

## SUMMARY AUDIT REPORT

Name of Cyanide Transportation Facility: Transaltisa S. A.  
Name of Facility Owner: Transaltisa, S. A.  
Name of Facility Operator: Transaltisa, S. A.  
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### Location detail and description of operation:

Transaltisa S. A. (Transaltisa) is a company dedicated to the transport of hazardous materials with operations in Peru. Transaltisa is part of the corporation Cervesur. It provides integral logistics services and it is focused in the mining industry and long term contracts. Transaltisa transports sodium cyanide in solid state (pellets) on behalf of Orica from El Callao Port to the gold mine Compañía Minera Yanacocha, (Yanacocha mine) located in Cajamarca Peru.

**This audit comprises the ground transportation operations from the moment the Port Authority releases the cyanide to its delivery in a mine. Transaltisa formally started the implementation of the Cyanide Code in September 2009, and has incorporated the Code in its integrated management system.**

Transaltisa transports sodium cyanide (cyanide) in solid state. Cyanide is packaged by the manufacturer in either of the following ways:

- Containers: primary packaging in a poly propylene super-sack filled up to 1 ton. The super-sack is then placed in a wooden box. No less than 20 boxes are placed in standard 20-foot containers (the containers); the exact number of boxes is to prevent lateral movement of the boxes within the container.
- Iso-tanks: cyanide is placed in the iso-tank without other packaging.

Prior to shipping, the manufacturer (Orica) seals the container or iso-tank with a tag with serial number at the production facility to prevent material losses. These seals are only removed at the mine. All shipments are performed in convoys with a trucks escorted by a safety vehicle where the convoy leader travels and carries the emergency response equipment. There is a safety escort for every two trucks. Additionally, a vehicle with basic spare parts and a mechanic technician also escorts the convoy.

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## 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](mailto:juancarlos.rangel@erm.com)

Names and Signatures of Other Auditors: none

Date(s) of Audit: 15-17 December 2009

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.

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### **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 Transport Practice 1.1
- not in compliance with

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

Transaltisa has prepared the following procedures:

- TRN-PRO-017 for service design which includes in section 5.3.1.a the evaluation and selection of the route which consist of an inspection trip performed by the leaders of the Operations, Technical, and EHS.
- TRN PRO-28 for the identification of hazards and risk assessment. This has been applied to the cyanide transport route and resulted in the document called hazards identification and risk evaluation (IPER, Identificación de Peligros y Evaluación de Riesgos), which was last updated in December 2009 (version No. 5). The assessment includes the task related to the cyanide transportation from the inspection of the container, container loading, and transportation. The transportation stage was divided in sections and identifies, in each section, crossing urban areas, weather conditions, the truck's cabin conditions to which the driver may be exposed, dangerous curves, steep slopes, proximity to wetlands and water bodies, road maintenance activities, and bridges. It is a 17 pages document and includes administrative procedures to be followed for each hazard identified.
- Written Safety Procedure for NaCN transport (TRN-PET-021) which includes the emergency response plan, use of PPE, defensive driving, speed controls, rest periods, preventive maintenance for the unit (including HVAC system for the cabin), use of the route sheets (establishes maximum speeds for the different sections, resting periods, and scheduled stops/breaks)
- Accident investigation procedure (TNR PRO-029, dated October 2009, rev 0 version 5) which established that all incidents and substandard conditions must be reported. Changes in the route are considered as substandard conditions and are reported through the Incident Report (TNR-FOR-055). Incident reports dated 11 November 2009 and 9 November 2009 were reviewed; these reported maintenance activities in different sections of the route. The preventive actions implemented included reviewing the IPER for sodium cyanide transportation to include maintenance activities in the route and heir associated risks.

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- Sodium cyanide procedure (TRN-PRO-027 version 4 rev 0 dated Oct 2009) that establishes that the transportation must be performed following the Transportation Technical Sheet TRN-DAT-023 (the route sheet) for Sodium Cyanide.

The implementation of these procedures was confirmed during interviews with key Transaltisa representatives including the convoy leaders and the drivers. The preventive actions taken by Transaltisa to address the risk identified in the route are recorded in the IPER, as mentioned above. The corrective and preventive actions taken as a result of incident reports are recorded and followed-up using a database (master list for incidents).

All transportation events are performed in convoys of three trucks with an escort pickup for every three trucks. The escort consists of a hazmat supervisor, 1 officer of the Roads Police Department, one additional driver, a maintenance technician, and a maneuvers technician.

Transaltisa uses the roads maps issued by the Transportation and Communications Ministry (MTC, Ministerio de Transportes y Comunicaciones) to identify the route. Additionally; the route is agreed with the client (the Mine). According to available communication records, Transaltisa has notified the mine and Orica when changes in sections of the route have been implemented to improve safety. According to available communications records, Transaltisa contacted the different road police departments, firefighters, and health centers during November 2009; a summary of the Emergency Response plan was provided to these external responders.

MTC has received and approved Transaltisa's emergency response plan.

Transaltisa does not use subcontractors for the sodium cyanide transport.

### **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:*

Transaltisa has developed a profile for the trucks operators (TRN-PT-031, ver. 1, rev 0), requirements for the operators include: to be male, to be up to 50 years old, to be available for frequent travel, to have completed high school, to know the National regulation for transit, to have three years of experience as truck driver and licenses A-III, to have good health, vision, audition, and voice, to be certified by the Transport and Communications Ministry (MTC, Ministerio de Transportes y Comunicaciones) by taking the training in goods transport by a MTC-certified training center, to be trained in hazardous materials handling (HAZMAT I y II, to

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be trained in emergency response, and to be trained in incidents, risk, hazards incident reporting, and identification of unsafe acts and conditions. Personnel interviewed (drivers and convoy leader) were familiar with sodium cyanide characteristics, emergency response plans, the inspection checklist, and use of personnel protection equipment. The reviewed drivers' files include documents that proof that they comply with the profile established in TRN-PT-031.

### **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:*

The procedure TNR-PRO-24 (ver. 6 rev 0 dated October 09) specifies the level of maintenance for trucks and two preventive maintenance levels for trailers. Maintenance records were reviewed and found well kept.

Transaltisa keeps in files the design and construction memory for each trailer. The units assigned to the transport of cyanide have a loading capacity from 30 to 36 tons, while the containers carry up to 20 tons. All units (trucks and trailers) were manufactured between 2005 and 2009.

Prior to drive to the loading area within the port and everyday before starting the journey, the operator performs a vehicle, trailer, and container inspection using the checklist TRN-FOR-082.

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### 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:*

To prevent load shifting, Transaltisa fixes the container to the trailer using twist locks. Transaltisa does not manipulate the packages as the containers are sealed by the NaCN manufacturer preventing, therefore, damages to the NaCN packaging. Additionally, NaCN is transported in bulk in the iso-tanks. The Cyanide Transportation Procedure (TRN-PRO-27) requires the operator to review the seals in the containers.

Transaltisa has developed a risk identification and risk assessment (the IPER), which includes the risk description, a risk assessment (based on frequency and consequences) and establishes control measures (e.g. administrative procedures, training requirements, personal protection equipment requirements, etc.). From the IPER, a general cyanide transportation procedure and a written safe work procedure (TRN-PET-021, also know as PET) have been developed. Other preventive measures derived from the IPER defensive driving training, speed controls, rest periods, preventive maintenance for the unit (including HVAC system for the cabin), use of the route sheets (establishes maximum speeds for the different sections, resting periods, and scheduled stops/breaks).

According to cyanide transportation procedure (TRN-PRO-27) the operator must fill a checklist daily (TRN-FOR-082, ver. 4 December 2009) at the beginning of the journey. According to the reviewed convoy leader reports, the rest periods, programmed stops, and inspection checklist are use or followed as established in the procedure. According to the drivers' files, they have attended defensive driving training.

Other requirements established by the above mentioned procedures include:

- Verification of the use of plate cards to identify the load as cyanide as required by Peru's regulations (performed by the convoy leader as recorded in his reports).
- Inspection of the vehicles (performed by the convoy leader using a checklist included in the convoy leader report).
- Preventive maintenance program based on the distance the trucks have traveled.
- A maximum 10 hrs per day with a 2 hrs rest period every 5 hours work shift for the drivers, and maximum 6 work days per week.
- Daily review of the twist locks to prevent the load from shifting (performed by the convoy leader as recorded in his reports).

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- Instruction for the convoy leader in case of natural disasters (slides, earthquakes, fog) that could affect the road conditions; in case of strikes, demonstrations, and closure of the road by civil unrest (included in the Emergency Response plan).
- Daily alcohol test to the drivers ((performed by the convoy leader as recorded in his reports), and entry and random drug test (recorded in the employee's file).

Transaltisa keeps records in relation to the Cyanide Code requirements as follows:

- Daily inspection from January 2009 to date.
- Emergency kit checklist from Oct 2009 to date.
- Alcohol test from 2007 to date.
- Convoy reports from February 2006.
- Maintenance records are kept for the last year in the facility, and then are archived for 5 years in the general archive (in Arequipa).

### **TRANSPORT PRACTICE 1.5: FOLLOW INTERNATIONAL STANDARDS FOR TRANSPORTATION OF CYANIDE BY SEA AND AIR.**

The operation is

#### **THIS PRACTICE DOES NOT APPLY TO THE OPERATION**

- 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 the operations audited is only ground transportation consisting of trucks hauling a platform trailer carrying a 20-ft container.

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### **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:*

All drivers have radio to communicate between them; the convoy escort has also a satellite phone (to be used in case of cellular service deficiencies). In the proximity of the mine the radios can communicate directly with the mine's emergency response team. Transaltisa has GPS-based system to track the convoys along the route. The functionality of the radio, mobile phone, and satellite phone is tested on daily basis at the beginning of the journey; this is recorded in the truck inspection checklist.

The local regulations require the operator to carry a remission document issued by the client where Transaltisa acknowledges receiving the container; this is used as chain of custody to prevent losses during the shipment. The containers are sealed with a numbered tag. When the container is delivered to the mine, it stamps of conformity the remission documents. Only the mine can break the container seals.

### ***2. INTERIM STORAGE: Design, construct and operate cyanide transshipping 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: **THIS PRACTICE DOES NOT APPLY TO THE OPERATION**

- in full compliance with
- in substantial compliance with Transport Practice 2.1
- not in compliance with

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

No interim storage is used during the operations audited. Cyanide is kept in the containers where it was packaged in the manufacturing facility.

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### ***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/Deficiencies Identified:*

The integrated management system manual TNR-MAN-01 (ver. 6, dated July 2009) establishes in section 7.5.6 that an emergency response plan must be prepared for every business where the actions and responsibilities are to be established in case of incidents and emergency situations. Emergency Response Plan for the transport of Sodium Cyanide (TRN-PLA-010 ver. 3 rev 0 dated December 2009 with a total of 60 pages) for Orica, including: emergency response organization, identification of risk during the transport, response procedures, and Emergency Response plan activation. Mock drill reports were also available.

The Emergency Response Plan was prepared based on the hazards identification and risk assessment (called IPER) of the route and covers the scenarios indentified in the IPER. The Emergency Response plan was updated when the IPER was modified to include the scenario of maintenance activities in the route. The emergency response procedures for NaCN releases take this into account that it is transported in pellets and the emergency response kit includes the materials to control solid material releases according to the scenarios identified in the IPER for cyanide ground transportation including:

- Tip over without spill
- Tip over with spill with and without reaction
- Tip over with spill on rainy day
- Spill on a water body
- Fire in the truck
- Operations to lift vehicles
- Truck breaking
- Natural disasters
- Demonstrations, strikes, closure of road
- Roads maintenance

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- Operations to remove the product and transfer it in the road
- Among others.

The IPER is based on the characteristics of both types of container (20" container and iso-tank); in general the 20" container was considered to be the less resistant and to pose the higher risks. Additionally, the emergency response provides information on the characteristics of the iso tanks.

The plan also establishes responsibilities for outside responders including the firefighters, medical services personnel, and road police officer.

### **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:*

The convoy supervisors receive 40 hrs training on annual basis as Technician on HazMat (Hazmat III CFR1910.120(q)(6)(i)(A) y NFPA 472. Additionally, all the operators receive training on basic operations with hazardous materials. The operators and the convoy supervisors are also trained on annual basis on the emergency response procedures.

The emergency response plan includes specific emergency response duties and responsibilities of personnel in section 2.1.3 and include instructions for the on site response team (convoy supervisor, Orica supervisor, operator) and in section 2.1.2 includes the duties for the management team.

The emergency response plan includes a list of minimum emergency response material (emergency response kit). Its completeness is confirmed each trip using a checklist that must be filled by the convoy leaders. The cyanide transport procedure states that the trip cannot start unless all the emergency kit is complete. Additionally, each driver has its own personnel protection equipment and its availability is reviewed by the convoy leader through the inspection checklist.

As previously noted Transaltisa does not subcontract other companies for the sodium cyanide transportation and, therefore, the emergency response plan does not contemplate responsibilities for subcontractors.

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### **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:*

Section 2.2.3 of the emergency response plan includes a communication flow diagram establishing that, when the emergency cannot be handled by the convoy personnel, the convoy supervisor notifies to the operations base and the mine about any incident and that the mine is responsible for contacting external emergency response providers, and agencies. The emergency response plan includes in section 6.3 a list of phone numbers and names for emergency responders (including firefighter departments, road police offices, hospitals, local police departments, and the administration of a dam that is near by a section of the route). The plan also establishes that the contact numbers must be updated three times per year and after the drills.

### **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:*

The emergency response plan includes specific instruction for scenarios such as tip over with spill with no reaction, tip over with spill and reaction, tip over with spill on rainy day, spill on a water body, and fire in the truck, among others.

There is also a specific procedure for a spill reaching a water body, it is focused mainly in avoiding exposure to HCN and consumption of impacted water by animals or the population, removing the cyanide that is in the shore. It bans the use of chemicals in surface water bodies.

### **TRANSPORT PRACTICE 3.5: PERIODICALLY EVALUATE RESPONSE PROCEDURES AND CAPABILITIES AND REVISE THEM AS NEEDED.**

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- 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 integrated management system manual TNR-MAN-establishes in section 7.5.6 that the emergency plans must be assessed by performing drills according to an annual drills program and that the emergency response plan must be reviewed on an annual basis and when ever an incident or emergency situation takes place. The plan has been updated based on the incidents reported during transportation events (e.g. inclusion of safety measures when road maintenance activities are faced). According to the available mock drills, Transaltisa has performed three: on 16 July 2009, 21 October 2009, and 9 December 2009, based on the results of the drills strengths and weakness were identified. Additional training was provided based in the drills' results.

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