

# International Cyanide Management Code

## Supply Chain Recertification Audit

### Summary Audit Report

Name of Cyanide Transportation Facility: **Orica Australia Pty Ltd  
Papua New Guinea Supply Chain**

Name of Facility Owner: **Not applicable**

Name of Facility Operator: **Orica Australia Pty Ltd**

Name of Responsible Manager: **Joe Quagliata  
Lead – Distribution Pacific APA Supply Chain**

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Date of audit: **22-24 October 2019**

Submitted to International Cyanide Management Institute  
1400 I Street, NW, Suite 550, Washington, DC, 20005, USA

Copy to Orica Australia Pty Ltd

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## Audit Scope

The scope of this audit report is limited to Orica's scrutiny and management of the road transport part of their supply chain, between the Port of Lae and the Hidden Valley Mine, Papua New Guinea (PNG). This section of the supply chain was last certified as part of the PNG supply chain on 13 October 2016.

## Location Detail and Description of Operations

Orica Australia Pty Ltd (Orica) is an Australian owned publicly listed company with a cyanide production facility at Yarwun in Queensland, Australia. Orica is one of the world's largest producers of sodium cyanide for the mining industry and it supplies cyanide to Asia, Africa, South America and the Australasian market.

Orica's Australia Supply Chain was certified fully compliant on 20 August 2018. The Australia Supply Chain includes transport of liquid and solid sodium cyanide from Orica's manufacturing facility in Yarwun, Australia, by road and rail direct to its end point users within Australia and the Port of Brisbane and Melbourne and storage within the Toll Customised Solutions production facility in Laverton.

Orica's Global Marine Supply Chain was certified 16 January 2018 as including the shipping lines Maersk, Hamburg Sud, Mediterranean Shipping Company, Orient Overseas Container Line, Swire Shipping, Australia National Line, Pacific Asia Express, Naviera Ultramar Transmares, K Line, Mitsui OSK Lines, and Toll Shipping. It also includes the destination ports of Abidjan, Alma, Auckland, Brisbane, Buenos Aires, Burnie, Busan, Callao, Chalmers, Conakry, Dakar, Dar Es Salaam, Jakarta, Lae, Laem Chabang, Mombasa, Nouakchott, Puerto Angamos, Puerto Deseado, Punta Arenas, Santos, Shanghai, Surabaya, Takoradi, Tauranga, Tema, and Veracruz. The Supply Chain was amended 5 February 2019 to also include the ports of Gladstone, Klang, Cartagena, and Buenaventura, and was amended 26 August 2019 to also include the ports of Izmir and Walvis Bay.

Hidden Valley Transport (HVT) is a transport and logistics company that works in the Morobe Province of Papua New Guinea. HVT has been engaged by Orica to transport cyanide from the Port of Lae to the Hidden Valley Mine, Papua New Guinea. HVT was certified as fully compliant with the International Cyanide Management Code (the Code) for the route from the port of Lae to Hidden Valley Mine on 4 December 2019.


There are no trans-shipping or interim storage sites (as defined in the audit protocol) on the transport route between the port and the mine, however there are two temporary transit sites which are used:

- HVT operates a transport yard ("11-mile") at which Portable Tanks are placed pending delivery to the mine. Cyanide is not stored by HVT in any other form. There is no change of carriers or transport mode so the depot does not meet the definition of a trans-shipping depot or interim storage site contained in the ICMI transport principles. Despite this, the cyanide may be stored in this depot for days or weeks, so the site was inspected for compliance with the requirements of the Code; and
- There is also a transport yard in Bulolo approximately 120 km from the Port of Lae, about 2 km from the start of the mine access road. The Bulolo transit stop may only be utilised in the event that there are problems on the delivery route. In such cases containers remain on the trailers and the vehicles will remain on site for a maximum of 24 hr.


## Auditor's Comments

Orica has been compliant in the past and appears to have good relations with HVT as the transport company has effective systems in place and is compliant with the Code. The deficiencies in Orica's operations that are identified in the audit report, though very high in number, should be easily correctable within six months given Orica's experience with cyanide transport.

There is no immediate threat of substantial risk to health, safety or environment from Orica's position of substantial-compliance. HVT has recently been certified as compliant with the code. Furthermore, HVT's operations were closely observed while auditing Orica's operations in PNG in October 2019. It was apparent that HVT was operating safely and its operations provided an appropriate level of safety and

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security as required by the Code and this was confirmed when the company was recertified in December 2019.

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### *Auditor's Finding*

This Section of Orica's Papua New Guinea supply chain is:

~~in full compliance~~

**in substantial compliance with the International Cyanide Management Code**

~~not in compliance.~~

Orica has been compliant in the past and appears to have good relations with HVT as the transport company has effective systems in place and is compliant with the Code.

The deficiencies in Orica's operations that are identified in the audit report, though very high in number, should be easily correctable within six months given Orica's experience with cyanide transport.

There is no immediate of substantial risk to health, safety or environment from Orica's position of non-compliance. HVT has recently been certified as compliant with the code. Furthermore, while auditing Orica's operations in October 2019, it was apparent that HVT was operating safely and its operations provided an appropriate level of safety and security as required by the Code.

During the previous three-year audit cycle, this operation experienced no noncompliance with Code requirements, no significant cyanide incidents requiring notification to ICMI and no cyanide exposures or releases that would require disclosure under Item 9.3.3 of the Mining Operations Verification Protocol.

Further information and the rationale for the auditor's finding are provided under Various Standards of Practice below.

A Corrective Action Plan to bring the operation into full compliance is enclosed with this Summary Audit Report. Orica plans to fully have fully implemented the Plan within nine months of the date of this report.

Audit Company:	Riskom International Pty Ltd
Audit Team Leader:	Ken Price
E-mail:	ken@riskom.com.au
Names and Signatures of Other Auditors:	NA
Date(s) of Audit:	22-24 October 2019

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.




**Signature of Lead Auditor**

**25 January 2020**

Name of Facility **Orica Australia Pty Ltd  
Papua New Guinea Supply Chain**

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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 SUBSTANTIAL COMPLIANCE with Transport Practice 1.1

Orica has previously had in place a comprehensive carrier assessment procedure to monitor all elements of the performance of its contracted carriers. This assessment addressed: route selection; risks along the route; the carrier’s technology (GPS, vehicle monitoring); on-going route assessment; convoy management; emergency response exercises.

Orica personnel claim to drive the route periodically, usually in company with HVT, to assess key places where the road is deteriorating and may present future problems.

Orica advised that Hidden Valley Mine requires all cyanide be delivered in convoys, with escorts, however no evidence could be produced to support this claim.

Orica claims to provide a technical support resource for any cyanide emergency and the carrier (HVT) is responsible for recovery operations however no evidence could be produced to support these claims.

Orica advised that HVT does not subcontract any of the cyanide transport operation and HVT confirmed that statement, however no evidence could be produced to bind HVT to this obligation.

The carrier assessment procedure appears to have lapsed and no evidence could be produced to show compliance with this Transport Practice.

**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.**

Orica is in SUBSTANTIAL COMPLIANCE with Transport Practice 1.2

Orica does not directly operate transport vehicles in PNG; it claims to contract the transport to HVT and facilitate and monitor the training and competence of HVT’s operators however no recent evidence could be provided that this was being done.

Orica has a web link for cyanide awareness and advises that they have conducted on-site training for sparging however no recent evidence could be provided that this was being done.

Several records of meetings between Orica and HVT were produced which made oblique references to road conditions, the intention to assess the road route, cyanide tank reports and training, however the latest such report was April 2019 and there was no supporting evidence of any subsequent action


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

Orica is in SUBSTANTIAL COMPLIANCE with Transport Practice 1.3

There was no evidence that Orica has policies and inspection procedures in place to:

- monitor HVT’s fleet of vehicles in such a way that ensures adherence to Orica’s stated standard (the Australian Dangerous Goods Code);
- ensure that HVT operate within the legal requirements for the loads they will be carrying;
- to ensure that HVT implements procedures to verify the adequacy of equipment for each load;
- check that all HVT trucks are subject to a scheduled vehicle maintenance program;
- ensure that records are maintained to verify compliance and to prevent overloading.

Orica has systems to ensure that containers used for cyanide transport are certified in accordance with the requirements for international and intermodal transport. (IMDG Code, RID/ADR, current Container Safety Convention certification). The tanks are periodically certified by Bureau Veritas.

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

Orica is in SUBSTANTIAL COMPLIANCE with Transport Practice 1.4.

Orica claims that it periodically reviews and audits HVT's vehicles, equipment, maintenance systems to ensure an appropriate level of compliance and safety and that the audits include review of: tank handling; placarding; vehicle inspections (pre-start and convoy briefings); maintenance; fatigue management; load securing; general and emergency management; drug abuse management; and documentation.

No evidence other than personal communication could be produced to support this claim.

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

This Transport Practice is not applicable to this audit as there is no transport by sea or air within the scope of the audit.


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

Orica is in SUBSTANTIAL COMPLIANCE with Transport Practice 1.6.

There was no evidence that Orica periodically reviews and audits HVT's vehicles, equipment, maintenance systems to ensure an appropriate level of compliance and safety or that Orica audits or review HVT's communications, particularly between HVT and Orica, emergency responders and the Harmony mine or to check for communication blackout areas.

Similarly, there was no evidence that Orica routinely cross checks receipts at the port against dispatches to and receipts from the mine or that there is any documented chain of custody.

Safety Data Sheets for Orica Cyanide were observed on HVT vehicles, however there was no evidence that Orica checked that they were routinely carried.

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


There is no storage (as defined in the ICMI Transport Principles) on this transport route. HVT operates a transport yard (“11-mile”) at which Portable Tanks are placed pending delivery to the mine. Cyanide is not stored by HVT in any other form. There is no change of carriers or transport mode so the depot does not meet the definition of a trans-shipping depot or interim storage site contained in the ICMI transport principles.

Despite this, the cyanide may be stored in this depot for days or weeks, so periodic inspections of the site to check signage, PPE, security, segregation from incompatibles, container integrity would be good practice.

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

Orica is in SUBSTANTIAL COMPLIANCE with Transport Practice 2.1

There was no evidence that any checks or periodic inspections of the site to check signage, PPE, security, segregation from incompatibles, or container integrity are carried out by Orica on the storage depot operated by HVT.

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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.**

Orica is in SUBSTANTIAL COMPLIANCE with Transport Practice 3.1

Orica does not directly operate transport vehicles in PNG; this is undertaken by HVT who are responsible for preparing appropriate emergency response plans. Orica claims to have delegated responsibility for implementing the emergency response plan to its carrier, HVT. HVT was certified as fully compliant with the Code for the route from the port of Lae to Hidden Valley Mine on 4 December 2019

There is no evidence that Orica has delegated responsibility for implementing the plan to its carrier, HVT

Orica has a detailed emergency response guide (ERG) to provide guidance for all cyanide related activities including storage and transport emergencies that involve Orica products.

Orica’s Emergency Response Guide is appropriate for all forms of cyanide consigned by Orica, including solid cyanide in sparge tanks as transported by HVT. The Guide is appropriate for all forms of transport of cyanide consigned by Orica from Yarwun to Harmony mine. Although the Guide does not specifically consider all aspects of the transport route, the emergency response approach is flexible to deal with any variations.

Orica’s Emergency Response Guide includes descriptions of response actions for all credible accidents and other emergency situations for all forms of transport of cyanide consigned by Orica from Yarwun to Harmony mine, including solid cyanide in sparge tanks as transported by HVT. The Guide includes initial actions to be taken including liaison with emergency services, prevention and management of contamination etc.

The Guide generically identifies the roles of outside responders, including control agencies, combat authorities, medical facilities, environmental authorities and local communities

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


Orica is in SUBSTANTIAL COMPLIANCE with Transport Practice 3.2.

Orica’s Emergency Response Guide includes descriptions of response actions for all credible accidents and other emergency situations for all forms of transport of cyanide consigned by Orica from Yarwun to Harmony mine, including solid cyanide in sparge tanks as transported by HVT. The Guide includes initial actions to be taken including liaison with emergency services, prevention and management of contamination etc. The Guide generically identifies the roles of outside responders, including control agencies, combat authorities, medical facilities, environmental authorities and local communities. The guide also includes reference to expert advice from Orica’s emergency response call centre, however there was no evidence to show that Orica personnel receive emergency response training for this task.


There was no evidence to show that Orica personnel receive emergency response training for the task of providing a technical and advisory role in cyanide emergencies.

There was no evidence that Orica has delegated responsibility for implementing the plan to its carrier, HVT

There was no evidence that Orica carries out periodic checks to ensure that the equipment required by HVT is listed and available and fit for purpose nor that the equipment includes health and safety equipment and PPE (full protective PVC overalls, helmet, face shields, gloves, eye bath bottle, breathing apparatus etc.)

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There was no evidence that Orica ensure that HVT provides emergency response training and that it remains current.

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

Orica is in SUBSTANTIAL COMPLIANCE with transport practice 3.3.

Orica has a detailed emergency response guide (ERG) to provide guidance for all cyanide related activities including storage and transport emergencies that involve Orica products. The ERG includes contact information to access emergency response information.

No evidence was produced to show that there are systems in place to ensure that internal and external emergency notification and reporting procedures are kept current.

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

Orica is in SUBSTANTIAL COMPLIANCE with Transport Practice 3.4.

Orica has a detailed emergency response guide (ERG) to provide guidance for all cyanide related activities including storage and transport emergencies that involve Orica products. The ERG includes contact clear advice on remediation, including recovery and neutralization of solutions or solids, decontamination of soils or other contaminated media and management and/or disposal of spill clean-up debris. The Guide specifically warns against using any chemicals, specifically sodium hypochlorite, ferrous sulfate and hydrogen peroxide to treat cyanide that has been released into surface water

Orica claims to have delegated responsibility for implementing the emergency response plan to its carrier, HVT. No evidence was produced to support this claim.


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

Orica is in SUBSTANTIAL COMPLIANCE with Transport Practice 3.5.

Orica claims to have delegated responsibility for implementing the emergency response plan to its carrier, HVT. No evidence was produced to support this claim.

Although HVT was certified as fully compliant with the Code for the route from the port of Lae to Hidden Valley Mine on 4 December 2019, including its emergency response capability, no evidence could be produced to show that Orica has delegated emergency response implementation to HVT or that Orica has systems in place:

- for periodically reviewing and evaluating Orica's emergency response guide's adequacy or how it is being implemented;
- for periodically conducting mock emergency drills to test the Emergency Response Guide;
- to evaluate the Guide's performance after its implementation and revise it as needed.

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