



INTERNATIONAL CYANIDE MANAGEMENT INSTITUTE

Cyanide Transportation

Pre-Operational Verification Protocol

For The International Cyanide Management Code

www.cyanidecode.org

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Introduction

All elements of the cyanide transportation and distribution system that will bring cyanide from its point of manufacture to a gold mining operation are subject to this Protocol. This includes each individual transporter that will be involved in a shipment, interim storage sites that will be used during transport, and any distributors that will take physical possession of cyanide from a producer or transporter for delivery to a gold mine. It also includes any subcontractors handling cyanide for a transporter, and the audit findings regarding a subcontractor's cyanide management practices are to be included in the findings of the transporter.

In order to be certified, a gold mining operation undergoing an International Cyanide Management Code audit must have its cyanide transported by transporters that are certified under the Code.

The Code allows for conditional certification of a cyanide transport operation that is not yet active but that is sufficiently advanced in its planning and design phases so that its site plans and proposed operating procedures can be audited for conformance with the Code's Principles and Transport Practices. This Verification Protocol is used by a third-party auditor in assessing whether a pre-operational cyanide transport operation of a Signatory to the International Cyanide Management Code can be conditionally certified based on the expectation that it will meet the Principles and Transport Practices of the Code. For this audit to be acceptable for this purpose it must be conducted by auditors meeting the third-party auditor criteria of the International Cyanide Management Institute.

Since a pre-operational audit cannot evaluate on-the-ground compliance with the Code, cyanide transporters seeking pre-operational conditional certification are expected to have written documentation of proposed design and operating plans and procedures available for the auditor's review whenever practical. Design drawings, draft operating procedures, draft emergency response plans and draft training plans will provide an auditor with the best evidence that the operation can be expected to be in full compliance with the Code's Principles and Transport Practices. However, it is recognized that a transport operation seeking pre-operational certification may not have progressed to a point where this degree of planning has been completed. In such a case, in lieu of proposed operating procedures or other draft management plans, an operation may provide its commitment to implement measures consistent with the Principles and Transport Practices of the Code. Such commitments can be in form of process descriptions, cyanide management plans, and other written statements of intent that conclusively demonstrate that, once the transporter begins handling cyanide and the actions to which it has committed are implemented, the operation will comply with the Code's Principles and Transport Practices. The commitment must include sufficient detail for the auditor to be confident in such a finding.

Operations are encouraged to use this Verification Protocol as a template in preparing a Cyanide Management Plan that would describe how the operation planned to address each element and reference the existing documentation available for review. Although such a plan is not required in order to comply with the Code, it would guide the operation in addressing all elements required for Code compliance during the planning and design stages of the project, and aid an

auditor in evaluating an operation that has not begun handling cyanide and therefore cannot be visually inspected to verify the implementation of its draft procedures.

The goal of this Protocol is to encourage and support a thorough and probing inquiry by the auditor. This Protocol is structured to require that an auditor provide detailed responses, sufficient to provide a clear justification for the findings. Full responses are necessary for each question; “yes”, “no” or “not applicable” answers are not sufficient. The auditor must describe the specific evidence to support the findings that a gold mine operation using cyanide is expected to meet the Code provisions. Information must be provided on the documents reviewed.

This Protocol is not meant to limit inquiries made by an auditor in the conduct of an audit or the actions taken by any cyanide transporter to handle cyanide in a responsible manner or to implement the provisions of the Code.

It also is not intended to suggest, with respect to any of the Principles or Transport Practices that there is only one way for a cyanide transporter to meet the goals of the Code. While the questions posed in the Protocol are based on the measures typically appropriate to meet the Principles and Transport Practices, a cyanide transporter may use alternative means to meet a particular Code provision. Familiarity with the Code’s Implementation Guidance (although developed specifically for gold mining operations), and Auditor Guidance for the Use of the Cyanide Transportation Verification Protocol are essential to place each Protocol question in the appropriate context, understand the intent and expectation of performance for each Transport Practice and evaluate the measures to be taken by an operation to meet the Practice. Site specific conditions and local regulatory requirements may play a significant role in determining the approaches used by an operation. The auditor’s detailed descriptions of the evidence that supports a finding is particularly important to demonstrate how alternative methods have satisfied the Code provisions.

A cyanide transporter is expected to develop and implement a number of written management systems or procedures addressing issues such as the selection of route, road safety, equipment maintenance, operator training and emergency response. These plans can take any form including but not limited to formalized manuals, standard operating procedures, checklists, signs, work orders and training materials. None of these need be limited solely to issues involving cyanide management. The intent of the Code is that management systems and procedures demonstrate that the operation understands the practices necessary to manage cyanide in a manner that prevents and controls releases to the environment and exposures to workers and the community.

The audit should determine if an operation’s plans, procedures and management systems, when implemented, may reasonably be expected to meet the performance goals of the Transport Practices. Disputes over specific assumptions, calculations or procedures should be avoided unless the issue has a significant bearing on the operation’s ability to comply with the Code.

The Protocol requires the auditor to make a finding regarding whether or not the operation is expected to be in full compliance with each Transport Practice once it becomes operational. Being in full compliance does not necessarily require an affirmative answer to all individual

Verification Protocol questions under a particular Transport Practice. An operation may utilize alternative means that are consistent with the Principles and Transport Practices, but are not specifically identified in the Audit Protocol or Auditor Guidance document, or a particular question in the Audit Protocol may not be applicable for site-specific reasons.

A pre-operational transporter cannot be conditionally certified unless the auditor finds that, based upon the proposed plans, designs, procedures, and/or commitments, the operation is expected to be in full compliance with all Principles and Transport Practices. If not fully compliant, the auditor must identify the specific aspects of the proposed plans, designs, procedures and commitments that have been judged to be inconsistent with the Principles and Transport Practices. However, unlike a verification audit of an operational transporter, pre-operational certification cannot result in conditional certification of an operation that is only in substantial compliance. The auditor can pre-operationally certify the operation once it has provided the additional or revised information necessary to demonstrate that it is expected to be in full compliance.

A pre-operational facility found in full compliance is conditionally certified, subject to an on-site audit to confirm that the operation is being operated in compliance with the Code. The confirmatory audit must follow the Code Certification Process as an initial verification with the exception that the 3 year time frame between becoming a signatory and submitting the audit report to ICMI does not apply. The on-site confirmatory audit must be conducted within six months of the date on which the transporter first handles cyanide.

Verification Protocol

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.*

1. Has the transporter committed to implement a process or procedure for selecting transport routes that minimizes the potential for accidents and releases or the potential impacts of accidents and releases? If so, does the process or procedure consider:
 - a) Population density
 - b) Infrastructure (roadway, rail, port, runway, helipad) construction and condition
 - c) Pitch and grade
 - d) Prevalence and proximity of water bodies and fog
2. Has the transporter committed to implement a procedure to evaluate the risks of selected cyanide transport routes and take the measures necessary to manage these risks?
3. Has the transporter committed to implement a process or procedure to periodically reevaluate routes used for cyanide deliveries or does the transporter have a process for getting feedback on route condition from the transporter's operators?
4. Has the transporter committed to document the measures taken to address risks identified with the selected routes?
5. Has the transporter committed to seek input from communities, other stakeholders and applicable governmental agencies as necessary in the selection of routes and development of risk management measures?
6. Where routes present special safety or security concerns, has the transporter committed to use convoys, escorts or other additional safety or security measures to address the concern?
7. Has the transporter committed to advise external responders, medical facilities and communities of their roles and/or mutual aid during an emergency response?
8. If the transport company subcontracts any of the cyanide handling or transport, has the transport company committed to implement a procedure to ensure its subcontractors meet elements 1, thru 7 of this Transport Practice 1.1?

Finding: If it implements the commitments it has made, is the transporter expected to be in full compliance with Transport Practice 1.1? Explain the basis for the finding.

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.*

1. Has the transporter committed to use only trained, qualified and licensed (where required) operators to operate its transport vehicles?
2. Has the transporter committed to train all personnel operating cyanide handling and transport equipment to perform their jobs in a manner that minimizes the potential for cyanide releases and exposures?
3. If the transport company subcontracts any of the cyanide handling or transport, has the transport company committed to implement a procedure to ensure its subcontractors meet elements 1, 2 and 3 of this Transport Practice 1.2?

Finding: If it implements the commitments it has made, is the transporter expected to be in full compliance with Transport Practice 1.2? Explain the basis for the finding.

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

1. Has the transporter committed only to use equipment designed and maintained to operate within the loads it will be handling?
2. Has the transporter committed to implement procedures to verify the adequacy of the equipment for the load it must bear?
3. Has the transporter committed to implement procedures to prevent overloading of the transport vehicle being used for handling cyanide (i.e., overloading a truck, ferry, barge, etc.)?
4. If the transport company subcontracts any of the cyanide handling or transport, has the transport company committed to implement a procedure to ensure its subcontractors meet elements 1, 2 and 3 of this Transport Practice 1.3?

Finding: If it implements the commitments it has made, is the transporter expected to be in full compliance with Transport Practice 1.3? Explain the basis for the finding.

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

1. Has the transporter committed to implement procedures to ensure that the cyanide is transported in a manner that maintains the integrity of the producer's packaging?
2. Has the transporter committed to use placards or other signage to identify the shipment as cyanide, as required by local regulations or international standards?

3. Has the transporter committed to implement a safety program for cyanide transport that includes (where appropriate or applicable):
 - a) Vehicle inspections prior to each departure/shipment?
 - b) A preventive maintenance program?
 - c) Limitations on operator or drivers' hours?
 - d) Procedures to prevent loads from shifting?
 - e) Procedures by which transportation can be modified or suspended if conditions such as severe weather or civil unrest are encountered?
 - f) A drug abuse prevention program?
 - g) Retention of records documenting that the above activities have been conducted?
4. If the transport company subcontracts any of the cyanide handling or transport, has the transport company committed to implement a procedure to ensure its subcontractors meet elements 1, 2 and 3 of this Transport Practice 1.4?

Finding: If it implements the commitments it has made, is the transporter expected to be in full compliance with Transport Practice 1.4? Explain the basis for the finding.

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

1. Has the transporter committed to transport shipments of cyanide by sea in compliance with the Dangerous Goods Code of the International Maritime Organization?
2. Has the transporter committed to transport shipments of cyanide by air in compliance with the Technical Instructions for the Transport of Dangerous Goods by Air of the International Civil Aviation Organization?

Finding: If it implements the commitments it has made, is the transporter expected to be in full compliance with Transport Practice 1.5? Explain the basis for the finding.

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

1. Has the transporter committed to equip vehicles with means to communicate with the transport company, the mining operation, the cyanide producer or distributor and/or emergency responders?
2. Has the transporter committed to periodically tested its communication equipment (GPS, mobile phone, radio, pager, etc.) to ensure it functions properly?
3. Has the transporter committed to identify communication blackout areas along its transport routes and implement special procedures for these areas?
4. Has the transporter committed to implement systems or procedures to track the progress of cyanide shipments?

5. Has the transporter committed to implement inventory controls and/or chain of custody documentation to prevent loss of cyanide during shipment?
6. Has the transporter committed to provide shipping records indicating the amount of cyanide in transit and Material Safety Data Sheets with cyanide shipments?
7. If the transport company subcontracts any of the cyanide handling or transport, has the transport company committed to implement a procedure to ensure its subcontractors meet elements 1 thru 6 of this Transport Practice 1.6?

Finding: If it implements the commitments it has made, is the transporter expected to be in full compliance with Transport Practice 1.6? Explain the basis for the finding.

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.*

1. Has the transporter committed to post warning signs alerting workers 1) that cyanide is present; 2) that smoking, open flames, eating and drinking are not allowed and 3) what personal protective equipment must be worn?
2. Has the transporter committed to implement security measures to prevent unauthorized access to cyanide, such as lockouts on valves and fenced and locked storage of solids?
3. Has the transporter committed to separate cyanide from incompatible materials such as acids, strong oxidizers and explosives with berms, bunds, walls or other appropriate barriers to prevent mixing?
4. Has the transporter committed to store cyanide in a manner designed to minimize the potential for contact of solid cyanide with water (e.g., under a roof, off the ground, or in specially designed containers)?
5. Has the transporter committed to store cyanide with adequate ventilation to prevent build-up of hydrogen cyanide gas?
6. Has the transporter committed to store cyanide using systems with the capacity to contain any spilled cyanide materials and minimize the extent of a release?

Finding: If it implements the commitments it has made, is the transporter expected to be in full compliance with Transport Practice 2.1? Explain the basis for the finding.

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.

1. Has the transporter committed to develop and implement an Emergency Response Plan?
2. Has the transporter committed to develop a plan appropriate for the selected transportation route or interim storage facility?
3. Has the transporter committed that the plan will consider the physical and chemical form of the cyanide?
4. Has the transporter committed that the plan will consider the method of transport (e.g., rail, truck) or storage?
5. Has the transporter committed that the plan will consider all aspects of the transport infrastructure (e.g., condition of the road, railway, port)?
6. Has the transporter committed that the plan will consider the design of the transport vehicle (e.g., single or double walled, top or bottom unloading) or storage facility?
7. Has the transporter committed that the plan will include descriptions of response actions, as appropriate for the anticipated emergency situation?
8. Has the transporter committed that the plan will identify the roles of outside responders, medical facilities or communities in emergency response procedures?

Finding: If it implements the commitments it has made, is the transporter expected to be in full compliance with Transport Practice 3.1? Explain the basis for the finding.

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

1. Has the transporter committed to provide emergency response training of appropriate personnel?
2. Has the transporter committed to include in the plan descriptions of the specific emergency response duties and responsibilities of personnel?
3. Has the transporter committed to include in the plan a list of all emergency response equipment that should be available during transport or along the transportation route?
4. Has the transporter committed to have available the necessary emergency response and health and safety equipment, including personal protective equipment during transport?

5. Has the transporter committed to ensure that transport vehicle operators receive initial and periodic refresher training in emergency response procedures including implementation of the Emergency Response Plan?
6. Has the transporter committed to implement procedures to inspect emergency response equipment and assure its availability when required?
7. If the transport company subcontracts any of the cyanide handling or transport, has the transport company committed to clearly delineate the roles and the responsibilities of the subcontractor during an emergency response?

Finding: If it implements the commitments it has made, is the transporter expected to be in full compliance with Transport Practice 3.2? Explain the basis for the finding.

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

1. Has the transporter committed to develop procedures and current contact information for notifying the shipper, the receiver/consignee, regulatory agencies, outside response providers, medical facilities and potentially affected communities of an emergency?
2. Has the transporter committed to implement systems to ensure that internal and external emergency notification and reporting procedures are kept current?

Finding: If it implements the commitments it has made, is the transporter expected to be in full compliance with Transport Practice 3.3? Explain the basis for the finding.

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

1. Has the transporter committed to implement procedures for remediation, such as recovery or neutralization of solutions or solids, decontamination of soils or other contaminated media and management and/or disposal of spill clean-up debris?
2. Has the transporter committed that its procedures will prohibit the use of chemicals such as sodium hypochlorite, ferrous sulfate and hydrogen peroxide to treat cyanide that has been released into surface water?

Finding: If it implements the commitments it has made, is the transporter expected to be in full compliance with Transport Practice 3.4? Explain the basis for the finding.

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

1. Has the transporter committed to include in the plan provisions for periodically reviewing and evaluating the Plan's adequacy and are they being implemented?

2. Has the transporter committed to include in the plan provisions for periodically conducting mock emergency drills and are they being implemented?
3. Has the transporter committed to include in the plan a procedure to evaluate the Plan's performance after its implementation and revise it as needed, and have they been implemented?

Finding: If it implements the commitments it has made, is the transporter expected to be in full compliance with Transport Practice 3.5? Explain the basis for the finding.