general preventive measures have been established in the transportation procedures.

The route assessment procedure establishes that the route must be updated at least on an annual basis and whenever it is required. Additionally, the transport procedure establishes that the convoy leader must prepare a report for each trip.

Verasay emergency response establishes that they will provide information regarding cyanide to the authorities at least every three years. Additionally, Verasay has co-organized with forums in different communities crossed by the convoys to provide information to relevant institutions.

Verasay’s transport procedure establishes that all shipments from the ports to the mine are performed in convoys and with at least one safety escort vehicle (where the convoy leader travels).

Verasay distributes on an annual basis updated copies of the sodium cyanide material safety datasheet to hospitals that are located along the route. Verasay does not subcontract the cyanide transportation.

2.1.2 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/Deficiencies Identified:

The transport procedures establish the following requirements for drivers: to be healthy, to have the legally required driving license, to be trained in defensive driving, and to be trained by Verasay in sodium cyanide handling and emergency response.

The procedure also establishes that the driver must have rested at least 8 hours prior starting the trip, that a 10 minutes break must be taken approximately every two hours, and that the maximum work journey for the driver is 12 hours.

Verasay has a training program for convoy leaders and drivers that includes training in cyanide handling, emergency response, and defensive driving.

The transportation procedure also establishes that the convoy leader must have transport background, to be knowledgeable on basic mechanics, and leadership skills.
The Hazardous Materials Manager verifies that the drivers have been trained and that the trucks are included in the list of vehicles enabled by Verasay for the cyanide transport operation. Verasay does not subcontract the cyanide transport.

2.1.3 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/Deficiencies Identified:

Verasay’s transport procedure establishes the characteristics required for vehicles to be used for cyanide transportation including:

- o To be included in a preventive maintenance program
- o To have the permits required by the local authorities

The convoy supervisor reviews the truck and platform documents. According to the circulation permits, the load capacity of the platforms used by Verasay is 30 tons and larger (as documented in the circulation permit); the gross weight of an ocean container fully loaded with cyanide is approximately 24 tons (information provided by one of the manufacturers).

Verasay’s maintenance program is further discussed in Practice 1.4.

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 measure was established in order to prevent overloading. Verasay does not subcontract the cyanide transport.

2.1.4 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/Deficiencies Identified:

Verasay’s transport procedure establishes that the load cannot be altered during the transportation process. To ensure this, tags are placed in the ocean container’s locks at the manufacturing facility. These tags can only be removed at the mine. The procedure establishes
that the Verasay personnel cannot remove the tag or divide the shipment or otherwise remove it from the container. The containers received in the port are placed on platform trailers hauled by trucks without the need of changing the packaging. According to the interviewed convoy leader, the load is not removed from the container.

The procedure also establishes that placards with cyanide’s UN number and poison signs must be placed in the container; this is verified through the vehicle inspection checklist. The convoy leader has additional placards incase the container is missing one or more.

The transport procedures establish that:
- Inspections are performed prior the vehicle departs to the port facility for loading (documented through the vehicle inspection checklist kept in the convoy files)
- the truck and the platform must have a preventive maintenance program
- Operators rest at least 8 hrs. prior to trip, should not drive for over 12 consecutive hours, and take a 10 min break approximately every two hours at pre-selected stops points where the risk has been assessed and ranked as low; the convoy leader ensures that these are the only stops. The fulfillment of these requirements was confirmed through the operation logs, the convoy leader report, and interviews with the drivers and the convoy leaders.
- 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 informed to the mine and the cyanide provider.
- Prior to departure of every shipment the drivers are tested for alcohol levels (blow tests documented in the convoy leader report).
- Load shifting within the container is not considered possible as all containers are filled with 20 boxes and block and brace is applied to prevent load movement.
- Container rollovers in different conditions (during the rainy season, crossing a river, in a curve, or crash) are considered and preventive measures are included in the Emergency Response Plan (e.g. speed limits).

Verasay has implemented procedure P2-02 for the preventive maintenance of trucks and platforms. According to this procedure the trucks maintenance is based on the miles traveled as follows:

Every 30,000 km inspection and replacement as necessary of:
- Oil and filters (water, oil, air, fuel)
- Suspension system
- Lubrication
- Brake shoes
- Engine, radiator, and gear box support
- Belts
- Tires
- Pin king
- Radiator
- Steering system

Every 90,000 km
- Gear box oil
- Differentials oil

Every 240,000 km
- Clutch and steering system
- Cooling system
- Valves
- Belts
- Alternator
- Fan
- Radiator

Additionally, the platforms are inspected every 6 months as follows:
- Electric system
- Breaks system
- Air system
- Tires and torque
- Axis
- Twist locks
- Lubrication
- Suspension
- Physical integrity of the chassis
- king pin

Additionally, when a truck or platform requires corrective maintenance, Verasay takes the unit to workshops authorized by the manufacturer.

Verasay does not subcontract the cyanide transport.
2.1.5  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/Deficiencies Identified:

The scope of this audit was only for the ground transportation operations performed by Verasay from Chilean ports to mines in Chile; therefore, this practice does not apply.

2.1.6  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/Deficiencies Identified:

Verasay provides convoy leaders with a cellular phone and a satellite phone. The convoy leader has also a radio and he is responsible of communications with Verasay in case of an emergency. All the trucks have short range (2 km) radio. Communication equipment is tested prior to the departure of the convoy and recorded in the vehicle inspection checklist.

There are areas with no cellular coverage; therefore, Verasay’s convoy leader carries a satellite phone which has coverage all along the routes.

Verasay’s transport procedure establishes that the convoy leader must report the progress of the convoy at pre-selected points. The progress report is provided by phone to Verasay’s Logistics Coordinator who informs the interested parties of the convoy progress by email. A tabular report is generated with the estimated and actual time of arrival to the selected stop points (the operations log). Also, all incidents (e.g. mechanical failure) are reported immediately to Verasay base and to the interested parties. Additionally, all the vehicles are equipped with a GPS which is tracked through an Internet site which provides the convoy position on real time. Verasay Logistics Coordinator continuously monitors the location of the convoy.
The bill of lading issued by Verasay is carried by each driver and a copy is carried by the convoy leader. The bill of lading, which indicates the amount of cyanide, the MSDS, and emergency response information are carried by each driver. These are provided by the convoy leader prior to the departure from the port facility. The transport document includes the number of container and net weight. The mine receipt stamps the transport document which is used for invoicing.

Additionally, the containers are locked are tagged at the manufacturer’s facilities and these tags are only removed at the mine.

Verasay does not subcontract the cyanide transport.

2.2 INTERIM STORAGE: DESIGN, CONSTRUCT AND OPERATE CYANIDE TRANS-SHIPPING DEPOTS AND INTERIM STORAGE SITES TO PREVENT RELEASES AND EXPOSURES.

2.2.1 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/Deficiencies Identified:

As described in Section 1, the scope of this audit was only for the ground transportation operations performed by Verasay from Chilean ports to mines in Chile. There, transport is performed without the intervention of interim storage sites; therefore, this practice does not apply.
2.3 **EMERGENCY RESPONSE: PROTECT COMMUNITIES AND THE ENVIRONMENT**

**THROUGH THE DEVELOPMENT OF EMERGENCY RESPONSE STRATEGIES AND CAPABILITIES**

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

The operation is

- [x] in full compliance with
- [ ] in substantial compliance with Transport Practice 3.1
- [ ] not in compliance with

**Summarize the basis for this Finding/Deficiencies Identified:**

Verasay has implemented an Emergency Response Plan (last updated June 2013, hereinafter the Plan). The Plan has been communicated to the clients; who would be responsible for the communication with the media, if needed. This is a detailed document (42 pages plus annexes) that includes, among other information, the emergency response team organization chart, emergency phone directory, communication channels guidelines, emergency scenarios, and instructions to attend specific and general emergency scenarios. The Plan has not have major changes since the initial certification audit; however, contact information and route assessments have been updated as part of the review and update process of the Plan.

The Plan includes an attachment per route with the assessment matrices mentioned in practice 1.1 which were used to develop emergency scenarios, the respective preventive and mitigation measures, and emergency response actions.

The plan has a detailed explanation of the sodium cyanide characteristics and toxicity based on the MSDS. The emergency scenarios, the general emergency response instruction, and the scenario-specific instructions consider the solid state of the cyanide and its incompatibility with water and other substances. It also identifies the areas where the different scenarios are most likely to take place (in the attachment for each route) and preventive measures. All the scenarios are in relation with accidents of trucks hauling a platform trailer carrying a 20-ft container, which is the only transportation modality used by Verasay.

Section 2 C of the Emergency Response Plan provides information regarding the packaging and transportation characteristics of the product, the container, and the transportation unit. All emergency scenarios developed are related to ground transportation of cyanide in ocean containers and include: crash with another vehicle, vehicle rollover in steep slope or curve, rollover with spill, rollover with hurt persons, and rollover with the product reaching a water body, among other.
The Plan’s Section 4 establishes the responsibilities for the members of external responder will be used to secure the area, to communicate with the population and evacuate it if required, and to coordinate vehicular traffic in the area. It also includes responsibilities for the mine’s emergency response team.

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

- ✓ in full compliance with
- □ in substantial compliance with Transport Practice 3.1
- □ not in compliance with

Summarize the basis for this Finding/Deficiencies Identified:

As mentioned in Practice 1.2 the drivers and the convoy leader, as well as administrative personnel, have received training in the emergency response procedures. Additionally, the Plan has been communicated to the cyanide manufacturers and the mines.

The Plan’s Section 4 establishes the responsibilities for the members of the initial response team (convoy leader and drivers), including the roles of the manufacturer and the mine personnel. According to the Plan, the convoy leader is responsible for the control of the emergency. However, it recognizes that the mine or other emergency response team (e.g. firefighters which by law are responsible of attending the emergency) may request to control the emergency, in which case, the convoy leader would pass the control of the emergency to them but will remain on site to provide advice and support, if necessary. Verasay personnel would remain on site until the emergency is declared controlled.

Verasay’s Plan’s Section 4.3 has a list of the required emergency response equipment (emergency response kit). Verasay has several emergency response kits as they may operate more than one convoy at any given time. There is at least one kit for every safety escort vehicle. One of the kits was reviewed during the audit and confirmed to be complete and operational (e.g. gas detector calibrated and with batteries). The transport procedures establish that the emergency equipment must be carried by the convoy leader in the safety escort vehicle or in a truck. A checklist is used to verify that it is available and it is documented in the convoy report.

The Plan’s Section 8 establishes that all the training in relation with emergency response is to be provided on an annual basis. Verasay has a training program and the drivers and convoy leader receive redundant training from the cyanide manufacturer. Attendance list are kept as record and are available in the employees files.

The transport procedures establish that the emergency response equipment must be carried by the convoy leader in the safety escort vehicle or in one of the trucks. Verasay does not subcontract the cyanide transport.
2.3.3 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/Deficiencies Identified:

The Plan’s Section 3.A includes a communications flow diagram which can be summarized as follows: the convoy leader must first inform Verasay’s Hazardous Materials Manager who then informs external emergency response teams, the mine, and the manufacturer. Section 3.B includes a list of the members of the internal response team members (including the manufacturers and Verasay), and that of external emergency responders (police, firefighters, hospitals, authorities, etc.). Additionally, there is an attachment with the emergency response contacts for each mine. A sample of the numbers was dialed and confirmed to be accurate. According to the interviewed personnel no accidents have taken place during Verasay’s cyanide transport operations.

The emergency notification and reporting procedures are included within the Emergency Response Plan. The Plan’s Section 9 establishes that it must be reviewed whenever modifications are required or, at least, once a year.

2.3.4 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/Deficiencies Identified:

Section 5.6 of the Emergency Response Plan establishes the procedure to clean a spill and the decontamination of the area.

Section 5.8 establishes that chemicals should not be added to water bodies to control the pH or to neutralize cyanide. Additionally, it includes instructions for assessing the impact on surface water bodies and to prevent the population to be poisoned by contaminated water. These instructions are part of the emergency response instructions to cyanide spills with contact to water and water bodies.
2.3.5 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/Deficiencies Identified:

The Plan’s Section 9 establishes that it must be reviewed whenever modifications are required or, at least, once a year. The transport procedures establish that the convoy leader report must be used to update the assessment of the route. Both the Emergency Response Plan and the Procedure were last updated on April 2013. According to the changes track, the Plan was updated with the route assessment was update in April 2011, March 2012, and April 2013.

The Plan’s Section 8.5 establishes that at least one emergency drill must be performed every year. The latest drills were the following:

- December 2012, truck turn over with spill of 200kg of cyanide
- November 2011 side crash with spill of cyanide
- December 2010, truck fall through slide with spill of 100kg of cyanide.

The Plan’s Section 9 establishes that it must be reviewed whenever modifications are required or, at least, once a year including the name and numbers of the emergency contacts and phone numbers of external responders.