REPORT

International Cyanide Management Code

Orica Australia Pty Ltd, Global Marine Supply Chain Summary Audit Report – Amendment

Submitted to:

International Cyanide Management Institute
1400 I Street, NW – Suite 550
Washington, DC 20005
UNITED STATES OF AMERICA

Orica Australia Pty Ltd
Joe Quagliata
Lead – Distribution Pacific, APA Supply Chain
Unit 4, 165, Boundary Street,
South Townsville, Qld, 4810

Submitted by:

Golder Associates Pty Ltd
Level 3, 1 Havelock Street, West Perth, Western Australia 6005, Australia

+61 8 9213 7600
19120760-003-R-Rev1
August 2019
Distribution List

1 copy – ICMI (Electronic)
1 copy – Orica Australia Pty Ltd (Electronic)
1 copy – Golder Associates Pty Ltd (Electronic)
# Table of Contents

1.0 **INTRODUCTION** .................................................................................................................. 1  

1.1 Operational information ........................................................................................................... 1  

2.0 **CYANIDE TRANSPORTATION** ............................................................................................. 1  

2.1 Orica Australia Pty Ltd .............................................................................................................. 1  

2.2 Yarwun Production Facility ...................................................................................................... 1  

2.3 Orica Australia Supply Chain .................................................................................................. 2  

2.4 Global Marine Supply Chain ................................................................................................... 2  

2.4.1 Audit scope ............................................................................................................................ 2  

2.4.2 Carriers .................................................................................................................................. 3  

2.4.2.1 Pacific Asia Express (PIL/PAE) ....................................................................................... 3  

2.4.2.2 Swire .................................................................................................................................. 3  

2.4.2.3 Mediterranean Shipping Company (MSC) ....................................................................... 3  

2.4.2.4 Hamburg SUD .................................................................................................................. 4  

2.4.2.5 Australian National Line (ANL) ..................................................................................... 4  

2.4.2.6 Toll Shipping .................................................................................................................... 4  

2.4.2.7 Maersk ............................................................................................................................ 5  

2.4.2.8 Navierra Ultrana Transmares (Transmares) .................................................................... 5  

2.4.2.9 Australia Kawasaki Australia Pty Ltd (K Line) ............................................................... 5  

2.4.2.10 Mitsui O.S.K. Lines Ltd (MOL) .................................................................................... 6  

2.4.2.11 Orient Overseas Container Line (OOCL) ..................................................................... 6  

2.4.3 Ports ..................................................................................................................................... 6  

2.4.3.1 Port of Brisbane, Australia ............................................................................................... 6  

2.4.3.2 Port of Melbourne, Australia ............................................................................................ 7  

2.4.3.3 Port of Alma, Australia ..................................................................................................... 7  

2.4.3.4 Port of Burnie, Australia .................................................................................................. 7  

2.4.3.5 Port of Gladstone, Australia ............................................................................................. 8  

2.4.3.6 Port of Tauranga, New Zealand ....................................................................................... 8  

2.4.3.7 Port of Auckland, New Zealand ....................................................................................... 8  

2.4.3.8 Port of Chalmers, New Zealand ........................................................................................ 9  

2.4.3.9 Port of Lae, Papua New Guinea (PNG) ........................................................................... 9  

2.4.3.10 Port of Busan, South Korea ........................................................................................... 9
<table>
<thead>
<tr>
<th>Section</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.0</td>
<td>CONSIGNOR SUMMARY</td>
</tr>
<tr>
<td>3.1</td>
<td>Principle 1 – Transport</td>
</tr>
<tr>
<td>3.1.1</td>
<td>Transport Practice 1.1</td>
</tr>
<tr>
<td>3.1.2</td>
<td>Transport Practice 1.2</td>
</tr>
<tr>
<td>3.1.3</td>
<td>Transport Practice 1.3</td>
</tr>
<tr>
<td>3.1.4</td>
<td>Transport Practice 1.4</td>
</tr>
<tr>
<td>3.2</td>
<td>Auditor’s Findings and Attestation</td>
</tr>
<tr>
<td>3.3</td>
<td>Name and Signatures of Other Auditors</td>
</tr>
<tr>
<td>3.4</td>
<td>Dates of Audit</td>
</tr>
</tbody>
</table>

---

**CONSIGNOR SUMMARY**

### Principle 1 – Transport

- Port of Shanghai, China
- Port of Callao, Peru
- Port of Buenos Aires, Argentina
- Port of Puerto Deseado, Argentina
- Port of Santos, Brazil
- Port of Puerto Angamos, Chile
- Port of Puntas Arenas, Chile
- Port of Cartagena, Colombia
- Port of Buenaventura, Colombia
- Port of Veracruz, Mexico
- Port of Tema, Ghana
- Port of Takoradi, Ghana
- Port of Conakry, Guinea
- Port of Dakar, Senegal
- Port of Abidjan, Côte d’Ivoire
- Port of Nouakchott, Mauritania
- Port of Mombasa, Kenya
- Port of Dar es Salaam, Tanzania
- Port of Walvis Bay, Namibia
- Port of Laem Chabang, Thailand
- Port of Surabaya, Indonesia
- Port of Jakarta, Indonesia
- Port of Klang, Malaysia
- Port of Izmir Turkey

### Auditor’s Findings and Attestation

- Transport Practice 1.1
- Transport Practice 1.2
- Transport Practice 1.3
- Transport Practice 1.4

### Name and Signatures of Other Auditors

- Dates of Audit

---

**GOLDER**
3.1.5 Transport Practice 1.5

3.1.6 Transport Practice 1.6

3.2 Principle 2 – Interim Storage

3.2.1 Transport Practice 2.1

3.3 Principle 3 – Emergency Response

3.3.1 Transport Practice 3.1

3.3.2 Transport Practice 3.2

3.3.3 Transport Practice 3.3

3.3.4 Transport Practice 3.4

3.3.5 Transport Practice 3.5

4.0 DUE DILIGENCE

4.1 Marine transportation

4.2 Ports

4.3 Auditor review of due diligence

5.0 IMPORTANT INFORMATION

APPENDICES

APPENDIX A
Carrier Due Diligence Assessments

APPENDIX B
Port Due Diligence Assessments

APPENDIX C
Important Information
1.0 INTRODUCTION
1.1 Operational information

Name of Transportation Facility: Orica Australia Pty Ltd – Global Marine Supply Chain

Name of Facility Owner: Not Applicable

Name of Facility Operator: Orica Australia Pty Ltd

Name of Responsible Manager: Owen Warren, Senior Manager Global Distribution, Orica Australia

Address: Orica Australia Pty Ltd, Level 6, 78 Shenton Way (Tower 2, #06-15/16/17), SINGAPORE 079120

State/Province: Downtown Core

Country: Singapore

Telephone: +65 6603 4573 or +65 9298 1493

Fax: +65 6603 4510

Email: owen.warren@orica.com

2.0 CYANIDE TRANSPORTATION

2.1 Orica Australia Pty Ltd

Orica is an Australian-owned, publicly listed company with global operations. Orica is managed as discrete business units that produce a wide variety of products and services. The Mining Chemicals unit is based in Australia and exports products to Asia, Africa and the Americas, as well as supplying the local Australian industry. The unit’s main product is cyanide, which is manufactured at Orica’s Yarwun cyanide production facility (Yarwun Facility) in Queensland, Australia. Orica Mining Chemicals is the world’s second largest producer of cyanide.

2.2 Yarwun Production Facility

Orica’s Yarwun Facility, which is located approximately eight kilometres (km) by road from Gladstone, Queensland, commenced operations in 1989 and is engaged in the manufacture of cyanide (both solid and liquid forms), ammonium nitrate, nitric acid, chlorine, sodium hydroxide, sodium hypochlorite, hydrochloric acid and expanded polystyrene balls.

Solid cyanide is packaged in either sparge isotainers, which have a maximum gross weight of 26 tonnes, or IBCs, which in turn, are packed into shipping containers – Twenty-foot equivalent units (TEUs). A maximum of 20 Intermediate Bulk Containers (IBCs) can be packed into a single TEU with a maximum gross weight of 28 tonnes. Liquid cyanide is packaged into isotainers with a maximum gross weight of 26 tonnes.

Cyanide manufactured at the Yarwun Facility is used in gold mining operations.

Orica’s Yarwun Facility was re-certified as being in full compliance with the Code on 22 February 2017. Orica’s Yarwun Facility is not part of the scope of this audit.
2.3 Orica Australia Supply Chain

The Australian Supply Chain covers the transportation of solution cyanide and solid cyanide from the manufacturing facility in Yarwun, Australia, by road and rail direct to its end point users within Australia, to the Ports of Brisbane, Gladstone, Alma and Melbourne and storage within the Toll Customised Solutions production facility.

Orica’s Australian Supply Chain was re-certified as being in full compliance with the Code on 20 August 2018. The Australian Supply Chain is not part of the scope of this audit.

2.4 Global Marine Supply Chain

The Global Marine Supply Chain is a consolidation of all marine carriers and ports used by Orica to distribute their cyanide from Australia to their global customers. The Global Marine Supply Chain will form the marine link between the certified Australia Supply Chain (Section 2.3) and the certified supply chain or certified transporter relevant to the customer site.

2.4.1 Audit scope

The scope of Orica’s Global Marine Supply Chain covers the following:

**Carriers:**
- Pacific Asia Express (PIL/PAE)
- Swire
- Mediterranean Shipping Company (MSC)
- Hamburg SUD
- Australian National Line (ANL)
- Toll Shipping
- Maersk
- Navierra Ultranalv Transmares (Transmares)
- Australia Kawasaki Australia Pty Ltd (K Line)
- Mitsui O.S.K. Lines Ltd (MOL)
- Orient Overseas Container Line (OOCL).

**Ports:**
- Port of Brisbane, Australia
- Port of Melbourne, Australia
- Port of Alma, Australia
- Port of Burnie, Australia
- Port of Gladstone, Australia
- Port of Tauranga, New Zealand
- Port of Auckland, New Zealand
- Port of Chalmers, New Zealand
- Port of Lae, PNG
- Port of Busan, South Korea
- Port of Shanghai, China
- Port of Cartagena, Colombia
- Port of Buenaventura, Colombia
- Port of Veracruz, Mexico
- Port of Tema, Ghana
- Port of Takoradi, Ghana
- Port of Conakry, Guinea
- Port of Dakar, Senegal
- Port of Abidjan, Cote d’Ivoire
- Port of Nouakchott, Mauritania
- Port of Mombasa, Kenya
- Port of Dar es Salaam, Tanzania
2.4.2 Carriers

2.4.2.1 Pacific Asia Express (PIL/PAE)
PAE is a subsidiary company of Pacific International Lines (PIL), and has represented PIL across Australia since 1990. PAE has national coverage around Australia with offices in all the Australian major ports as well as Darwin, Townsville, Launceston, and Mildura.

PIL is a Singapore based, private company ranked amongst the top container ship operators in the world, offering container liner and multi-purpose cargo services at over 500 locations, in 100 countries worldwide, and employing over 18 000 personnel.

PIL currently operate a fleet of over 190 container vessels and specialises in the global transportation of general container and reefer cargo, specialist transport equipment, break bulk, and dangerous goods.

2.4.2.2 Swire
Swire Shipping is the brand name for all liner shipping services operated by The China Navigation Company Pte Ltd. Swire has provided regional, multipurpose shipping services since 1883 when The China Navigation Company established liner services in Australasia. From their traditional core trading area (the Asia – South Pacific region), they have expanded to offer shipping links between over 100 ports in Asia, the Pacific Islands, Australia, New Zealand, North America, Europe the Middle East and the Indian Sub-Continent.

The China Navigation Company Pte Ltd is wholly owned by The China Navigation Company Ltd, a London registered company that oversees the marine operations of its parent company, John Swire and Sons.

2.4.2.3 Mediterranean Shipping Company (MSC)
MSC, headquartered in Geneva, Switzerland, is engaged in worldwide container transport via its fleet of 460 vessels, 200 shipping routes and 315 ports of call. MSC operates in 150 countries with a network of over 480 offices and branches. The fleet has the capacity to handle more than 2.7 million TEUs annually.

MSC has Dangerous Goods Cargo Management Centres that manage the stowage of hazardous cargo worldwide through their computer system. MSC states that they operate in accordance with to the stringent requirements for stowage and segregation of dangerous goods as per the IMO DG Code.

MSC’s vessels are registered by the Lloyd’s Register Group, which provides classification and certification of ships, and inspects and approves important components and accessories.
2.4.2.4 Hamburg SUD

Operating a fleet of 177 ships, Hamburg employs 6 300 personnel around the globe. Hamburg transported a cargo volume of 4 395 000 TEUs in 2016. This consisted of dry container goods, general bulk, refrigerated cargo and dangerous goods.

Hamburg Sud examine dangerous goods transport enquiries on a case-by-case basis to ensure compliance with statutory regulations. There are established teams of qualified dangerous goods experts in the various business regions to assist and advise on the dangerous goods requirements. These experts are guided and monitored by a certified Dangerous Goods Safety Advisor (DGSA) and all safety and environmental requirements are met prior to transportation.

An integrated management system at Hamburg guarantees quality, environmental sustainability, and the safety of people, ships, and cargo. Since 1996, Hamburg has been certified under the International Standards Organisation (ISO) 9001 quality standard. The International Safety Management (ISM) Code for safe ship operation was also adopted in the same year. Hamburg expanded on these in 2000 when their environmental management system was certified under ISO 14001.

2.4.2.5 Australian National Line (ANL)

Headquartered in Melbourne Australia and with regional offices and agents around the globe, ANL provides an international cargo shipping service. ANL is part of the CMA CGM Group, the third largest container shipping line in the world. The Group operates more than 200 shipping routes with over 445 vessels; calling at 420 ports in 160 countries the group employs 29 000 staff in 600 agencies and offices around the world. In 2016, ANL and the greater CMA CGM Group transported over 15.6 million TEUs and had an annual turnover of US$16 billion – ANL’s contribution was approximately 1.5 million TEUs.

ANL has an extensive range of East-West services between Asia, the Mediterranean, Indian Subcontinent and Europe and North America. In addition, they offer comprehensive coverage in the Asia-Pacific region, providing various services around Australia and between Australia and all parts of Asia, PNG, and New Zealand.

2.4.2.6 Toll Shipping

Headquartered in Melbourne, Australia and with regional offices and agents around the globe, Toll provides an international multimodal transportation service. Toll has a strong Asia Pacific focus though operates a network of sites throughout the world including Africa, the Middle East, Americas, and Europe. The Toll Group employs approximately 10 000 people at 600 freight, warehouse/logistics, aviation, marine and or support facilities throughout its global network.

Toll provides supply chain solutions and transport logistics for a range of industries and also offer specialised services such as dangerous goods management. With a fleet of approximately 13 000 units of varied size (containers, ships, vessels and aeroplanes) operating across the Asia Pacific region, Toll is able to transport a variety of bulk product for customers in the mining, resources, construction, infrastructure and agricultural sectors.

The Toll Group is able to transport all nine classes of dangerous goods, complying with the regional, national and international regulatory schemes applicable in the communities in which they operate.
2.4.2.7  Maersk

Maersk, headquartered in Copenhagen, Denmark, operates a fleet of container vessels with worldwide shipping coverage. The fleet consists of approximately 590 vessels with the capacity to handle more than 3 million TEUs. Maersk operates a container booking and tracking system called the Global Customer Service System (GCSS). This system is the management tool for the proper stowage and handling of dangerous goods cargo.

Maersk requires companies utilising its carrier services to provide evidence that their product packaging has been approved by government regulators and tested in accordance with International Maritime Organisation Dangerous Goods (IMO DG) Code. Maersk has the right to refuse cargo if the packaging, container and/or documentation are not satisfactory under the IMO DG Code standards.

Maersk’s vessels are registered by the Lloyd’s Register Group, which provides classification and certification of ships, and inspects and approves important components and accessories. Maersk also has current certificates for its vessels under the International Ship and Port Facility Security (ISPS) Code developed by the IMO.

2.4.2.8  Navierra Ultralnav Transmares (Transmares)

Headquartered in Santiago, Chile, Transmares provides transport services along the west coast of South America for containerised and break bulk cargoes. Transmares operates a fleet of container and multipurpose vessels, in sizes ranging between 5 000 and 15 000 Dry Weight Tonnes (DWT), connecting ports along the west coast of South America.

Transmares’ container vessels provide regular frequented feeder services to the main container liner companies, its vessels provide the region with specialised multipurpose services between the Ports of Arica, Angamos, San Antonio, San Vicente, Chacabuco, and Punta Arenas.

2.4.2.9  Australia Kawasaki Australia Pty Ltd (K Line)

K Line Australia Kawasaki Australia Pty Ltd (K Line) is a 100% owned subsidiary of Japan’s Kawasaki Kisen Kaisha, and it was established in 1970 to represent K Line’s interest and business in the Australian region. The company originally operated as a regional office to promote K Line’s shipping business of container, bulk and car carrier services.

K Line’s network of services is now extensive, with major involvement in the American, European, intra-Asian, South & Central American, West African, and mainland China Trades. K Line has established itself as a worldwide major shipping line. Apart from the carriage of containerised cargo, it moves in excess of 1.1 million motor vehicles annually and is also involved in the transport of bulk ores, grains, woodchips, coal, alumina, crude oil, LNG, and other energy resources.

Container ship services are offered worldwide through the four hubs of Japan, Asia, Europe, and North America. K Line has established alliances with shipping companies in China, Taiwan, and South Korea and operates main East-West routes between Asia and North America, Asia and Europe, and Europe and North America. In addition, it also provides the intra-Asian routes covering the Middle East and the Indian subcontinent, and the South-North route linking South America, Australia, and Africa with Asia and other regions. K Line boasts a fleet of 534 ships of which 67 are for container ship services.
2.4.2.10 Mitsui O.S.K. Lines Ltd (MOL)

Headquartered in Tokyo, Japan, MOL has over 130 years’ experience and operates the world’s largest ocean shipping fleet.

MOL operates specialised bulk carriers for iron ore, coal, and woodchips; tankers that transport crude oil and LNG; car carriers; cruise ships; ferries and coastal liners; and container ships that deliver a variety of finished products, including dangerous goods, as part of the largest global network of liner and logistics services.

MOL’s containership services span the globe, their network of calling ports is particularly strong in the Asian, South American and African markets. Since 2012, MOL has provided services within the framework of the G6 Alliance on the Asia-Europe-Mediterranean Sea routes, Asia-North America West Coast and East Coast routes, and East-West routes including transatlantic services.

2.4.2.11 Orient Overseas Container Line (OOCL)

OOCL is an integrated international container transportation, logistics and terminal operator service provider. OOCL provides customers with fully-integrated logistics and containerised transportation services, with a network that encompasses Asia, Europe, North America, and Australasia.

OOCL is one of the leading international carriers serving China, providing a full range of transportation services throughout the country. It is also an industry leader in the use of information technology and e-commerce to manage the entire cargo and supply chain process.

Dangerous Goods Coordinators are available to offer shippers all the regional advice that is required. A shipper’s or customer’s dangerous goods cargo is checked promptly and accurately.

2.4.3 Ports

2.4.3.1 Port of Brisbane, Australia

The Port of Brisbane is a multi-cargo port handling over $50 billion of international freight; equivalent to over 15% of Queensland’s Gross State Product. Owned by Q Port Holdings, the Port of Brisbane Pty Ltd (PBPL) is responsible for developing and maintaining port infrastructure and facilities, and for the provision of key services including maintaining navigable access to the port for commercial shipping, and the operation of the Brisbane Multi-modal Terminal. Located at the mouth of the Brisbane River, the Port of Brisbane’s strategic location offers an efficient entry to market through direct connectivity to Australia’s major road and rail networks.

Between the Port of Brisbane and its upriver facilities there are 29 operating berths and more than 7 700 metres (m) of quay line. The Port of Brisbane has the equivalent of eight 300 m container berths (2 469 m of quayline), which are leased and operated by three stevedores – Patrick, DP World and Brisbane Container Terminals – all of which use automated container handling equipment. DP World Brisbane leases and operates Berths 4-7, Patrick leases and operates Berths 8-10 and Brisbane Container Terminals occupies Berth 11 and 12. Total container throughput in the 12 months prior to April 2017 was 1 205 630 TEUs.
2.4.3.2 Port of Melbourne, Australia

The Port of Melbourne is a multi-cargo port and a key international container terminal in the Australasia region. It handles around 36% of Australia’s container trade, and over 2.64 million TEUs annually. Overall, the Port of Melbourne owns and manages around 500 hectares (ha) of land. The port precinct, with most of its related infrastructure extends west from the Bolte Bridge to the west bank of the Maribyrnong River and south of the West Gate Freeway (M1) around Webb Dock. It is primarily a container port though its multipurpose terminals handle a variety of non-containerised pack types. These include farm equipment and machinery, and breakbulk commodities like timber, paper, iron, and steel.

The Port of Melbourne is operated by Victorian Ports Corporation Melbourne (VPCM). As a government owned entity, VPCM’s responsibilities include the management of commercial shipping in Port Phillip, waterside emergency and marine pollution response, and the management of Station Pier as Victoria’s premier cruise shipping facility.

2.4.3.3 Port of Alma, Australia

The Port of Alma is situated approximately 60 km by road from the city of Rockhampton, Queensland, on the southern end of the Fitzroy River delta. The port is managed by the Gladstone Ports Corporation (GPC), a statutory Queensland Government-owned corporation who maintain the dredging, security, berths and operations at the port. The principal cargoes handled are Class 1 explosives, ammonium nitrate, bulk tallow, and military equipment for exercises held regularly at Shoalwater Bay to the north of Rockhampton. The port is a natural deep water harbour able to accommodate vessels up to 180 m in length and has a total storage area of 140 ha.

The port has three berths, two for general cargo and one dolphin berth for the handling of bulk liquids. Suitable infrastructure is available for the handling of containers. Currently, the Port of Alma imports and exports ammonium nitrate, explosives, petroleum products, general, and break bulk cargoes.

2.4.3.4 Port of Burnie, Australia

The Port of Burnie (Tasmania) is situated on the western shore of Emu Bay, the Bay is approximately 3 km wide and 1.5 km deep facing in a northerly direction. The Port of Burnie is easily accessible due to its geographic location.

Burnie port services Tasmania’s major West Coast mines and handles most types of bulk shipping requirements including, minerals, fuels, woodchips, and logs, as well as containerised consumables and heavy-lift project cargo. There are multiple berths and storage facilities available.

A fleet of mechanical equipment is available including container handling forklifts up to 30 tonne capacity and hazardous cargoes of most categories are handled.

The Tasmanian Ports Corporation Pty Ltd (Tasports) is a registered, private company fully owned by the Tasmanian Government. Tasports is responsible for the operation and management of the Port of Burnie.

Burnie is directly connected to an intermodal rail facility that allows containerised freight to be railed safely and efficiently on to Launceston and Hobart.
2.4.3.5  **Port of Gladstone, Australia**

The Port of Gladstone is located approximately 525 km north of Brisbane and is the principal port in central Queensland. It is owned and managed by Gladstone Ports Corporation (GPC), which is a statutory corporate body of the Government of Queensland and is charged with overseeing the commercial activities in the port, including the maintenance of the port infrastructure and provisioning of pilots. The Port of Gladstone is Queensland’s largest multi-commodity port, handling over 30 different products. Major cargoes include coal, bauxite, alumina, aluminium, and cement. The port has a total throughput of more than 98 million tonnes per annum (Mtpa).

The port has eight main wharf centres, comprising 20 wharves in total. The multi-user Auckland Point Terminal No. 4 is the only container wharf within the Port of Gladstone. It has a berth pocket of 11.4 m (LAT), a berth pocket length of 220 m, wharf face of 220 m, wharf width of 33.9 m, wharf length (including mooring dolphins) of 269 m, bollard capacity of 100 t, and a max vessel DWT of 70,000 t. Container operations at Auckland Port Terminal No. 4 are carried out by a large mobile container crane.

2.4.3.6  **Port of Tauranga, New Zealand**

The Port of Tauranga is located in the Bay of Plenty region, on New Zealand’s North Island. It is operated by the company Port of Tauranga Ltd and is New Zealand’s largest freight gateway port. The world’s largest shipping lines regularly call at the Port of Tauranga, exporting a wide range of New Zealand products and importing products from all over the world.

The Tauranga Container Terminal has dedicated road and rail access, streamlining cargo movement into and out of the port, and is a key link in the MetroPort (land port) Auckland onward freight service. The Terminal operates a fleet of 36 straddle carriers linked by information technology, ensuring the efficient movement of containers.

In the last financial year Tauranga handled 510,074 TEUs and is on track to handle more than one million TEUs in the 2017 financial year.

2.4.3.7  **Port of Auckland, New Zealand**

The Port of Auckland is located next to Auckland’s central business district. The port is configured into two main terminals, the Multi-Purpose Bledisloe Terminal and the Fergusson Container Terminal.

Ports of Auckland (POA) manages the berths and wharf space, with cargo-handling services provided by third-party stevedoring companies.

A vital link in the inland transport and logistics chain, the Port of Auckland offers four parallel rail lines – each 500 m long which can accommodate 128 wagons at a time for the loading and discharge of sea containers. The rail exchange connects the Port of Auckland with inland freight hubs.

A Harbour Control team schedules commercial movements around the harbour to ensure that adequate resources are available for each movement. It has an advisory role for providing information to ships and other craft entering the harbour limits. The port uses the Transas Navi-Harbour system in conjunction with an Automated Identification System (AIS) to keep track of the movements of all ships as they travel through the region.
2.4.3.8 Port of Chalmers, New Zealand

The Port of Chalmers is located inside the greater Otago Harbour region. Situated on the lower east coast of the South Island of New Zealand, Port Otago operates two wharf systems – Port Chalmers and Dunedin – within the Otago Harbour. Port Otago Limited is the managing body.

Port Chalmers has three berths, suitable for handling containerised, multipurpose, and conventional vessels, berth lengths range from 297-400 m. The Port Chalmers Container Facility covers 15 ha of heavy-duty paved area with the capacity to store over 7,000 containers, over 38,000 m² of covered warehousing is also available.

The Harbour is dredged to accommodate vessels with a maximum draught of 13 m from Taiaroa Head to Port Chalmers, where the container terminal is located. This enables the largest container ships in New Zealand trade to call at Port Chalmers.

2.4.3.9 Port of Lae, Papua New Guinea (PNG)

The Port of Lae is located in the Morobe province of PNG; Lae is the second largest city and the capital of the province. The Port of Lae handles bulk cargo, tankers, and liquefied natural gas carries, RO-RO vessels and general container cargo. There are no wharf mounted gantry cranes, however forklifts are available and capable of lifting up to 20 tonne containers.

The port has seven berths with a maximum length of 220 m and maximum depth of 13.7 m. Port of Lae handles approximately half of the throughput of PNG’s 22 declared ports, and more than 60% of the international and coastal trade registered in PNG Ports Corporation Limited (PNGPCL) ports, it generates more than 50% of PNGPCL’s total revenue.

Lae serves as a gateway linking the world market with a large hinterland comprising Morobe province, the city of Lae (PNG’s industrial and commercial centre), and five resource-rich provinces in the Highlands. PNG’s most significant road, the Highlands Highway, runs from Lae to the Highlands region, dispensing imports ranging from heavy machinery to food products in the region and bringing the country’s major export items to Lae Port.

2.4.3.10 Port of Busan, South Korea

The Port of Busan is located at the mouth of the Naktong River in South Korea. It is the fifth busiest container port in the world and the largest transhipment port in north-east Asia.

The Busan Port Authority (BPA) is responsible for developing, managing, and operating the Port of Busan. The BPA’s jurisdiction extends to Gamcheon Port, which supplements the Port of Busan, and Busan New Port on Gaduk Island.

The Port of Busan is a transport gateway for Korea, connecting the country to the Pacific Ocean and Asia. It is Korea’s main port, handling approximately 40% of the country’s overseas cargo and 80% of its container cargo. Approximately 130 international vessels call at the port each day.

Annual figures (obtained for the period 2005 to 2014) show that the Port of Busan handled in excess of 13 million TEUs in a 12-month period. This included 3.7 million TEUs of imports, 3.7 million TEUs of exports, 5.8 million TEUs of transhipments and 6 200 TEUs of coastal cargoes and almost 365 000 TEUs containing hazardous goods.

There are four dedicated container terminals, these are Gamman, Shinsundae, Singamman, and Gamcheon. TEU capacities range from 340 000 to over 1 200 000 per year.
2.4.3.11 Port of Shanghai, China

The Port of Shanghai is situated in the middle of the Chinese coastline and is China’s largest multi-purpose port and one of the country’s most important gateways for foreign trade.

The Port of Shanghai is comprised of multiple port areas that are designated as follows:

- The shore of Huangpu River: such as Zhanghuabang, Jungong Road, Gongqing, and Longwu port areas
- The south shore of Yangtze River: such as Baoshan, Luojing, and Waigaoqiao port areas, and
- Hangzhou Bay: Yangshan port Area.

The container terminals are located at Yangshan, Waigaoqiao, and Wusong with a total of 46 berths. Yangshan, Waigaoqiao, and Wusong port areas are inter-connected via fast waterway and road transportation. Yangshan and Waigaoqiao are the primary terminals of the Shanghai Port. The main cargos handled by the port include food, coal, timber, metal ore, petroleum and its products, steel, mining materials, machinery and equipment and bulk groceries.

Shanghai International Port (Group) Co Ltd (SIPG) is the primary operator of the Port of Shanghai providing port-related services ranging from stevedoring and storage, to ancillary and extended services such as logistics and financing.

The Port of Shanghai also serves as a container transhipment hub for ports in the Yangtze River Delta, as well as in Japan and South Korea.

2.4.3.12 Port of Callao, Peru

The Port of Callao is a commercial seaport in Peru, located 12 km from Lima, the country’s capital. The port is governed by Peru’s National Port Authority and is maintained and administered by the Empresa Nacional De Puertos S.A. (ENAPU). The port is a point of entry for solid cyanide chemicals into the Peruvian marketplace.

Major international shipping companies such as Hamburg SUD, Maersk and MSC transport their shipments to the Port of Callao in Peru.

There are 16 berths for grains, general, bagged, and liquid cargoes, lubricating and vegetable oils, mineral concentrates, containerised cargo, discharge of crude oil, clean products, propane gas, chemicals and water, and passengers. There are seven open storage zones for the use of imported goods.

The “Terminal Portuario Callao” (TPC) is owned and operated by ENAPU S.A. and operated by two dealers: APM Terminals and DP World. The terminal is ranked as the top container terminal facility in South America. As a result, Callao is a transport gateway for Peru’s import and export of container traffic and regional transhipments.

2.4.3.13 Port of Buenos Aires, Argentina

The Port of Buenos Aires is located in Puerto Nuevo, Buenos Aires in Argentina. It is operated by the General Ports Administration, a state enterprise, and is one of the trans-shipment points for the foreign trade of Argentina.

Terminales Río de la Plata (TRP) operates Terminals 1 and 2 in Puerto Nuevo in Buenos Aires. The two facilities make up the largest container terminal in the port, with capacity for handling one million TEUs of containerised cargo per year.
TRP’s facility comprises up to five berths for vessel operations. The terminal handles deep-sea vessels from Europe, Asia and North America, as well as feeders to both the East and West Coast of South America and barges upriver to Rosario.

TRP has an integrated management system that is certified against international standards for quality (ISO 9001:2008), environment (ISO 14001:2004) and security (ISO 28000:2007).

2.4.3.14 Port of Puerto Deseado, Argentina

Located on the southern Patagonia coast of Argentina, Puerto Deseado is the capital of the Santa Cruz province. Puerto Deseado is situated on the estuary at the mouth of the Deseado River and is a multi-purpose port facility handling fish, container and general cargo.

2.4.3.15 Port of Santos, Brazil

The Port of Santos is located in the city of Santos, state of Sao Paulo, Brazil. Companhia Docas do Estado de Sao Paulo (CODESP) is the Port Authority for Brazil’s Sao Paulo state, where the Santos Port is located. As one of the largest ports in Latin America, the port handles a wide variety of cargo such as solid and liquid bulk, containers and general cargo. CODESP was founded in 1980.

2.4.3.16 Port of Puerto Angamos, Chile

Puerto Angamos is located in the heart of the mining region of Chile, in the commune of Mejillones approximately 1 400 km from Santiago and only 65 km from Antofagasta.

The port is situated close to the copper district, where there are several world-renown mining operations. Angamos has fast access by train and truck connecting the main mining operations of Chile, Argentina and Bolivia, with the port without the need to cross through densely populated areas.

The port has a multi-purpose, mono-operated terminal with four berths, maximum draft is 13.7 m and there is capacity to receive ships of up to 155 000 tonnes of displacement and 366 m in length. Extensive storage capacity exists on site for containers, general/special cargo and bulk goods, as well as good interconnectivity options for transhipment via rail or road.

The Bay of Mejillones offers natural protection that provides exceptional conditions for most of the year against the tides coming from the south of the country. Meanwhile, its deep waters ensure availability to larger vessels and the ability to work safely.

In Chile, port governance is influenced by a wide number of stakeholders – more than 30 organisations deal with the regulation of the port system. The main entities likely to generate or influence port policies include five ministries, these being: The Ministry of Transport and Telecommunication, The Ministry of Public Works, The Ministry of Defence, The Ministry of Finance, and The Ministry of National Assets.

2.4.3.17 Port of Punta Arenas, Chile

The Port of Punta Arenas is located in Southern Chile, in the XII Region on the border of the Magellan Strait. The Port of Punta Arenas is operated by Empresa Portuaria Austral, which is a Chilean Government Enterprise.

In Chile, port governance is influenced by a wide number of stakeholders – more than 30 organisations deal with the regulation of the port system. The main entities likely to generate or influence port policies include five ministries, these being: The Ministry of Transport and Telecommunication, The Ministry of Public Works, The Ministry of Defence, The Ministry of Finance, and The Ministry of National Assets.
2.4.3.18 Port of Cartagena, Colombia

The Port of Cartagena is Colombia’s main container port. Operating 24 hours a day, 365 days a year, the Port of Cartagena includes three open ports and over 40 private ports.

The port is located approximately 653 km north north-east of Bogotá in Colombia. It is located close to the major transoceanic routes through the Panama Canal. The Port of Cartagena is the second busiest port in Colombia, behind the Pacific-side Port of Buenaventura, and the third busiest port in the Caribbean Sea. The port is strategically placed to capture sea traffic through the Panama Canal’s transoceanic shipping lanes that connect the Atlantic and Pacific Ocean’s sea traffic and other traffic around the Caribbean Sea.

2.4.3.19 Port of Buenaventura, Colombia

The Port of Buenaventura is the main port of Colombia in the Pacific Ocean, accounting for nearly 60% of all Colombian sea imports and exports. The nearest town city to the port is Buenaventura, located approximately 5 km to the south east. The Sociedad Portuaria Regional de Buenaventura S.A. (Regional Port Society of Buenaventura; SPRB) is the port authority for the Port of Buenaventura.

The Port of Buenaventura is a multimodal transport port with an access channel length of approximately 31.5 km (17 Nautical miles). The Port of Buenaventura has a specialised container terminal (Buenaventura SA – TECSA). The container facilities at the port consists of a 40 m long quay, which allows for berthing of two large vessels simultaneously or a Panama Vessel, with a draft depth of approximately 14 m during minimal tide.

2.4.3.20 Port of Veracruz, Mexico

The Port of Veracruz is located on the shores of the Gulf of Mexico in south-central Mexico, a little over 300 km east south-east of Mexico City. The Port of Veracruz is the main seaport on Mexico’s east coast and also serves as a communications hub for the State of Veracruz. Located about 240 km south-east of the Port of Tuxpan and almost 400 km south-east of the Port of Tampico.

The Port of Veracruz is Mexico’s largest port and a gateway for transport into the region, it serves central and southern Mexico through a network of railways and roads. It also serves North, Central, and South America and Europe and Africa via its strategic geographic location for international cargo carriers.

2.4.3.21 Port of Tema, Ghana

The Port of Tema is the largest port in Ghana and is situated approximately 30 km from Accra. The port handles 12 million tonnes of cargo annually and receives over 1 650 vessel calls per year, including container vessels, general cargo vessels, tankers, Ro-Ro and cruise.

Tema Port is the container port servicing Ghana and its neighbouring landlocked countries. The port area includes a 1 million TEU capacity container terminal and 16 deep-water berths.

Cyanide manufacturers and suppliers currently have the ability to ship product to the port from different parts of the world. The port serves as a key trans-shipment hub for the final transportation to mining operations in Ghana and landlocked countries within the West Africa region.
2.4.3.22  **Port of Takoradi, Ghana**

The Port of Takoradi is located 230 km east of Accra. Takoradi is strategically positioned to service the northern hinterland of Ghana and serve as an alternative port for economic operators in the landlocked countries of Burkina Faso, Niger and Mali. In 2015, the port handled 27% of Ghana’s seaborne traffic, 68% of Ghana’s seaborne exports and 15% of Ghana’s seaborne imports. Major commodities handled through the port are manganese, bauxite, wheat, bulk and bagged cocoa, quicklime, containerised cargoes and equipment for the mining and oil/gas industry.

Cyanide manufacturers and suppliers have the ability to ship product to the port from different parts of the world. The port allows for the unloading of shipments for final road transportation to the mining operations in Ghana as well as Burkina Faso and Eastern Mali.

2.4.3.23  **Port of Conakry, Guinea**

The Port of Conakry is located on the South Coast of Guinea and is the country's main port. The port has a 20-ha container yard and container storage capacity of 8 000 TEUs. The theoretical annual capacity of the Port of Conakry is 600 000 TEUs. The container terminal is jointly operated by Bolloré Ports and the Port Authority of Conakry.

The port operates a continuous loading and unloading service and is well connected to road and rail systems making it a suitable option for the trans-shipment of goods.

2.4.3.24  **Port of Dakar, Senegal**

The Port of Dakar is situated in the State of Colima, in the Republic of Senegal. Dakar is a deep-sea port and is located at the intersection of the sea routes serving the West African coast. The port is situated strategically for the carrier lines linking Europe to South America, and North America to South Africa.

It is an international port of transit and serves as the entry point for goods into Mali, thus enabling the trans-shipment of goods serving Niger and Burkina Faso.

The port is divided into two separate trading zones – the container terminal in the North Zone of the port of Dakar covers a total area of 24 ha. It has a quay length of 700 m with three berths ranging from 12 to 13 m in depth.

The port has separate terminals for bulk goods and hydrocarbons. The operator of the container terminal is DP World and they oversee the annual throughput of approximately 300 000 TEUs.

2.4.3.25  **Port of Abidjan, Côte d’Ivoire**

The Port of Abidjan is the main port of the Côte d’Ivoire (Ivory Coast) in Africa. Lying on the Ebrie Lagoon, it is linked to the Gulf of Guinea and Atlantic Ocean by the Vridi Plage sandbar.

The Port of Abidjan is West Africa’s largest port. With a central location and a well-developed infrastructure, it is a major point for transhipments into West and Central Africa over the Côte d’Ivoire’s network of rail and road systems. Since the opening of the Vridi Canal, the Port of Abidjan has handled nearly all commercial trade for the Côte d’Ivoire.

The Port of Abidjan has a total quay length of 6 km and there are 34 berths dedicated for timber, cereals, fruits, petroleum products and containers. The Port of Abidjan can accommodate vessels up to 260 m long, depth at the harbor's mouth is 10.5 m, and the depth at quay is 12.5 m. The port provides approximately 408 000 m² of open storage and 144 m² of covered warehouses and sheds. Three berths specialise in container-handling, and one berth is devoted to roll-on/roll-off cargoes.

2.4.3.26 Port of Nouakchott, Mauritania

The Port of Nouakchott is the main port in Mauritania accounting for approximately 96% of annual port traffic. It is located near the West African Atlantic coast and was developed as the capital of Mauritania after it gained independence in 1960.

Nouakchott Port is an import port representing approximately 90% of annual imported goods, approximately 1.5 million tonnes, these goods include wheat, cement, clinker, flour, sugar, semolina, milk and general equipment. Exports include plaster, animal skins and fish.

The Port of Nouakchott consists of two quays, one for small vessels (Wharf Quay) with draft less than 5 m and a second quay for larger vessels with a maximum draft of 10.3 m, this quay stretches 585 m and is split into four berths, three of which are used for cargo handling and the fourth for servicing vessels. The main cargo quay is located 4 km south of the Quai Wharf and 15 km south-west of the city of Nouakchott.

Nouakchott uses an integrated AS400 computer system developed in cooperation with the Office d’Exploitation des Ports Marocains (ODEP). The Autonomous Port of Nouakchott (PANPA) manages the port.

2.4.3.27 Port of Mombasa, Kenya

The Port of Mombasa is the gateway to East and Central Africa and is one of the largest ports along the East African coastline. The port provides direct connectivity to over 80 ports worldwide and is well connected by road to a vast hinterland comprising Uganda, Rwanda, Burundi, Eastern Democratic Republic of Congo, Northern Kenya, Southern Sudan, Somalia and Ethiopia. A railway line also runs from the port into Uganda and Kenya. The Port of Mombasa is managed by the Kenya Port Authority (KPA).

The Port of Mombasa has two container terminals: the Mombasa Container Terminal and the Kipevu Container Terminal, with an annual total capacity of 1.65 million TEUs (2016 figures). Container operations at the Port of Mombasa entail discharging and loading of vessels, stacking and unstacking of containers in the yard and delivery/receipt of import and export containers.

2.4.3.28 Port of Dar es Salaam, Tanzania

The Port of Dar es Salaam is located on the East Coast of Africa and is the principle port of Tanzania. Dar es Salaam handles approximately 95% of the Tanzania international trade and serves landlocked countries such as Malawi, Zambia, Democratic Republic of Congo, Burundi, Rwanda and Uganda. The port serves as a freight linkage to and from East and Central Africa countries.

The Port of Dar es Salaam has a total quay length of 2 km with 11 deep-water berths.

The Tanzania Ports Authority (TPA) operates the Port of Dar es Salaam, but all containerised cargo is handled by the Tanzania International Container Terminal Services Ltd (TICTS). The container terminal has four berths totalling 725 m in length with a capacity to handle in excess of 500 000 TEUs per year, which includes many classes of Dangerous Goods cargo.
2.4.3.29 Port of Walvis Bay, Namibia

The Port of Walvis Bay is situated on the west coast of Africa and strategically placed to provide a transit route between southern Africa, Europe, Asia, and the Americas. Walvis Bay offers direct access to principal shipping routes, and Namibia’s connecting transport corridors enable the country to compete as a transport hub for regional and international trade between the Southern African Development Community (SADC) countries, Europe, Asia, the Americas, and the rest of the world.

Entrance to the port consists of a 5.2 Nautical Mile (NM) long channel that is 134 m wide and 14 m deep. On average, between 2,000 and 2,250 vessels visit the Port of Walvis Bay every year, of which container vessels account for the largest number of visits. The existing container terminal has 350,000 Twenty-foot Equivalent Unit (TEU) throughput capacity per annum. A new container terminal will soon increase that to 750,000 TEUs per annum. Considered a congestion-free port with minimum delays, the Port of Walvis Bay currently handles 7 million tonnes of cargo per annum and is suitably equipped to increase that total to 8-10 million tonnes.

The Port of Walvis Bay handles container imports, exports, and transhipments, as well as bulk and break-bulk of various commodities. NAMPORT serves a wide range of industries such as the petroleum, salt, mining, and fishing industries. Both bulk and bagged salt are also exported from the Port of Walvis Bay.

2.4.3.30 Port of Laem Chabang, Thailand

The Port of Laem Chabang is situated on the eastern side of the Gulf of Thailand, south-east of Bangkok and north of Pattaya. Laem Chabang is Thailand’s main deep-sea port and currently handles over 1 million TEUs annually.

Thailand’s strategic geographical location and close proximity to neighbouring countries such as Myanmar, Laos, Cambodia and Malaysia enable Laem Chabang to serve as a gateway port for South-East Asia for international trade and goods import. Furthermore, Laem Chabang is well connected to its neighbouring hinterland via a network of highways, railways, and waterways.

2.4.3.31 Port of Surabaya, Indonesia

The Port of Tanjung Perak Surabaya (TPS) in the Java province is the second largest port in Indonesia and the centre of cargo distribution for East Java and a gateway to Eastern Indonesia. The port is accessed from the North through the Madura strait, a 40 km long, 100 m wide and 9.5 m deep channel between East Java and Madura Island.

TPS connects directly to the Surabaya toll way and the railway network into East Java and Eastern Indonesia.

The port has six main terminals, consisting of multi-purpose terminals for conventional cargo handling, a passenger terminal, RoRo and an international container terminal. Tugging, pilotage, bunker, storage and shipyard services are also provided.

The port of TPS is managed by the PT Pelabuhan Indonesia (Pelindo) III. Whilst the TPS container terminal is managed by DP World Surabaya. Other terminal services are provided by PT. Berlian Jasa Terminal Indonesia and PT Pelindo Marine Service provides pilotage, tug, towage, and maintenance and logistics services.

2.4.3.32 Port of Jakarta, Indonesia

The Port of Jakarta (also known as Tanjung Priok) lies on the north-west coast of the island of Java at the mouth of the Ciliwung River, about 116 nautical miles east south-east of the Port of Panjang on the island of Sumatra.
The port handles more than 30% of non-oil-and-gas cargo in the country, and around 50% of the entire flow of goods into and out of Indonesia. The intermodal transport and technology facilities at the port allow it to connect to a network of cities in Indonesia.

The Port of Jakarta contains twenty terminals devoted to general, dry bulk, liquid bulk, and containerised cargoes. Specialised terminals handle oil, chemicals, scrap, and passengers. The Port of Jakarta has 76 berths and a total quay area of 16 800 m². The port also contains storage areas of 662 000 m² with capacity to store over 401 000 tonnes of cargo.

In 2007, over 17 800 vessels carried a total of almost 42 million tonnes of cargo and 3.7 million TEUs of containerised cargoes through the Port of Jakarta. This total included 10.5 million tonnes of containerised goods in 3.7 million TEUs, 8.2 million tonnes of liquid bulk cargo, 7.9 million tonnes of general cargo, 8.2 million tonnes of dry bulk cargo, and 1.8 million tonnes of bag cargo.

2.4.3.33 Port of Klang, Malaysia

The Port of Klang is Malaysia’s principal port. It is located at the town, Port Klang, on the west coast of Peninsular Malaysia, about 40 km from the capital city, Kuala Lumpur. Port Klang is served by three major gateways called North Port, South Port (Southpoint) and Westport. There are 19 berths in North Port, eight in South Port and 31 in Westport. In addition, the Kapar Power Station operates two berths while Boustead Cruise Centre Terminal operates three berths.

The Port of Klang is reported to be the 13th busiest container port in the world and had a container throughput of 13.2 TEUs in 2016. The port has 24 container berths and sufficient equipment to support the movement of cargo with approximately 60 quay cranes, 52 straddle cranes, 163 rubber tyres gantry crane, and a large fleet of trucks and forklifts.

2.4.3.34 Port of Izmir Turkey

The Port of Izmir lies on the southeast coast of Izmir Gulf in West Turkey, to the east of Aegean. It is the largest seaport in West Turkey. Port of Izmir is about 505 nautical miles south of Bur Said, 569 nautical miles east of Mersin, and 509 nautical miles of Mesos, 198 nautical miles west of Peiraievs, and 276 nautical miles north of Istanbul.

The General Directorate of Turkish State Railways (TCDD) is the port authority for the Port of Izmir. Izmir is the third largest city in Turkey and the port facility is connected with Turkey’s rail and highway networks providing a key node for import and export for the country.

The terminal covers an area of 152 000 m². And the holding capacity is 7074 TEU. Container operations at the quays are carried out by 5 gantry cranes of 40 tons capacity. The operations at the container yard are carried out by 19 rubber tired transtainers and 21 reach stackers of 40 tons capacity, together with 28 containers forklifts of up to 42 tons capacity.

2.5 Trans-shipping and interim storage

Depending on weather, cargo types, journey length and other operational matters, carriers may trans-ship their cargo from one vessel to another. This involves unloading the cargo at a terminal facility, temporary set down and loading onto another vessel for the continuation of the delivery. Such trans-shipping does occur within Orica’s Supply Chain. Orica has no control over when and where this happens, but through its due diligence assessments has satisfied itself that the carriers used (PIL/PAE, Swire, MSC, Hamburg SUD, ANL, Toll, Maersk, Transmares, K-Line, MOL, and OOCL) undertake the shipping of the product in accordance with the IMO DG Code and in a professional and safe manner.
This satisfaction extends to the selection of port terminals made by the shipping companies and used for trans-shipping and interim storage purposes.

### 2.6 Auditor’s Findings and Attestation

- ☑️ in full compliance with

**Orica is:**
- ☐ in substantial compliance with  
- ☐ not in compliance with  

The International Cyanide Management Code

No significant cyanide exposures or releases were noted to have occurred during Orica’s Global Marine Supply Chain certification audit.

- **Audit Company:** Golder Associates Pty Ltd
- **Audit Team Leader:** Ed Clerk, Exemplar Global (105995)
- **Email:** eclerk@golder.com.au

### 2.7 Name and Signatures of Other Auditors

<table>
<thead>
<tr>
<th>Name</th>
<th>Position</th>
<th>Signature</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ed Clerk</td>
<td>Lead Auditor and Transport Technical Specialist</td>
<td>✍️</td>
<td>27 August 2019</td>
</tr>
</tbody>
</table>

### 2.8 Dates of Audit

The certification audit of Orica’s Supply Chain was undertaken between May and July of 2017, with the Detailed Audit Report being finalised in July.

Amendments were made to the Supply Chain in October 2018 and April 2019 to allow for the inclusion of the Ports of Gladstone, Australia; Cartagena and Buenaventura, Colombia; Klang, Malaysia, Walvis Bay, Namibia and Port of Izmir, Turkey. All carriers remained the same.

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 *Cyanide Transportation Verification Protocol for the International Cyanide Management Code* and using standard and accepted practices for health, safety and environmental audits.
3.0 CONSIGNOR SUMMARY

3.1 Principle 1 – Transport

Transport Cyanide in a manner that minimises the potential for accidents and releases.

3.1.1 Transport Practice 1.1

Select cyanide transport routes to minimise the potential for accidents and releases.

☑ in full compliance with

☐ in substantial compliance with

☐ not in compliance with

Transport Practice 1.1

Summarise the basis for this Finding/Deficiencies Identified:

The Orica Supply Chain is in FULL COMPLIANCE with Transport Practice 1.1 requiring the transport of cyanide in a manner that minimises the potential for accidents and releases.

Orica has implemented a process for selecting transport routes that minimises the potential for accidents and releases or the potential impacts of accidents and releases.

Orica has developed and implemented a management system for transportation and there are specific written procedures that detail the process and the parameters to be assessed when identifying, selecting and assessing potential transport routes. These procedures aim to minimise the risk associated with the transportation of cyanide while maintaining a safe, reliable, efficient and cost-effective delivery system to customer sites and Orica stock points throughout Australia and the world.

Orica undertakes due diligence assessments on carriers, ports and service providers at regular intervals to ensure that standards are being maintained. Due diligence assessments are completed as a part of the initial route selection process; as well as on a triennial basis, as a means for Orica to ensure dangerous goods product transportation is being carried out in accordance with the required standards. The due diligence assessments state that:

The report is not a final acceptance of [the shipping lines] OR [the Port] for future work and as with all service providers to Orica, Orica will continue to review and monitor the performance on a triennial basis.

Orica has requirements for the selection and management of contractors for the transport and storage of their cyanide. Procedures cover all transport and storage providers and ensure that contractors working for and on behalf of Orica are aligned with the company’s Safety, Health and Environmental standards.

Orica only operates in export markets that are serviced by major international shipping companies with the ability to offer scheduled container services from the port of origin to the destination.

With regards to carriers, Orica has implemented a carrier assessment procedure. The purpose of this procedure is to assess carriers and their contractors at regular intervals against company standards and requirements. Carriers are assessed using the Orica Carrier Assessment Questionnaire as a minimum on a two-yearly basis with additional assessments conducted following any changes to operational requirements or as a result of newly identified risks.
Orica utilises PIL/PAE, Swire, MSC, Hamburg SUD, ANL, Toll, Maersk, Transmares, K-Line, MOL, and OOCL for the international shipping of cyanide. Containers are placed and secured on vessels at the port of loading by the stevedoring company or service provider, and removed at the destination by the stevedoring company or service provider at that port. As such, PIL/PAE, Swire, MSC, Hamburg SUD, ANL, Toll, Maersk, Transmares, K-Line, MOL, and OOCL provide a marine carrier service and handling of containers (on and off vessels) is undertaken by stevedoring companies at each port.

Orica does not have control of over routes taken by the service providers, but has undertaken due diligence assessments of PIL/PAE, Swire, MSC, Hamburg SUD, ANL, Toll, Maersk, Transmares, K-Line, MOL, and OOCL to verify that the shipments are transported in accordance with regulatory requirements.

The international sales and exports of cyanide by Orica take into consideration the ports and their extended infrastructure available to service the intended target area. The destination port is selected on the basis that it is the closest port to the customer and that it appears to meet reasonable industry standards for safety, security and emergency response.

Due diligence assessments of the ports used in the Supply Chain concluded that the ports meet the requirements of the ICMC. The due diligence assessments state that:

*Where issues were identified, it was established that they would be adequately mitigated by Orica reducing the time that product spends at that port.*

Risks are identified during the route selection process. Orica has implemented procedures to evaluate; and periodically re-evaluate, the risks of selected cyanide transport routes and take the measures necessary to manage these risks.

Orica documents the measures taken to address risks identified with the selected routes. The measures taken to address risks are documented within the Route and Carrier Assessments; and the due diligence assessments for carriers and ports.

Orica has assessed its routes for special safety or security concerns. The due diligence assessments did not identify the requirement for additional safety and security measures.

### 3.1.2 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.**

- ☑ in full compliance with
- ☐ in substantial compliance with
- ☐ not in compliance with

**Transport Practice 1.2**

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

Orica is in FULL COMPLIANCE with Transport Practice 1.2 requiring personnel operating cyanide handling and transport equipment to perform their jobs with minimum risk to communities and the environment.

Orica does not directly operate transport vehicles in its Supply Chain.
Orica utilises PIL/PAE, Swire, MSC, Hamburg SUD, ANL, Toll, Maersk, Transmares, K-Line, MOL, and OOCL for the international shipping of cyanide. Containers are placed and secured on their vessels at the port of loading by the stevedoring company or service provider and removed at the destination by the stevedoring company or service provider at that port. As such, PIL/PAE, Swire, MSC, Hamburg SUD, ANL, Toll, Maersk, Transmares, K-Line, MOL, and OOCL provide a marine carrier service and all actual handling of containers (on and off vessels) is predominately undertaken by stevedoring companies at each port.

The assessment of transporters is via the Carrier Assessment Questionnaire (Carrier Assessment). This assessment is detailed and requires that carriers are to be assessed as a minimum on a two-yearly basis, with additional assessments conducted following any changes to operational requirements or as a result of newly identified risks.

Due diligence assessments of PIL/PAE, Swire, MSC, Hamburg SUD, ANL, Toll, Maersk, Transmares, K-Line, MOL, and OOCL were undertaken to verify that the shipments are handled in accordance with the IMO DG Code. The due diligence assessments found that there were no issues of concern with regards to the management and shipping of cyanide product by any of the carriers.

Orica conducts triennial due diligence assessments; and biennial carrier assessments, of carriers used in the Supply Chain.

Orica does not operate transport vehicles or equipment at port facilities used in its Supply Chain, operation is undertaken by the managing port authority or stevedoring service provider at the port.

The due diligence assessments found that the ports used by Orica are performing dangerous goods handling duties in accordance with international and local regulations. Ports selected in the Supply Chain are located in IMO member countries, member nations must ensure that Ports comply with the requirements of the IMO DG Code 2014, and in particular the training requirements for shore-side personnel as described in Section 1.3.1.

Orica conducts triennial due diligence assessments of port facilities used in the Supply Chain.

### 3.1.3 Transport Practice 1.3

Ensure that transport equipment is suitable for the cyanide shipment.

- [x] in full compliance with
- [ ] in substantial compliance with
- [ ] not in compliance with

**Transport Practice 1.3**

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

Orica is in FULL COMPLIANCE with Transport Practice 1.3 requiring that transport equipment is suitable for the cyanide shipment.

Orica does not directly operate transport vehicles in its Supply Chain.

Carriers and ports used by Orica have equipment operation and maintenance capabilities and procedures that are not dependent on Orica. The ability of the carriers and port facilities to operate safely, and their capability to handle dangerous goods is assessed during the Carrier Assessment and due diligence process.
Orica conducts triennial due diligence assessments for carriers and ports; and biennial carrier assessments, for service providers used in the Supply Chain.

The completed due diligence assessments found that there were no issues of concern with regards to the management and shipping of cyanide product by any of the carriers; and that the ports used by Orica are performing dangerous goods handling duties in accordance with Orica’s requirements and relevant regulations.

3.1.4 Transport Practice 1.4

Develop and implement a safety program for transport of cyanide.

- In full compliance with

Orica is
- in substantial compliance with
- not in compliance with

Transport Practice 1.4

Summarise the basis for the Finding/Deficiencies Identified:

Orica is in FULL COMPLIANCE with Transport Practice 1.4 requiring the operation develop and implement a safety programme for transport of cyanide.

There are procedures in place to ensure that cyanide is transported in a manner that maintains the integrity of the producer’s packaging.

Product packaging is undertaken at the ICMC certified Yarwun Facility and cyanide is packaged and transported in accordance with international regulatory standards, thereby meeting the requirements of the political jurisdictions through which the loads will pass.

There are in-transit procedures that allow for checks of the packaging integrity and the reporting of any damage or spillage. There are single use seals placed on doors of shipping containers and checks are tracked and recorded alongside a package’s unique serial number.

PIL/PAE, Swire, MSC, Hamburg SUD, ANL, Toll, Maersk, Transmares, K-Line, MOL, and OOCL require from Orica, evidence that products booked for transport meet the packaging requirements of the IMO DG Code. Some carriers reserve the right to refuse acceptance of cargo that does not meet packaging, container and documentation standards as set out in the Code.

Due diligence assessments of PIL/PAE, Swire, MSC, Hamburg SUD, ANL, Toll, Maersk, Transmares, K-Line, MOL, and OOCL were undertaken to verify that shipments of dangerous goods are handled in accordance with the IMO DG Code. The due diligence assessments found that there were no issues of concern with regards to the shipping of cyanide product by PIL/PAE, Swire, MSC, Hamburg SUD, ANL, Toll, Maersk, Transmares, K-Line, MOL, and OOCL. Cyanide product remains sealed and packaged within locked shipping containers until it reaches the end use destination.

Orica conducts biennial carrier assessments; and triennial due diligence assessments of carriers and port facilities used in the Supply Chain.

Orica has a process to ensure that placards or other signage are used to identify the shipment as cyanide, as required by local regulations or international standards.
Placards and signage used to identify the shipment as cyanide meet local and international standards. Diamonds placed at the front and rear of the vehicles identify the load as cyanide and the containers also have labelling that identifies the contents. Orica packaged cyanide remains sealed within its initial packaging and container until its arrival at the final destination.

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

- [x] in full compliance with
- [ ] in substantial compliance with
- [ ] not in compliance with

**Orica is** Transport Practice 1.5

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

Orica is in FULL COMPLIANCE with Transport Practice 1.5 requiring the operation follow international standards for transportation of cyanide by sea and air.

Shipments of cyanide transported by sea are transported in compliance with the IMO DG Code.

All containers (i.e. freight containers of IBCs and sparge isotainers) are packaged and placarded at the Yarwun Facility in accordance with the requirements of the IMO DG Code with UN numbers, the Class 6 dangerous goods label and the environmentally hazardous substance label.

A container intended for transport has documentation prepared in accordance with the IMO DG code, which is provided to the shipping agent. A copy of the marine documentation is retained at the Yarwun Facility.

PIL/PAE, Swire, MSC, Hamburg SUD, ANL, Toll, Maersk, Transmares, K-Line, MOL, and OOCL transport Orica cyanide by sea to various destination ports. All packaging and transportation are carried out in accordance with the IMO DG Code.

Due diligence assessments of PIL/PAE, Swire, MSC, Hamburg SUD, ANL, Toll, Maersk, Transmares, K-Line, MOL, and OOCL were undertaken on behalf of Orica to verify that the shipments are handled in accordance with the IMO DG Code. The due diligence assessments found that there were no issues of concern with regards to the conduct and shipping of cyanide product by the carriers.

No cyanide is transported by air within the scope of this Supply Chain.

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

- [x] in full compliance with
- [ ] in substantial compliance with
- [ ] not in compliance with

**Orica is** Transport Practice 1.6

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

Orica is in FULL COMPLIANCE with Transport Practice 1.6 requiring the operation track cyanide shipments to prevent losses during transport.

Orica does not employ transport drivers or directly operate transport vehicles in its Supply Chain.
The due diligence assessments for PIL/PAE, Swire, MSC, Hamburg SUD, ANL, Toll, Maersk, Transmares, K-Line, MOL, and OOCL found that their vessels have continuous means of tracking and communication during voyages. Additionally, each service provider has systems in place to track individual containers from point of origin through to the destination port.

Chain of custody documentation is used by shipping companies to prevent the loss of cargo during shipment. This documentation includes the vessel manifest – which identifies the location and content of each container on the vessel along with packing certificates, Multimodal Dangerous Goods Forms and Safety Data Sheets (SDS).

PIL/PAE, Swire, MSC, Hamburg SUD, ANL, Toll, Maersk, Transmares, K-Line, MOL, and OOCL onshore representatives and vessels have the software capability to track individual containers. This service is available from the time they are booked onto a vessel, right through the entirety of the journey, until they are received at the nominated destination port.

For ports of departure in Australia, the Australian Maritime Safety Authority (AMSA) develops and implements policies, statutes and regulations governing the carriage of dangerous goods and other goods by ships in accordance with relative national and international requirements. This includes supervising the safety of ships carrying dangerous goods and processing declarations made by ships carrying dangerous goods.

Carriers are required to declare dangerous cargo to AMSA before arriving/leaving at the port.

For destination ports the due diligences found that ports in the Supply Chain are IMO members and ISPS Signatories (ISPS excluding Tanzania).

As IMO members and to comply with the requirements of the IMO DG Code, vessels are required to declare dangerous cargo before arriving/leaving the port to Authorities or stevedoring service providers.

Chain of custody documentation is used by shipping companies to prevent the loss of cargo during shipment. This documentation includes the vessel manifest which identifies the location and content of each container on the vessel along with packing certificates, Multimodal Dangerous Goods Forms and SDS.

At each destination port stevedoring service providers or terminal managers operate their own choice of information management and cargo tracking systems. These systems include advanced terminal software programs capable of tracking individual containers that are unloaded from carriers and transferred to laydown areas or placed onto another means of transportation (trans-shipping, ground or rail).

Orica’s shipping agent can provide updates on the status of shipments on an as needs basis. In each case this includes an estimate on arrival/departure times, where trans-shipping will occur and the time that discharge from the destination port occurs.

Inventory controls, marine transportation and chain of custody documentation processes are implemented to prevent the loss of cyanide during shipment.

Orica requires their carriers to implement inventory controls and/or chain of custody documentation to prevent loss of cyanide during shipment.

Orica requires that their contractors carry records indicating the amount of cyanide in transit and SDS are available during transport. The amount of cyanide in transit, the packing certificates and the SDS are contained within the marine documentation, this includes the shipper’s declaration, container packing certificate and quarantine (fumigation) certificate, which accompany the cargo throughout the journey.
3.2 Principle 2 – Interim Storage

Design, construct and operate cyanide trans-shipping depots and interim storage sites to prevent release and exposures.

3.2.1 Transport Practice 2.1

Store cyanide in a manner that minimises the potential for accidental releases.

☒ in full compliance with
☐ in substantial compliance with
☐ not in compliance with

Transport Practice 2.1

Summarise the basis for this Finding/Deficiencies Identified:

Orica is in FULL COMPLIANCE with Transport Practice 2.1 that requires transporters design, construct and operate cyanide trans-shipping depots and interim storage sites to prevent release and exposures.

Orica does not operate trans-shipping or interim storage facilities within its Supply Chain, but circumstances may arise where trans-shipping of cyanide product is required. This involves unloading the cargo at a terminal facility, temporary set down and loading onto another vessel for the continuation of the delivery.

Orica has no control over when and where this happens, but through the completion of due diligence assessments has satisfied itself that the carriers used (PIL/PAE, Swire, MSC, Hamburg SUD, ANL, Toll, Maersk, Transmares, K-Line, MOL, and OOCL) undertake the trans-shipping of product in accordance with the IMO DG Code and regulations for the handling of dangerous goods pertinent to that port.

Depending on weather, cargo types and other operational matters, carriers may tranship their cargo form one vessel to another.

Trans-shipping ports were not assessed as part of the due diligence assessments carried out on behalf of Orica. The due diligence assessments did not identify any issues of concern with regards to the management or transport of cyanide by PIL/PAE, Swire, MSC, Hamburg SUD, ANL, Toll, Maersk, Transmares, K-Line, MOL, and OOCL – this extends to the carriers ability to select a suitable port for the purpose of trans-shipping when required.

The due diligence assessments of the ports identified that temporary storage or set down of product is conducted in accordance with the requirements of the IMO DG Code and other relevant international, and where developed, local dangerous goods handling regulations.
3.3  Principle 3 – Emergency Response

Protect communities and the environment through the development of emergency response strategies and capabilities.

3.3.1  Transport Practice 3.1

Prepare detailed Emergency Response Plans for potential cyanide releases.

☑ in full compliance with

☐ in substantial compliance with  Transport Practice 3.1

☐ not in compliance with

Summarise the basis for this Finding/Deficiencies Identified:

Orica is in FULL COMPLIANCE with Transport Practice 3.1 requiring the operation prepare detailed Emergency Response Plans for potential cyanide releases.

Orica has developed a detailed emergency response document to provide emergency response guidance for specific mine site, storage facilities and transport incidents involving Orica’s Product.

The document has been developed by Orica to provide guidance in the development of site and transport route emergency response plans for the management of incidents involving spillage of cyanide product.

Orica requires that transporters involved in the shipment of cyanide have plans that cover spill response procedures outside of the Yarwun gate, up to the end user destination. Orica provides assistance and support in this role.

Whilst Orica’s product is embarked on PIL/PAE, Swire, MSC, Hamburg SUD, ANL, Toll, Maersk, Transmares, K-Line, MOL, and OOCL vessels all emergency response is governed by the vessel’s captain. Orica conducts due diligence and carrier assessments of its carriers to verify that the shipments occur in accordance with the IMO DG Code, thereby meeting emergency response requirements.

Orica requires carriers to have appropriate emergency response plans and capabilities for handling any cyanide incident that falls within their contractual responsibility.

The due diligences found that PIL/PAE, Swire, MSC, Hamburg SUD, ANL, Toll, Maersk, Transmares, K-Line, MOL, and OOCL carry out the shipping of dangerous goods in accordance with the requirements of the IMO DG Code.

Each operator implements their own system of safety and emergency response management that extends to emergency situations involving cyanide and other dangerous goods. Emergency responders, as well as dangerous goods technical experts, are available to respond and assist in emergency situations.

The due diligence assessments found that the ports used by Orica are performing dangerous goods handling duties in accordance with international and local regulations. Ports selected in the Supply Chain are located in IMO member countries, member nations must ensure that ports comply with the requirements of the IMO DG Code.
The due diligences also found that the ports are certified under the IMO’s International Convention on Oil Pollution Preparedness, Response and Cooperation 1990 (OPRC 90). States that are party to OPRC 90 protocol are required to establish a national system for responding to oil and hazardous/noxious substances pollution incidents, including a designated national authority, a national operational contact point and a national contingency plan. This needs to be supported by a minimum level of response equipment, communications plans, regular training and exercises.

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

☒ in full compliance with
☐ in substantial compliance with ☐ not in compliance with

Transport Practice 3.2

Summarise the basis for this Finding/Deficiencies Identified:

Orica is in FULL COMPLIANCE with Transport Practice 3.2 requiring they designate appropriate response personnel and commit necessary resources for an emergency response.

Whilst Orica’s product is embarked on carriers, all emergency response is governed by the vessel’s captain. Orica conducts due diligence and carrier assessments to verify that the shipments occur in accordance with the IMO DG Code. Due diligence assessments have found that there were no issues of concern in regard to the management and shipping of cyanide product by any of the shipping lines.

Orica retains a technical and advisory role in an emergency and can provide resources and personnel (depending on where an incident takes place) to assist emergency services in the response to an incident involving cyanide.

Orica require carriers to have appropriate emergency response plans and capabilities for handling any cyanide incident that falls within their contractual responsibility. The level of capability is assessed through the due diligence and Carrier Assessment process.

The due diligences assessments found that PIL/PAE, Swire, MSC, Hamburg SUD, ANL, Toll, Maersk, Transmares, K-Line, MOL, and OOCL each carry out the shipping of dangerous goods in accordance with the requirements of the IMO DG Code. Each operator implements their own system of safety and emergency response management that extends to emergency situations involving cyanide and other dangerous goods at sea.

The due diligence assessments found that the ports used by Orica have appropriate emergency response capabilities to deal with potential releases of dangerous goods.
### 3.3.3 Transport Practice 3.3

**Develop procedures for internal and external emergency notification and reporting.**

- ☑ in full compliance with
- ☐ in substantial compliance with
- ☐ not in compliance with

**Orica is**

**Transport Practice 3.3**

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

Orica is in FULL COMPLIANCE with Transport Practice 3.3 requiring that they develop procedures for internal and external emergency notification reporting.

Whilst Orica’s product is embarked on PIL/PAE, Swire, MSC, Hamburg SUD, ANL, Toll, Maersk, Transmares, K-Line, MOL, and OOCL vessels all emergency response is governed by the vessel’s captain. Orica conducts due diligence and carrier assessments of carriers used in its Supply Chain to verify that the shipments occur in accordance with the IMO DG Code, thereby meeting emergency response requirements.

Orica require transport companies to have appropriate emergency response plans, including current contact information, and capabilities for handling any cyanide incident that falls within their contractual responsibility.

The due diligences found that PIL/PAE, Swire, MSC, Hamburg SUD, ANL, Toll, Maersk, Transmares, K-Line, MOL, and OOCL carry out the shipping of dangerous goods in accordance with the requirements of the IMO DG Code.

### 3.3.4 Transport Practice 3.4

**Develop procedures for remediation of releases that recognise the additional hazards of cyanide treatment.**

- ☑ in full compliance with
- ☐ in substantial compliance with
- ☐ not in compliance with

**Orica is**

**Transport Practice 3.4**

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

Orica is in FULL COMPLIANCE with Transport Practice 3.4 requiring the operation to develop procedures for remediation of releases that recognise the additional hazards of cyanide treatment.

Whilst Orica’s product is embarked on PIL/PAE, Swire, MSC, Hamburg SUD, ANL, Toll, Maersk, Transmares, K-Line, MOL, and OOCL vessels all emergency response is governed by the vessel’s captain. Orica conducts due diligence and carrier assessments of carriers used in its Supply Chain to verify that the shipments occur in accordance with the IMO DG Code, thereby meeting emergency response requirements.

Orica require transport companies to have appropriate emergency response plans and capabilities for handling any cyanide incident that falls within their contractual responsibility.

The due diligences found that PIL/PAE, Swire, MSC, Hamburg SUD, ANL, Toll, Maersk, Transmares, K-Line, MOL, and OOCL carry out the shipping of dangerous goods in accordance with the requirements of the IMO DG Code.
3.3.5  Transport Practice 3.5
Periodically evaluate response procedures and capabilities and revise them as needed.

☒ in full compliance with

☐ in substantial compliance with  Transport Practice 3.5

☐ not in compliance with

Summarise the basis for this Finding/Deficiencies Identified:

Orica is in FULL COMPLIANCE with Transport Practice 3.5 requiring the operation to periodically evaluate response procedures and capabilities and revise them as needed.

Whilst Orica’s product is embarked on PIL/PAE, Swire, MSC, Hamburg SUD, ANL, Toll, Maersk, Transmares, K-Line, MOL, and OOCL vessels all emergency response is governed by the vessel’s captain. Orica conducts due diligence and carrier assessments of carriers used in its Supply Chain to verify that the shipments occur in accordance with the IMO DG Code, thereby meeting emergency response requirements.

Orica require transport companies to have appropriate emergency response plans and capabilities for handling any cyanide incident that falls within their contractual responsibility.

The due diligences found that PIL/PAE, Swire, MSC, Hamburg SUD, ANL, Toll, Maersk, Transmares, K-Line, MOL, and OOCL carry out the shipping of dangerous goods in accordance with the requirements of the IMO DG Code.
4.0 DUE DILIGENCE

4.1 Marine transportation

Refer to Appendix A for the full due diligence conducted on each carrier.

4.2 Ports

Refer to Appendix B for the full due diligence conducted on each port facility.

4.3 Auditor review of due diligence

The due diligence assessments were found by the Auditor to sufficiently evaluate the carriers and port operations, within the constraints of access and limited influence, and additional management measures by the consigner were not considered necessary.

5.0 IMPORTANT INFORMATION

Your attention is drawn to the document titled – “Important Information Relating to this Report”, which is included in Appendix C of this report. The statements presented in that document are intended to inform a reader of the report about its proper use. There are important limitations as to who can use the report and how it can be used. It is important that a reader of the report understands and has realistic expectations about those matters. The Important Information document does not alter the obligations Golder Associates has under the contract between it and its client.
Signature Page

Golder Associates Pty Ltd

Craig Currie  
Environmental Consultant

Ed Clerk  
Principal, Mining Environment Division Leader APAC EMEA

CC/EWC/hn

A.B.N. 64 006 107 857

Golder and the G logo are trademarks of Golder Associates Corporation

https://golderassociates.sharepoint.com/sites/107137/project files/6 deliverables/003 - amended sar/19120760-003-r-rev1 sar orica global marine supply chain.docx
APPENDIX A

Carrier Due Diligence Assessments
31 July 2017

Owen Warren
Senior Manager Global Distribution
Orica

Email: owen.warren@orica.com

ICMC DUE DILIGENCE ASSESSMENT OF PACIFIC ASIA EXPRESS

Dear Owen

EXECUTIVE SUMMARY

Golder Associates Pty Ltd (Golder) conducted a due diligence of Pacific Asia Express Pty Ltd (PAE) during June 2017 on behalf of Orica Australia Pty Ltd (Orica). The assessment was conducted by Ed Clerk who meets the International Cyanide Management Institute’s (ICMI) requirements for a Transport Technical Specialist.

The following items, as detailed in the ICMI’s Auditor Guidance for Use of Cyanide Transportation Verification Protocol (December 2016), were addressed within the due diligence:

- Transport Practice 1.1 (Questions 1-4 and 6)
- Transport Practice 1.5 (Question 1, Items g-i)
- Transport Practice 1.6
- Transport Practice 2.1
- Transport Practice 3.1.

The ICMI’s Auditor Guidance for Use of Cyanide Transportation Verification Protocol (December 2016) was used to conduct the due diligence assessment. It was not possible during this due diligence to physically inspect the shipping company operations, as such the review was based on information obtained from previous due diligence reviews, ICMI audit reports and publicly available online information.

Based on the evidence reviewed, this due diligence did not find issues of concern in regards to PAE’s management of solid sodium cyanide product. This assessment should not be a final acceptance of PAE for future work; rather it is recommended that Orica continue to review and monitor PAE’s performance annually and implement an adaptive management process.
1.0 INTRODUCTION

This letter provides the results of a due diligence assessment against the shipping line PAE, in accordance with the International Cyanide Management Code for the Manufacture, Transport and Use of Cyanide in the Production of Gold (ICMC or the Code).

Golder conducted a desktop due diligence assessment of PAE during June 2017. The assessment was conducted by Ed Clerk who meets the International Cyanide Management Institute’s (ICMI) requirements for a Transport Technical Specialist.

The following items, as detailed in the ICMI’s Auditor Guidance for Use of Cyanide Transportation Verification Protocol (December 2016), were addressed within the due diligence:

- Introduction
- ICMC Transport Verification Protocol Assessment
  - Transport Practice 1.1 (Questions 1-4 and 6)
  - Transport Practice 1.5 (Question 1, Items g-i)
  - Transport Practice 1.6
  - Transport Practice 2.1
  - Transport Practice 3.1.
- Conclusion
- References.

The ICMI’s Auditor Guidance for Use of Cyanide Transportation Verification Protocol (December 2016) was used to conduct the due diligence assessment. Due to access restrictions, it was not possible during this due diligence to physically inspect the shipping company operations. The due diligence assessment was completed based on information obtained from previous due diligences, ICMI audit reports and publicly available online information.

1.1 Overview of PAE

PAE is a subsidiary company of Pacific International Lines (PIL), and has represented PIL across Australia since 1990. PAE boasts national coverage around Australia with fully owned offices in all the Australian major ports as well as Darwin, Townsville, Launceston and Mildura.

PIL is a Singapore based, private company currently ranked 14th amongst the top container ship operators in the world, offering container liner and multi-purpose cargo services at over 500 locations, in 100 countries worldwide and employing over 18,000 personnel.

PIL currently operate a fleet of over 190 container vessels and specialises in the global transportation of general container and reefer cargo, specialist transport equipment, break bulk and dangerous goods.

2.0 ICMC TRANSPORT VERIFICATION PROTOCOL ASSESSMENT

The ICMI’s Auditor Guidance for Use of Cyanide Transportation Verification Protocol, General Guidance states:

Except as specifically identified in this Guidance document, the Cyanide Transportation Protocol is not to be used to evaluate transport by rail and ship or management of cyanide at rail terminals and port facilities due to security issues, limited access, and the inability of consignors to affect changes in the operating practices of these transport facilities. Rather than conduct Code audits of these facilities, the consignor must conduct and document due diligence investigations of rail carriers, rail terminals, shipping companies and port facilities that are engaged to handle cyanide shipments, as further discussed below under Transport Practice 1.1. The consignor’s due diligence investigation must either be conducted or reviewed by an auditor meeting ICMI requirements for a transport expert, and the auditor must conclude that the due diligence investigation has reasonably evaluated these facilities and that the consignor has, to the extent practical, implemented any necessary management measures.
Transport Practice 1.1: Select cyanide transport routes to minimise the potential for accidents and releases

The international sales and exports of sodium cyanide take by Orica into consideration the ports and their extended infrastructure available to service the intended target area. Orica only operates in export markets that are serviced by major international shipping companies with the ability to offer scheduled container services from point of origin to destination.

Orica procedure “Selection of Transport Routes – Transportation of Sodium Cyanide to Customer Sites or Stock Points” (Orica ref: UP-GLO-PRO-001-017) aims to minimise the risk associated with the transportation of sodium cyanide while maintaining a safe, reliable, efficient and cost effective delivery system to customer sites and Orica stock points throughout the world. The procedure applies to the selection of delivery routes for Orica sodium cyanide and states that the “selection of route(s) is to be effected by the overall assessment of the risks associated with the utilisation of such route, taking into particular consideration likelihood of an incident occurring and the consequence of such an incident.” This procedure is applicable to all routes used for the transportation of Orica sodium cyanide as well as to Orica’s contracted transportation agencies.

PAE Shipping is a carrier service providing international shipping of containers on a fleet of their container vessels. Containers containing solid sodium cyanide are placed and secured on their vessels at the loading port by the stevedoring company and removed at the port of destination by the stevedoring company at that port.

Basically, an export or international route will include the following:

- Orica production, packaging and despatch
- Road and rail transportation to port
- International shipping to destination port
- Road transportation to customer (mining operation).

In some instances, sodium cyanide shipments are unloaded at terminals en-route to its final destination. This is known as trans-shipping and involves a temporary set down within a port facility before loading onto another vessel for continuation of the delivery. It is at the discretion of PAE to determine when and where this occurs. PAE conducts itself in accordance with the International Maritime Organisation (IMO) Dangerous Goods (IMDG) Code and in a professional manner, this extends to the selection of terminals used by PAE for trans-shipping.

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

Orica’s manufacturing facility and transfer stations are ICMC certified, sodium cyanide is packaged and transported in accordance with international regulatory standards, such as the United Nations Recommendation on the Transport of Dangerous Goods – Model Regulations, (2005) and National Codes of Practice such as the Australian Code for the Transport of Dangerous Goods by Road or Rail, (2015) thereby meeting the requirements of the political jurisdictions through which the loads will pass.

Orica only operates in export markets that are serviced by major international shipping companies with the ability to offer scheduled container services from point of origin to destination. Orica procedure “Carrier Assessment” (Orica ref: SUP-GLO-PRO-016-008) provides the framework for ensuring that carriers and their contractors are assessed at regular intervals to ensure that, amongst others, storage, safety, security, maintenance and emergency response standards are being maintained. Carriers are required to provide manifest documentation, to satisfy local customs regulations and the requirements of the IMDG Code, to the destination port. This documentation contains a list of the cargo types and in the case of sodium cyanide and any other hazardous cargo the quantity, unique packaging numbers, stowage reference and emergency response procedures.

g) Does the ship carrying the cyanide have a list or manifest identifying the presence and location of the cyanide or a detailed stowage plan including this information, as required under Section 5.4.3.1 of the DG Code?

PAE transports sodium cyanide by sea to various destination ports. All packaging and transportation is in accordance with the IMDG Code.
Orica prepares a dangerous goods transport document known as the *Multimodal Dangerous Goods Form*. This form meets the requirements of the SOLAS 74, Chapter VII, Regulation 5 and the MARPOL 73/78, Annex III, Regulation 4. This form also has a container packaging certificate included that meets the requirements of Section 5.4.2 of the IMDG Code, as well as emergency response information. Upon arrival at the Port, the ship’s master provides the port with a copy of the *Multimodal Dangerous Goods Form*.

Documentation provided including Dangerous Goods manifest (including stowage plan) and Packaging Certificates for each container ensure that adequate information is available in order to identify the correct stowage and separation of dangerous goods. This information then determines the placement and segregation of the container on the vessel and handling through trans-shipment ports, if applicable.

PAE operations personnel provide the vessel’s Master with copies of the Emergency Information, Dangerous Goods manifest (including stowage plan), Packaging Certificates and the *Multimodal Dangerous Goods Form* for each hazardous cargo transport units loaded onto the ship at the port.

PAE has multiple cross checking layers to verify that products arriving at the laydown areas match those provided on the booking and that containers being loaded onto the vessels match those stipulated on the loading (or stowage) plan.

**h) Does the ship carrying the cyanide have cyanide emergency response information, as required under Section 5.4.3.2 of the DG Code?**

The manifests that are provided to the vessel Master contain emergency response information. The *Multimodal Dangerous Goods Form* also includes emergency response information.

PAE operations personnel provide the vessel’s Master with copies of the Emergency Information, Dangerous Goods manifest (including stowage plan), Packaging Certificates and the *Multimodal Dangerous Goods Form* for each hazardous cargo transport units loaded onto the ship at the port.

Emergency response procedures for ships carrying dangerous goods, including the emergency schedules to be followed in case of incidents involving dangerous substances, materials or articles, or harmful substances (marine pollutants), is regulated under the IMDG Code. In accordance with the Code, all ships, and the companies responsible for their operation, are required to maintain a Safety Management System (SMS). Within the SMS, procedures for responding to potential shipboard emergencies are required.

**i) Does the ship comply with the stowage and separation requirements of Part 7 of the DG Code?**

PAE comply with the stowage and separation requirements of Chapter 7 of the IMDG Code through the following:

- The *Multimodal Dangerous Goods Form* used by Orica and PAE is the document referenced in the IMDG Code (Chapter 5.4) and meets the requirements of SOLAS 74, chapter VII, regulation 4, MARPOL 73/78, Annex III, Regulation 4 and the provisions of the Code.

- A copy of the Form is provided to PAE for assigning the container reference numbers and sending the HAZCHEM bookings for finalisation. From the Form, data is entered into the PAE tracking and monitoring system that allows for the determination of placement and segregation of the containers on the vessel and handling through shipment ports.

- All containers (stipulated by their reference number) must be finalised by the vessel loading cut-off time. This requires the Form to be provided between 48 and 24 hours prior to cut-off.

- Sodium cyanide is designated a “red line” cargo and is only loaded to the vessel when called in.

- Upon approval, the loading plan is passed onto the stevedore for loading of the vessel.

Documentation provided including Dangerous Goods manifest (including stowage plan) and Packaging Certificates for each container ensure that adequate information is available in order to identify the correct stowage and separation of dangerous goods. This information then determines the placement and segregation of the container on the vessel and handling through trans-shipment ports, if applicable.
Transport Practice 1.6: Track cyanide shipments to prevent losses during transport

PAE vessels have continuous means of tracking and communication during their voyages. PAE has their own in-house tracking systems for tracking freight, which is linked by the container number and Bill of Lading (BOL) number. Communication equipment is tested through continuous use.

Chain of custody documentation is used by PAE to prevent the loss of cargo during shipment. This documentation includes the vessel manifest and Safety Data Sheets (SDS), which identifies the location and content of each container on the vessel.

Transport Practice 2.1: Store cyanide in a manner that minimises the potential for accidental releases

All packaging and transportation of sodium cyanide is required to be in accordance with the IMDG Code.

PAE operations personnel provide the vessel’s Master with copies of the Emergency Information, Dangerous Goods manifest (including stowage plan), Packaging Certificates and the Multimodal Dangerous Goods Form for each hazardous cargo transport units loaded onto the ship at the port.

Orica’s product is packaged into purpose designed and built and product dedicated bulk sparge isolators or into composite intermediate bulk containers (IBCs) contained within Twenty-foot Equivalent Units (TEUs), a general purpose shipping container. Bulk sparge isolators are rated for sea transportation and inspected by Bureau Veritas under the 2.5 and 5 year inspection regime in accordance with IMDG Code requirements.

Composite IBCs consist of a 1300 kg bulk bag contained within a hermetically sealed plastic liner, placed in a wooden outer with an integral pallet base. As per the IMO DG Code this packaging is referenced as UN/11HD2/X****/AUS/Orica-30596/7020/1300 under the approval of the Competent Authority (where **** indicates the date the IBC was filled).

Orica’s packaging is labelled as per the IMDG Code. Bulk sparge isolators and shipping containers containing composite IBCs are placarded with an emergency information panel (EIP) detailing the proper shipping name, dangerous goods class number, UN number, HAZCHEM Code and emergency contact information. Containers are placarded with the environmentally hazardous substance markings. Product labels are provided on the side of the IBC that allows forklift access via the pallet base. IBCs are placed into shipping containers so that the label is facing outwards.

All sodium cyanide remains contained within its sealed containers at all times preventing contact with water and other incompatible materials.

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

PAE operations personnel provide the vessel’s Master with copies of the Emergency Information, Dangerous Goods manifest (including stowage plan), Packaging Certificates and the Multimodal Dangerous Goods Form for each hazardous cargo transport units loaded onto the ship at the port.

The International Safety Management (ISM) Code provides an international standard for the safe management and operation of ships, and for pollution prevention, which PIL and its vessels have duly complied with. The ISM Code requires PIL to develop, implement and maintain a SMS in relation to the ISM Code. PIL’s SMS include, among other things:

A safety and environmental protection policy, instructions and procedures to ensure safe operation of the ships and protection of the environment in compliance with the relevant international and flag state legislation; procedures for reporting accidents, or to prepare for and respond to emergency situations; and procedures for external and internal audits and management reviews.

Each of the Company’s vessels has also been issued a Safety Management Certificate (SMC) under the approved Classification Society of Nippon Kaiji Kyokai (NKK) or Lloyd’s Register (LR), certifying that the SMS of the ship has been audited and that it complies with the requirements of the ISM Code.

3.0 CONCLUSION

Based on the evidence reviewed, this due diligence did not find significant issues of concern in regards to PAE’s management of solid sodium cyanide product. This assessment should not be a final acceptance of
PAE for future work; rather it is recommended that Orica continue to review and monitor PAE’s performance annually and implement an adaptive management process.

4.0 CLOSING

We trust this due diligence letter meets your requirements. If you have any questions, please do not hesitate to contact the undersigned.

GOLDER ASSOCIATES PTY LTD

Craig Currie
Environmental Scientist

Ed Clerk
ICMC Lead Auditor and Technical Specialist

CC/EWC/hsl
REFERENCES


31 July 2017

Owen Warren
Senior Manager Global Distribution
Orica
Email: owen.warren@orica.com

ICMC DUE DILIGENCE ASSESSMENT OF SWIRE SHIPPING

Dear Owen

EXECUTIVE SUMMARY

Golder Associates Pty Ltd (Golder) conducted a due diligence of Swire Shipping (Swire) during June 2017 on behalf of Orica Australia Pty Ltd (Orica). The assessment was conducted by Ed Clerk who meets the International Cyanide Management Institute’s (ICMI) requirements for a Transport Technical Specialist.

The following items, as detailed in the ICMI’s Auditor Guidance for Use of Cyanide Transportation Verification Protocol (December 2016), were addressed within the due diligence:

- Transport Practice 1.1 (Questions 1-4 and 6)
- Transport Practice 1.5 (Question 1, Items g-i)
- Transport Practice 1.6
- Transport Practice 2.1
- Transport Practice 3.1.

The ICMI’s Auditor Guidance for Use of Cyanide Transportation Verification Protocol (December 2016) was used to conduct the due diligence assessment. It was not possible during this due diligence to physically inspect the shipping company operations, as such the review was based on information obtained from previous due diligence reviews, ICMI audit reports and publicly available online information.

Based on the evidence reviewed, this due diligence did not find issues of concern in regards to Swire’s management of solid sodium cyanide product. This assessment should not be a final acceptance of Swire for future work; rather it is recommended that Orica continue to review and monitor Swire’s performance annually and implement an adaptive management process.
1.0 INTRODUCTION

This letter provides the results of a due diligence assessment against the shipping line Swire, in accordance with the International Cyanide Management Code for the Manufacture, Transport and Use of Cyanide in the Production of Gold (ICMC or the Code).

Golder conducted a desktop due diligence assessment of Swire during June 2017. The assessment was conducted by Ed Clerk who meets the International Cyanide Management Institute’s (ICMI) requirements for a Transport Technical Specialist.

The following items, as detailed in the ICMI’s Auditor Guidance for Use of Cyanide Transportation Verification Protocol (December 2016), were addressed within the due diligence:

- Introduction
- ICMC Transport Verification Protocol Assessment
  - Transport Practice 1.1 (Questions 1-4 and 6)
  - Transport Practice 1.5 (Question 1, Items g-i)
  - Transport Practice 1.6
  - Transport Practice 2.1
  - Transport Practice 3.1.
- Conclusion
- References.

The ICMI’s Auditor Guidance for Use of Cyanide Transportation Verification Protocol (December 2016) was used to conduct the due diligence assessment. Due to access restrictions, it was not possible during this due diligence to physically inspect the shipping company operations. The due diligence assessment was completed based on information obtained from previous due diligences, ICMI audit reports and publicly available online information.

1.1 Overview of Swire

Swire Shipping is the brand name for all liner shipping services operated by The China Navigation Company Pte Ltd. It has provided niche, regional, multipurpose shipping services since 1883 when The China Navigation Company established liner services in Australasia. From their traditional core trading area (the Asia – South Pacific region), they have expanded to offer shipping links between over 100 ports in Asia, Pacific Islands, Australia, New Zealand, North America, Europe the Middle East and the Indian Sub-Continent.

The China Navigation Company Pte Ltd is wholly owned by The China Navigation Company Ltd, a London registered company that oversees the marine operations of its parent company, John Swire and Sons.

2.0 ICMC TRANSPORT VERIFICATION PROTOCOL ASSESSMENT

The ICMI’s Auditor Guidance for Use of Cyanide Transportation Verification Protocol, General Guidance states:

Except as specifically identified in this Guidance document, the Cyanide Transportation Protocol is not to be used to evaluate transport by rail and ship or management of cyanide at rail terminals and port facilities due to security issues, limited access, and the inability of consignors to affect changes in the operating practices of these transport facilities. Rather than conduct Code audits of these facilities, the consignor must conduct and document due diligence investigations of rail carriers, rail terminals, shipping companies and port facilities that are engaged to handle cyanide shipments, as further discussed below under Transport Practice 1.1. The consignor’s due diligence investigation must either be conducted or reviewed by an auditor meeting ICMI requirements for a transport expert, and the auditor must conclude that the due diligence investigation has reasonably evaluated these facilities and that the consignor has, to the extent practical, implemented any necessary management measures.
Transport Practice 1.1: Select cyanide transport routes to minimise the potential for accidents and releases

The international sales and exports of sodium cyanide by Orica take into consideration the ports and their extended infrastructure available to service the intended target area. Orica only operates in export markets that are serviced by major international shipping companies with the ability to offer scheduled container services from point of origin to destination.

Orica procedure “Selection of Transport Routes – Transportation of Sodium Cyanide to Customer Sites or Stock Points” (Orica ref: UP-GLO-PRO-001-017) aims to minimise the risk associated with the transportation of sodium cyanide while maintaining a safe, reliable, efficient and cost effective delivery system to customer sites and Orica stock points throughout the world. The procedure applies to the selection of delivery routes for Orica sodium cyanide and states that the “selection of route(s) is to be effected by the overall assessment of the risks associated with the utilisation of such route, taking into particular consideration likelihood of an incident occurring and the consequence of such an incident.” This procedure is applicable to all routes used for the transportation of Orica sodium cyanide as well as to Orica’s contracted transportation agencies.

Swire Shipping is a carrier service providing international shipping of containers on a fleet of their container vessels. Containers containing solid sodium cyanide are placed and secured on their vessels at the loading port by the stevedoring company and removed at the port of destination by the stevedoring company at that port.

Basically, an export or international route will include the following:

- Orica production, packaging and despatch
- Road and rail transportation to port
- International shipping to destination port
- Road transportation to customer (mining operation).

In some instances, sodium cyanide shipments are unloaded at terminals en-route to its final destination. This is known as trans-shipping and involves a temporary set down within a port facility before loading onto another vessel for continuation of the delivery. It is at the discretion of Swire to determine when and where this occurs. Swire conducts itself in accordance with the International Maritime Organisation (IMO) Dangerous Goods (IMDG) Code and in a professional manner, this extends to the selection of terminals used by Swire for trans-shipping.

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

Orica’s manufacturing facility and transfer stations are ICMC certified, sodium cyanide is packaged and transported in accordance with international regulatory standards, such as the United Nations Recommendation on the Transport of Dangerous Goods – Model Regulations, (2005) and National Codes of Practice such as the Australian Code for the Transport of Dangerous Goods by Road or Rail, (2015) thereby meeting the requirements of the political jurisdictions through which the loads will pass.

Orica only operates in export markets that are serviced by major international shipping companies with the ability to offer scheduled container services from point of origin to destination. Orica procedure “Carrier Assessment” (Orica ref: SUP-GLO-PRO-016-008) provides the framework for ensuring that carriers and their contractors are assessed at regular intervals to ensure that, amongst others, storage, safety, security, maintenance and emergency response standards are being maintained. Carriers are required to provide manifest documentation, to satisfy local customs regulations and the requirements of the IMDG Code, to the destination port. This documentation contains a list of the cargo types and in the case of sodium cyanide and any other hazardous cargo the quantity, unique packaging numbers, stowage reference and emergency response procedures.
g) Does the ship carrying the cyanide have a list or manifest identifying the presence and location of the cyanide or a detailed stowage plan including this information, as required under Section 5.4.3.1 of the DG Code?

Swire transports sodium cyanide by sea to various destination ports. All packaging and transportation is in accordance with the IMDG Code.

Orica prepares a dangerous goods transport document known as the *Multimodal Dangerous Goods Form*. This form meets the requirements of the SOLAS 74, Chapter VII, Regulation 5 and the MARPOL 73/78, Annex III, Regulation 4. This form also has a container packaging certificate included that meets the requirements of Section 5.4.2 of the IMDG Code, as well as emergency response information. Upon arrival at the Port, the ship’s master provides the port with a copy of the *Multimodal Dangerous Goods Form*.

Documentation provided including Dangerous Goods manifest (including stowage plan) and Packaging Certificates for each container ensure that adequate information is available in order to identify the correct stowage and separation of dangerous goods. This information then determines the placement and segregation of the container on the vessel and handling through trans-shipment ports, if applicable.

Swire operations personnel provide the vessel’s Master with copies of the Emergency Information, Dangerous Goods manifest (including stowage plan), Packaging Certificates and the *Multimodal Dangerous Goods Form* for each hazardous cargo transport units loaded onto the ship at the port.

Swire has multiple cross checking layers to verify that products arriving at the laydown areas match those provided on the booking and that containers being loaded onto the vessels match those stipulated on the loading (or stowage) plan.

h) Does the ship carrying the cyanide have cyanide emergency response information, as required under Section 5.4.3.2 of the DG Code?

The manifests that are provided to the vessel Master contain emergency response information. The *Multimodal Dangerous Goods Form* also includes emergency response information.

Swire operations personnel provide the vessel’s Master with copies of the Emergency Information, Dangerous Goods manifest (including stowage plan), Packaging Certificates and the *Multimodal Dangerous Goods Form* for each hazardous cargo transport units loaded onto the ship at the port.

Emergency response procedures for ships carrying dangerous goods, including the emergency schedules to be followed in case of incidents involving dangerous substances, materials or articles, or harmful substances (marine pollutants), is regulated under the IMDG Code. In accordance with the Code, all ships, and the companies responsible for their operation, are required to maintain a Safety Management System (SMS). Within the SMS, procedures for responding to potential shipboard emergencies are required.

i) Does the ship comply with the stowage and separation requirements of Part 7 of the DG Code?

Swire comply with the stowage and separation requirements of Chapter 7 of the IMDG Code through the following:

- The *Multimodal Dangerous Goods Form* used by Orica and Swire is the document referenced in the IMDG Code (Chapter 5.4) and meets the requirements of SOLAS 74, chapter VII, regulation 4, MARPOL 73/78, Annex III, Regulation 4 and the provisions of the Code.

- A copy of the Form is provided to Swire for assigning the container reference numbers and sending the HAZCHEM bookings for finalisation. From the Form, data is entered into the Swire tracking and monitoring system that allows for the determination of placement and segregation of the containers on the vessel and handling through shipment ports.

- All containers (stipulated by their reference number) must be finalised by the vessel loading cut-off time. This requires the Form to be provided between 48 and 24 hours prior to cut-off.

- Sodium cyanide is designated a “red line” cargo and is only loaded to the vessel when called in.

- Upon approval, the loading plan is passed onto the stevedore for loading of the vessel.
Documentation provided including Dangerous Goods manifest (including stowage plan) and Packaging Certificates for each container ensure that adequate information is available in order to identify the correct stowage and separation of dangerous goods. This information then determines the placement and segregation of the container on the vessel and handling through trans-shipment ports, if applicable.

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

Swire vessels have continuous means of tracking and communication during their voyages. Swire has their own in-house tracking systems for tracking freight, which is linked by the container number and Bill of Lading (BOL) number. Communication equipment is tested through continuous use.

Chain of custody documentation is used by Swire to prevent the loss of cargo during shipment. This documentation includes the vessel manifest and Safety Data Sheets (SDS), which identifies the location and content of each container on the vessel.

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

All packaging and transportation of sodium cyanide is required to be in accordance with the IMDG Code.

Swire operations personnel provide the vessel’s Master with copies of the Emergency Information, Dangerous Goods manifest (including stowage plan), Packaging Certificates and the *Multimodal Dangerous Goods Form* for each hazardous cargo transport units loaded onto the ship at the port.

Orica’s product is packaged into purpose designed and built and product dedicated bulk sparge isotainers or into composite intermediate bulk containers (IBCs) contained within Twenty-foot Equivalent Units (TEUs), a general purpose shipping container. Bulk sparge isotainers are rated for sea transportation and inspected by Bureau Veritas under the 2.5 and 5 year inspection regime in accordance with IMDG Code requirements.

Composite IBCs consist of a 1300 kg bulk bag contained within a hermetically sealed plastic liner, placed in a wooden outer with an integral pallet base. As per the IMDG Code this packaging is referenced as UN/11HD2/X/***/AUS/Orica-30596/7020/1300 under the approval of the Competent Authority (where *** indicates the date the IBC was filled).

Orica’s packaging is labelled as per the IMDG Code. Bulk sparge isotainers and shipping containers containing composite IBCs are placarded with an emergency information panel (EIP) detailing the proper shipping name, dangerous goods class number, UN number, HAZCHEM Code and emergency contact information. Containers are placarded with the environmentally hazardous substance markings. Product labels are provided on the side of the IBC that allows forklift access via the pallet base. IBCs are placed into shipping containers so that the label is facing outwards.

All sodium cyanide remains contained within its sealed containers at all times preventing contact with water and other incompatible materials.

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

Swire operations personnel provide the vessel’s Master with copies of the Emergency Information, Dangerous Goods manifest (including stowage plan), Packaging Certificates and the Multimodal Dangerous Goods Form for each hazardous cargo transport units loaded onto the ship at the port.

**3.0 CONCLUSION**

Based on the evidence reviewed, this due diligence did not find significant issues of concern in regards to Swire’s management of solid sodium cyanide product. This assessment should not be a final acceptance of Swire for future work; rather it is recommended that Orica continue to review and monitor Swire’s performance annually and implement an adaptive management process.
4.0 CLOSING
We trust this due diligence letter meets your requirements. If you have any questions, please do not hesitate to contact the undersigned.

GOLDER ASSOCIATES PTY LTD

Craig Currie
Environmental Scientist

Ed Clerk
ICMC Lead Auditor and Technical Specialist

CC/EWC/hsl
REFERENCES
Golder Associates (2016). ICMC Due Diligence Assessment of Swire Shipping. Reference number 1530764-003-L-Rev0
ICMC DUE DILIGENCE ASSESSMENT OF MEDITERRANEAN SHIPPING COMPANY

Dear Owen

EXECUTIVE SUMMARY

Golder Associates Pty Ltd (Golder) conducted a due diligence of Mediterranean Shipping Company (MSC) during June 2017 on behalf of Orica Australia Pty Ltd (Orica). The assessment was conducted by Ed Clerk who meets the International Cyanide Management Institute’s (ICMI) requirements for a Transport Technical Specialist.

The following items, as detailed in the ICMI’s Auditor Guidance for Use of Cyanide Transportation Verification Protocol (December 2016), were addressed within the due diligence:

- Transport Practice 1.1 (Questions 1-4 and 6)
- Transport Practice 1.5 (Question 1, Items g-i)
- Transport Practice 1.6
- Transport Practice 2.1
- Transport Practice 3.1.

The ICMI’s Auditor Guidance for Use of Cyanide Transportation Verification Protocol (December 2016) was used to conduct the due diligence assessment. It was not possible during this due diligence to physically inspect the shipping company operations, as such the review was based on information obtained from previous due diligence reviews, ICMI audit reports and publicly available online information.

Based on the evidence reviewed, this due diligence did not find issues of concern in regards to MSC’s management of solid sodium cyanide product. This assessment should not be a final acceptance of MSC for future work; rather it is recommended that Orica continue to review and monitor MSC’s performance annually and implement an adaptive management process.

31 July 2017

Owen Warren
Senior Manager Global Distribution
Orica

Email: owen.warren@orica.com
1.0 INTRODUCTION

This letter provides the results of a due diligence assessment against the shipping line MSC, in accordance with the *International Cyanide Management Code for the Manufacture, Transport and Use of Cyanide in the Production of Gold* (ICMC or the Code).

Golder conducted a desktop due diligence assessment of MSC during June 2017. The assessment was conducted by Ed Clerk who meets the International Cyanide Management Institute’s (ICMI) requirements for a Transport Technical Specialist.

The following items, as detailed in the ICMI’s *Auditor Guidance for Use of Cyanide Transportation Verification Protocol* (December 2016), were addressed within the due diligence:

- Introduction
- ICMC Transport Verification Protocol Assessment
  - Transport Practice 1.1 (Questions 1-4 and 6)
  - Transport Practice 1.5 (Question 1, Items g-i)
  - Transport Practice 1.6
  - Transport Practice 2.1
  - Transport Practice 3.1.
- Conclusion
- References.

The ICMI’s *Auditor Guidance for Use of Cyanide Transportation Verification Protocol* (December 2016) was used to conduct the due diligence assessment. Due to access restrictions, it was not possible during this due diligence to physically inspect the shipping company operations. The due diligence assessment was completed based on information obtained from previous due diligence, ICMI audit reports and publicly available online information.

1.1 Overview of MSC

MSC is a privately owned global organisation operating a network of over 480 offices in 150 countries, employing over 60,000 individuals.

Headquartered in Geneva, Switzerland, MSC is engaged in worldwide container transport. MSC operates approximately 460 container vessels with the capacity to handle the equivalent capacity of 2.75 million Twenty-foot Equivalent Units (TEUs). MSC has global port coverage, operating on 200 different routes between 315 ports in 150 countries.

MSC has set up dangerous goods cargo management centres that manage the stowage of hazardous cargo worldwide through their MSC Link computer system headquartered in Antwerp. This hazardous cargo system is initiated when hazardous cargo is booked into the container booking MSC Link computer system. Specialist chemists are on-hand to ensure that chemical cargo is stowed and shipped in keeping with the necessary legal and safety requirements.

MSC’s vessels are registered by the Lloyd’s Register Group, which provides classification and certification of ships, and inspects and approves important components and accessories.
2.0 ICMC TRANSPORT VERIFICATION PROTOCOL ASSESSMENT

The ICMI’s Auditor Guidance for Use of Cyanide Transportation Verification Protocol, General Guidance states:

Except as specifically identified in this Guidance document, the Cyanide Transportation Protocol is not to be used to evaluate transport by rail and ship or management of cyanide at rail terminals and port facilities due to security issues, limited access, and the inability of consignors to affect changes in the operating practices of these transport facilities. Rather than conduct Code audits of these facilities, the consignor must conduct and document due diligence investigations of rail carriers, rail terminals, shipping companies and port facilities that are engaged to handle cyanide shipments, as further discussed below under Transport Practice 1.1. The consignor’s due diligence investigation must either be conducted or reviewed by an auditor meeting ICMI requirements for a transport expert, and the auditor must conclude that the due diligence investigation has reasonably evaluated these facilities and that the consignor has, to the extent practical, implemented any necessary management measures.

Transport Practice 1.1: Select cyanide transport routes to minimise the potential for accidents and releases

The international sales and exports of sodium cyanide by Orica take into consideration the ports and their extended infrastructure available to service the intended target area. Orica only operates in export markets that are serviced by major international shipping companies with the ability to offer scheduled container services from point of origin to destination.

Orica procedure “Selection of Transport Routes – Transportation of Sodium Cyanide to Customer Sites or Stock Points” (Orica ref: UP-GLO-PRO-001-017) aims to minimise the risk associated with the transportation of sodium cyanide while maintaining a safe, reliable, efficient and cost effective delivery system to customer sites and Orica stock points throughout the world. The procedure applies to the selection of delivery routes for Orica sodium cyanide and states that the “selection of route(s) is to be effected by the overall assessment of the risks associated with the utilisation of such route, taking into particular consideration likelihood of an incident occurring and the consequence of such an incident.” This procedure is applicable to all routes used for the transportation of Orica sodium cyanide as well as to Orica’s contracted transportation agencies.

MSC Shipping is a carrier service providing international shipping of containers on a fleet of their container vessels. Containers containing solid sodium cyanide are placed and secured on their vessels at the loading port by the stevedoring company and removed at the port of destination by the stevedoring company at that port.

Basically, an export or international route will include the following:

- Orica production, packaging and despatch
- Road and rail transportation to port
- International shipping to destination port
- Road transportation to customer (mining operation).

In some instances, sodium cyanide shipments are unloaded at terminals en-route to its final destination. This is known as trans-shipping and involves a temporary set down within a port facility before loading onto another vessel for continuation of the delivery. It is at the discretion of MSC to determine when and where this occurs. MSC conducts itself in accordance with the International Maritime Organisation (IMO) Dangerous Goods (IMDG) Code and in a professional manner, this extends to the selection of terminals used by MSC for trans-shipping.
Transport Practice 1.5: Follow international standards for the transportation of cyanide by sea and air

Orica’s manufacturing facility and transfer stations are ICMC certified, sodium cyanide is packaged and transported in accordance with international regulatory standards, such as the United Nations Recommendation on the Transport of Dangerous Goods – Model Regulations, (2005) and National Codes of Practice such as the Australian Code for the Transport of Dangerous Goods by Road or Rail, (2015) thereby meeting the requirements of the political jurisdictions through which the loads will pass.

Orica only operates in export markets that are serviced by major international shipping companies with the ability to offer scheduled container services from point of origin to destination. Orica procedure “Carrier Assessment” (Orica ref: SUP-GLO-PRO-016-008) provides the framework for ensuring that carriers and their contractors are assessed at regular intervals to ensure that, amongst others, storage, safety, security, maintenance and emergency response standards are being maintained. Carriers are required to provide manifest documentation, to satisfy local customs regulations and the requirements of the IMDG Code, to the destination port. This documentation contains a list of the cargo types and in the case of sodium cyanide and any other hazardous cargo the quantity, unique packaging numbers, stowage reference and emergency response procedures.

**g) Does the ship carrying the cyanide have a list or manifest identifying the presence and location of the cyanide or a detailed stowage plan including this information, as required under Section 5.4.3.1 of the DG Code?**

MSC transports sodium cyanide by sea to various destination ports. All packaging and transportation is in accordance with the IMDG Code.

Orica prepares a dangerous goods transport document known as the *Multimodal Dangerous Goods Form*. This form meets the requirements of the SOLAS 74, Chapter VII, Regulation 5 and the MARPOL 73/78, Annex III, Regulation 4. This form also has a container packaging certificate included that meets the requirements of Section 5.4.2 of the IMDG Code, as well as emergency response information. Upon arrival at the Port, the ship’s master provides the port with a copy of the *Multimodal Dangerous Goods Form*.

Documentation provided including Dangerous Goods manifest (including stowage plan) and Packaging Certificates for each container ensure that adequate information is available in order to identify the correct stowage and separation of dangerous goods. This information then determines the placement and segregation of the container on the vessel and handling through trans-shipment ports, if applicable.

MSC operations personnel provide the vessel’s Master with copies of the Emergency Information, Dangerous Goods manifest (including stowage plan), Packaging Certificates and the *Multimodal Dangerous Goods Form* for each hazardous cargo transport units loaded onto the ship at the port.

MSC has multiple cross checking layers to verify that products arriving at the laydown areas match those provided on the booking and that containers being loaded onto the vessels match those stipulated on the loading (or stowage) plan.

**h) Does the ship carrying the cyanide have cyanide emergency response information, as required under Section 5.4.3.2 of the DG Code?**

The manifests that are provided to the vessel Master contain emergency response information. The *Multimodal Dangerous Goods Form* also includes emergency response information.

MSC operations personnel provide the vessel’s Master with copies of the Emergency Information, Dangerous Goods manifest (including stowage plan), Packaging Certificates and the *Multimodal Dangerous Goods Form* for each hazardous cargo transport units loaded onto the ship at the port.

Emergency response procedures for ships carrying dangerous goods, including the emergency schedules to be followed in case of incidents involving dangerous substances, materials or articles, or harmful substances (marine pollutants), is regulated under the IMDG Code. In accordance with the Code, all ships, and the companies responsible for their operation, are required to maintain a Safety Management System (SMS). Within the SMS, procedures for responding to potential shipboard emergencies are required.
i) Does the ship comply with the stowage and separation requirements of Part 7 of the DG Code?

MSC comply with the stowage and separation requirements of Chapter 7 of the IMDG Code through the following:

- The *Multimodal Dangerous Goods Form* used by Orica and MSC is the document referenced in the IMDG Code (Chapter 5.4) and meets the requirements of SOLAS 74, chapter VII, regulation 4, MARPOL 73/78, Annex III, Regulation 4 and the provisions of the Code.

- A copy of the *Form* is provided to MSC for assigning the container reference numbers and sending the HAZCHEM bookings for finalisation. From the *Form*, data is entered into the MSC tracking and monitoring system that allows for the determination of placement and segregation of the containers on the vessel and handling through shipment ports.

- All containers (stipulated by their reference number) must be finalised by the vessel loading cut-off time. This requires the *Form* to be provided between 48 and 24 hours prior to cut-off.

- Sodium cyanide is designated a “red line” cargo and is only loaded to the vessel when called in.

- Upon approval, the loading plan is passed onto the stevedore for loading of the vessel.

Documentation provided including Dangerous Goods manifest (including stowage plan) and Packaging Certificates for each container ensure that adequate information is available in order to identify the correct stowage and separation of dangerous goods. This information then determines the placement and segregation of the container on the vessel and handling through trans-shipment ports, if applicable.

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

MSC vessels have continuous means of tracking and communication during their voyages. MSC has their own in-house tracking systems for tracking freight, which is linked by the container number and Bill of Lading (BOL) number. Communication equipment is tested through continuous use.

Chain of custody documentation is used by MSC to prevent the loss of cargo during shipment. This documentation includes the vessel manifest and Safety Data Sheets (SDS), which identifies the location and content of each container on the vessel.

MSC has set up dangerous goods cargo management centres that control the proper stowage of hazardous cargo worldwide through their MSC Link computer system headquartered in Antwerp. This hazardous cargo system is initiated when hazardous cargo is booked into the container booking MSC Link computer system.

Vessels are registered by the Lloyd’s Register Group, which provides classification and certification of ships, and inspects and approves important components and accessories.

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

All packaging and transportation of sodium cyanide is required to be in accordance with the IMDG Code.

MSC operations personnel provide the vessel’s Master with copies of the Emergency Information, Dangerous Goods manifest (including stowage plan), Packaging Certificates and the *Multimodal Dangerous Goods Form* for each hazardous cargo transport units loaded onto the ship at the port.

Orica’s product is packaged into purpose designed and built and product dedicated bulk sparge isotainers or into composite intermediate bulk containers (IBCs) contained within Twenty-foot Equivalent Units (TEUs), a general purpose shipping container. Bulk sparge isotainers are rated for sea transportation and inspected by Bureau Veritas under the 2.5 and 5 year inspection regime in accordance with IMDG Code requirements.

Composite IBCs consist of a 1300 kg bulk bag contained within a hermetically sealed plastic liner, placed in a wooden outer with an integral pallet base. As per the IMO DG Code this packaging is referenced as UN/11HD2/X/****/AUS/Orica-30596/7020/1300 under the approval of the Competent Authority (where **** indicates the date the IBC was filled).
Orica’s packaging is labelled as per the IMDG Code. Bulk sparge isotainers and shipping containers containing composite IBCs are placarded with an emergency information panel (EIP) detailing the proper shipping name, dangerous goods class number, UN number, HAZCHEM Code and emergency contact information. Containers are placarded with the environmentally hazardous substance markings. Product labels are provided on the side of the IBC that allows forklift access via the pallet base. IBCs are placed into shipping containers so that the label is facing outwards.

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

MSC operations personnel provide the vessel’s Master with copies of the Emergency Information, Dangerous Goods manifest (including stowage plan), Packaging Certificates and the Multimodal Dangerous Goods Form for each hazardous cargo transport units loaded onto the ship at the port.

3.0 CONCLUSION

Based on the evidence reviewed, this due diligence did not find significant issues of concern in regards to MSC’s management of solid sodium cyanide product. This assessment should not be a final acceptance of MSC for future work; rather it is recommended that Orica continue to review and monitor MSC’s performance annually and implement an adaptive management process.

4.0 CLOSING

We trust this due diligence letter meets your requirements. If you have any questions, please do not hesitate to contact the undersigned.
REFERENCES

Golder Associates (2016). ICMC Due Diligence Assessment of Mediterranean Shipping Company. Reference number 1650011-005-L-Rev0


ICMC DUE DILIGENCE ASSESSMENT OF HAMBURG SUD SHIPPING

Dear Owen

EXECUTIVE SUMMARY

Golder Associates Pty Ltd (Golder) conducted a due diligence of Hamburg SUD Shipping (Hamburg) during June 2017 on behalf of Orica Australia Pty Ltd (Orica). The assessment was conducted by Ed Clerk who meets the International Cyanide Management Institute’s (ICMI) requirements for a Transport Technical Specialist.

The following items, as detailed in the ICMI’s Auditor Guidance for Use of Cyanide Transportation Verification Protocol (December 2016), were addressed within the due diligence:

- Transport Practice 1.1 (Questions 1-4 and 6)
- Transport Practice 1.5 (Question 1, Items g-i)
- Transport Practice 1.6
- Transport Practice 2.1
- Transport Practice 3.1.

The ICMI’s Auditor Guidance for Use of Cyanide Transportation Verification Protocol (December 2016) was used to conduct the due diligence assessment. It was not possible during this due diligence to physically inspect the shipping company operations, as such the review was based on information obtained from previous due diligence reviews, ICMI audit reports and publicly available online information.

Based on the evidence reviewed, this due diligence did not find issues of concern in regards to Hamburg’s management of solid sodium cyanide product. This assessment should not be a final acceptance of Hamburg for future work; rather it is recommended that Orica continue to review and monitor Hamburg's performance annually and implement an adaptive management process.
1.0 INTRODUCTION

This letter provides the results of a due diligence assessment against the shipping line Hamburg, in accordance with the International Cyanide Management Code for the Manufacture, Transport and Use of Cyanide in the Production of Gold (ICMC or the Code).

Golder conducted a desktop due diligence assessment of Hamburg during June 2017. The assessment was conducted by Ed Clerk who meets the International Cyanide Management Institute’s (ICMI) requirements for a Transport Technical Specialist.

The following items, as detailed in the ICMI’s Auditor Guidance for Use of Cyanide Transportation Verification Protocol (December 2016), were addressed within the due diligence:

- Introduction
- ICMC Transport Verification Protocol Assessment
  - Transport Practice 1.1 (Questions 1-4 and 6)
  - Transport Practice 1.5 (Question 1, Items g-i)
  - Transport Practice 1.6
  - Transport Practice 2.1
  - Transport Practice 3.1.
- Conclusion
- References.

The ICMI’s Auditor Guidance for Use of Cyanide Transportation Verification Protocol (December 2016) was used to conduct the due diligence assessment. Due to access restrictions, it was not possible during this due diligence to physically inspect the shipping company operations. The due diligence assessment was completed based on information obtained from previous due diligences, ICMI audit reports and publicly available online information.

1.1 Overview of Hamburg

Operating a fleet of 177 ships, Hamburg employs 6 300 personnel around the globe. Hamburg transported a cargo volume of 4 395 000 Twenty-foot Equivalent Units (TEUs) in 2016. This consisted of dry container goods, general bulk, refrigerated cargo and dangerous goods.

Hamburg Süd examine dangerous goods transport enquiries on a case-by-case basis, to ensure compliance with statutory regulations. There are established and dedicated teams of qualified dangerous goods experts in the various business regions to assist and advise on the dangerous goods requirements. These experts are guided and monitored by a certified Dangerous Goods Safety Advisor (DGSA) and all safety and environmental requirements are met prior to transportation.

An integrated management system at Hamburg guarantees quality, environmental sustainability, and the safety of people, ships, and cargo. Since 1996, Hamburg has been certified under the ISO 9001 quality standard. The International Safety Management (ISM) Code for safe ship operation was also adopted in the same year. Hamburg expanded on these in 2000 when their environmental management system was certified under ISO 14001.
2.0 ICMC TRANSPORT VERIFICATION PROTOCOL ASSESSMENT

The ICMI’s Auditor Guidance for Use of Cyanide Transportation Verification Protocol, General Guidance states:

Except as specifically identified in this Guidance document, the Cyanide Transportation Protocol is not to be used to evaluate transport by rail and ship or management of cyanide at rail terminals and port facilities due to security issues, limited access, and the inability of consignors to affect changes in the operating practices of these transport facilities. Rather than conduct Code audits of these facilities, the consignor must conduct and document due diligence investigations of rail carriers, rail terminals, shipping companies and port facilities that are engaged to handle cyanide shipments, as further discussed below under Transport Practice 1.1. The consignor’s due diligence investigation must either be conducted or reviewed by an auditor meeting ICMI requirements for a transport expert, and the auditor must conclude that the due diligence investigation has reasonably evaluated these facilities and that the consignor has, to the extent practical, implemented any necessary management measures.

Transport Practice 1.1: Select cyanide transport routes to minimise the potential for accidents and releases

The international sales and exports of sodium cyanide by Orica take into consideration the ports and their extended infrastructure available to service the intended target area. Orica only operates in export markets that are serviced by major international shipping companies with the ability to offer scheduled container services from point of origin to destination.

Orica procedure “Selection of Transport Routes – Transportation of Sodium Cyanide to Customer Sites or Stock Points” (Orica ref: UP-GLO-PRO-001-017) aims to minimise the risk associated with the transportation of sodium cyanide while maintaining a safe, reliable, efficient and cost effective delivery system to customer sites and Orica stock points throughout the world. The procedure applies to the selection of delivery routes for Orica sodium cyanide and states that the “selection of route(s) is to be effected by the overall assessment of the risks associated with the utilisation of such route, taking into particular consideration likelihood of an incident occurring and the consequence of such an incident.” This procedure is applicable to all routes used for the transportation of Orica sodium cyanide as well as to Orica’s contracted transportation agencies.

Hamburg Shipping is a carrier service providing international shipping of containers on a fleet of their container vessels. Containers containing solid sodium cyanide are placed and secured on their vessels at the loading port by the stevedoring company and removed at the port of destination by the stevedoring company at that port.

Basically, an export or international route will include the following:

- Orica production, packaging and despatch
- Road and rail transportation to port
- International shipping to destination port
- Road transportation to customer (mining operation).

In some instances, sodium cyanide shipments are unloaded at terminals en-route to its final destination. This is known as trans-shipping and involves a temporary set down within a port facility before loading onto another vessel for continuation of the delivery. It is at the discretion of Hamburg to determine when and where this occurs. Hamburg conducts itself in accordance with the International Maritime Organisation (IMO) Dangerous Goods (IMDG) Code and in a professional manner, this extends to the selection of terminals used by Hamburg for trans-shipping.
Transport Practice 1.5: Follow international standards for the transportation of cyanide by sea and air

Orica's manufacturing facility and transfer stations are ICMC certified, sodium cyanide is packaged and transported in accordance with international regulatory standards, such as the United Nations Recommendation on the Transport of Dangerous Goods – Model Regulations, (2005) and National Codes of Practice such as the Australian Code for the Transport of Dangerous Goods by Road or Rail, (2015) thereby meeting the requirements of the political jurisdictions through which the loads will pass.

Orica only operates in export markets that are serviced by major international shipping companies with the ability to offer scheduled container services from point of origin to destination. Orica procedure “Carrier Assessment” (Orica ref: SUP-GLO-PRO-016-008) provides the framework for ensuring that carriers and their contractors are assessed at regular intervals to ensure that, amongst others, storage, safety, security, maintenance and emergency response standards are being maintained. Carriers are required to provide manifest documentation, to satisfy local customs regulations and the requirements of the IMDG Code, to the destination port. This documentation contains a list of the cargo types and in the case of sodium cyanide and any other hazardous cargo the quantity, unique packaging numbers, stowage reference and emergency response procedures.

**g) Does the ship carrying the cyanide have a list or manifest identifying the presence and location of the cyanide or a detailed stowage plan including this information, as required under Section 5.4.3.1 of the DG Code?**

Hamburg transports sodium cyanide by sea to various destination ports. All packaging and transportation is in accordance with the IMDG Code.

Orica prepares a dangerous goods transport document known as the *Multimodal Dangerous Goods Form*. This form meets the requirements of the SOLAS 74, Chapter VII, Regulation 5 and the MARPOL 73/78, Annex III, Regulation 4. This form also has a container packaging certificate included that meets the requirements of Section 5.4.2 of the IMDG Code, as well as emergency response information. Upon arrival at the Port, the ship’s master provides the port with a copy of the *Multimodal Dangerous Goods Form*.

Documentation provided including Dangerous Goods manifest (including stowage plan) and Packaging Certificates for each container ensure that adequate information is available in order to identify the correct stowage and separation of dangerous goods. This information then determines the placement and segregation of the container on the vessel and handling through trans-shipment ports, if applicable.

Hamburg operations personnel provide the vessel’s Master with copies of the Emergency Information, Dangerous Goods manifest (including stowage plan), Packaging Certificates and the *Multimodal Dangerous Goods Form* for each hazardous cargo transport units loaded onto the ship at the port.

Hamburg has multiple cross checking layers to verify that products arriving at the laydown areas match those provided on the booking and that containers being loaded onto the vessels match those stipulated on the loading (or stowage) plan.

**h) Does the ship carrying the cyanide have cyanide emergency response information, as required under Section 5.4.3.2 of the DG Code?**

The manifests that are provided to the vessel Master contain emergency response information. The *Multimodal Dangerous Goods Form* also includes emergency response information.

Hamburg operations personnel provide the vessel’s Master with copies of the Emergency Information, Dangerous Goods manifest (including stowage plan), Packaging Certificates and the *Multimodal Dangerous Goods Form* for each hazardous cargo transport units loaded onto the ship at the port.

Emergency response procedures for ships carrying dangerous goods, including the emergency schedules to be followed in case of incidents involving dangerous substances, materials or articles, or harmful substances (marine pollutants), is regulated under the IMDG Code. In accordance with the Code, all ships, and the companies responsible for their operation, are required to maintain a Safety Management System (SMS). Within the SMS, procedures for responding to potential shipboard emergencies are required.
**i) Does the ship comply with the stowage and separation requirements of Part 7 of the DG Code?**

Hamburg comply with the stowage and separation requirements of Chapter 7 of the IMDG Code through the following:

- The *Multimodal Dangerous Goods Form* used by Orica and Hamburg is the document referenced in the IMDG Code (Chapter 5.4) and meets the requirements of SOLAS 74, chapter VII, regulation 4, MARPOL 73/78, Annex III, Regulation 4 and the provisions of the Code.

- A copy of the *Form* is provided to Hamburg for assigning the container reference numbers and sending the HAZCHEM bookings for finalisation. From the *Form*, data is entered into the Hamburg tracking and monitoring system that allows for the determination of placement and segregation of the containers on the vessel and handling through shipment ports.

- All containers (stipulated by their reference number) must be finalised by the vessel loading cut-off time. This requires the *Form* to be provided between 48 and 24 hours prior to cut-off.

- Sodium cyanide is designated a “red line” cargo and is only loaded to the vessel when called in.

- Upon approval, the loading plan is passed onto the stevedore for loading of the vessel.

Documentation provided including Dangerous Goods manifest (including stowage plan) and Packaging Certificates for each container ensure that adequate information is available in order to identify the correct stowage and separation of dangerous goods. This information then determines the placement and segregation of the container on the vessel and handling through trans-shipment ports, if applicable.

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

Hamburg vessels have continuous means of tracking and communication during their voyages. Hamburg has their own in-house tracking systems for tracking freight, which is linked by the container number and Bill of Lading (BOL) number. Communication equipment is tested through continuous use.

Chain of custody documentation is used by Hamburg to prevent the loss of cargo during shipment. This documentation includes the vessel manifest and Safety Data Sheets (SDS), which identifies the location and content of each container on the vessel.

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

All packaging and transportation of sodium cyanide is required to be in accordance with the IMDG Code.

Hamburg operations personnel provide the vessel’s Master with copies of the Emergency Information, Dangerous Goods manifest (including stowage plan), Packaging Certificates and the *Multimodal Dangerous Goods Form* for each hazardous cargo transport units loaded onto the ship at the port.

Orica’s product is packaged into purpose designed and built and product dedicated bulk sparge isotainers or into composite intermediate bulk containers (IBCs) contained within Twenty-foot Equivalent Units (TEUs), a general purpose shipping container. Bulk sparge isotainers are rated for sea transportation and inspected by Bureau Veritas under the 2.5 and 5 year inspection regime in accordance with IMDG Code requirements.

Composite IBCs consist of a 1300 kg bulk bag contained within a hermetically sealed plastic liner, placed in a wooden outer with an integral pallet base. As per the IMO DG Code this packaging is referenced as UN/11HD2/X/****/AUS/Orica-30596/7020/1300 under the approval of the Competent Authority (where **** indicates the date the IBC was filled).

Orica’s packaging is labelled as per the IMDG Code. Bulk sparge isotainers and shipping containers containing composite IBCs are placarded with and emergency information panel (EIP) detailing the proper shipping name, dangerous goods class number, UN number, HAZCHEM Code and emergency contact information. Containers are placarded with the environmentally hazardous substance markings. Product labels are provided on the side of the IBC that allows forklift access via the pallet base. IBCs are placed into shipping containers so that the label is facing outwards.
Transport Practice 3.1: Prepare detailed emergency response plans for potential cyanide releases

Hamburg operations personnel provide the vessel’s Master with copies of the Emergency Information, Dangerous Goods manifest (including stowage plan), Packaging Certificates and the Multimodal Dangerous Goods Form for each hazardous cargo transport units loaded onto the ship at the port.

Hamburg operates in compliance with the International Safety Management (ISM) Code which provides an international standard for the safe management and operation of ships, and for pollution prevention, which Hamburg and its vessels have duly complied with.

In accordance with the ISM Code, Hamburg has developed, implements and maintains a Security Safety policy and management system to ensure safe operation of the ships and protection of the environment in compliance with the relevant international and flag state legislation. This includes procedures for reporting accidents, or to prepare for and respond to emergency situations.

3.0 CONCLUSION

Based on the evidence reviewed, this due diligence did not find significant issues of concern in regards to Hamburg’s management of solid sodium cyanide product. This assessment should not be a final acceptance of Hamburg for future work; rather it is recommended that Orica continue to review and monitor Hamburg’s performance annually and implement an adaptive management process.

4.0 CLOSING

We trust this due diligence letter meets your requirements. If you have any questions, please do not hesitate to contact the undersigned.

GOLDER ASSOCIATES PTY LTD

Craig Currie
Environmental Scientist

Ed Clerk
ICMC Lead Auditor and Technical Specialist

CC/EWC/hsl
REFERENCES


ICMC DUE DILIGENCE ASSESSMENT OF ANL SHIPPING

Dear Owen

EXECUTIVE SUMMARY

Golder Associates Pty Ltd (Golder) conducted a due diligence of ANL Shipping during June 2017 on behalf of Orica Australia Pty Ltd (Orica). The assessment was conducted by Ed Clerk who meets the International Cyanide Management Institute’s (ICMI) requirements for a Transport Technical Specialist.

The following items, as detailed in the ICMI’s Auditor Guidance for Use of Cyanide Transportation Verification Protocol (December 2016), were addressed within the due diligence:

- Transport Practice 1.1 (Questions 1-4 and 6)
- Transport Practice 1.5 (Question 1, Items g-i)
- Transport Practice 1.6
- Transport Practice 2.1
- Transport Practice 3.1.

The ICMI’s Auditor Guidance for Use of Cyanide Transportation Verification Protocol (December 2016) was used to conduct the due diligence assessment. It was not possible during this due diligence to physically inspect the shipping company operations, as such the review was based on information obtained from previous due diligence reviews, ICMI audit reports and publicly available online information.

Based on the evidence reviewed, this due diligence did not find issues of concern in regards to ANL’s management of solid sodium cyanide product. This assessment should not be a final acceptance of ANL for future work; rather it is recommended that Orica continue to review and monitor ANL’s performance annually and implement an adaptive management process.
1.0 INTRODUCTION

This letter provides the results of a due diligence assessment against the shipping line ANL, in accordance with the *International Cyanide Management Code for the Manufacture, Transport and Use of Cyanide in the Production of Gold* (ICMC or the Code).

Golder conducted a desktop due diligence assessment of ANL during June 2017. The assessment was conducted by Ed Clerk who meets the International Cyanide Management Institute’s (ICMI) requirements for a Transport Technical Specialist.

The following items, as detailed in the ICMI’s *Auditor Guidance for Use of Cyanide Transportation Verification Protocol* (December 2016), were addressed within the due diligence:

- Introduction
- ICMC Transport Verification Protocol Assessment
  - Transport Practice 1.1 (Questions 1-4 and 6)
  - Transport Practice 1.5 (Question 1, Items g-i)
  - Transport Practice 1.6
  - Transport Practice 2.1
  - Transport Practice 3.1.
- Conclusion
- References.

The ICMI’s *Auditor Guidance for Use of Cyanide Transportation Verification Protocol* (December 2016) was used to conduct the due diligence assessment. Due to access restrictions, it was not possible during this due diligence to physically inspect the shipping company operations. The due diligence assessment was completed based on information obtained from previous due diligences, ICMI audit reports and publicly available online information.

1.1 Overview of ANL

Headquartered in Melbourne Australia and with regional offices and agents around the globe, ANL provides an international cargo shipping service. ANL is part of the CMA CGM Group, the third largest container shipping line in the world. The Group operates on more than 200 shipping routes with over 445 vessels, calling at 420 ports in 160 countries, and employs 29 000 staff in 600 agencies and offices around the world. In 2016, ANL and the greater CMA CGM Group transported over 15.6 million Twenty-foot Equivalent Units (TEUs) and had an annual turnover of US$16 billion – ANL’s contribution was approximately 1.5 million TEUs.

ANL has an extensive range of East-West services between Asia, the Mediterranean, Indian Subcontinent and Europe and North America. In addition they also offer comprehensive coverage in the Asia-Pacific region, providing various services around Australia and between Australia and all parts of Asia, PNG and New Zealand.
2.0 ICMC TRANSPORT VERIFICATION PROTOCOL ASSESSMENT

The ICMI’s Auditor Guidance for Use of Cyanide Transportation Verification Protocol, General Guidance states:

Except as specifically identified in this Guidance document, the Cyanide Transportation Protocol is not to be used to evaluate transport by rail and ship or management of cyanide at rail terminals and port facilities due to security issues, limited access, and the inability of consignors to affect changes in the operating practices of these transport facilities. Rather than conduct Code audits of these facilities, the consignor must conduct and document due diligence investigations of rail carriers, rail terminals, shipping companies and port facilities that are engaged to handle cyanide shipments, as further discussed below under Transport Practice 1.1. The consignor’s due diligence investigation must either be conducted or reviewed by an auditor meeting ICMI requirements for a transport expert, and the auditor must conclude that the due diligence investigation has reasonably evaluated these facilities and that the consignor has, to the extent practical, implemented any necessary management measures.

Transport Practice 1.1: Select cyanide transport routes to minimise the potential for accidents and releases

The international sales and exports of sodium cyanide by Orica take into consideration the ports and their extended infrastructure available to service the intended target area. Orica only operates in export markets that are serviced by major international shipping companies with the ability to offer scheduled container services from point of origin to destination.

Orica procedure “Selection of Transport Routes – Transportation of Sodium Cyanide to Customer Sites or Stock Points” (Orica ref: UP-GLO-PRO-001-017) aims to minimise the risk associated with the transportation of sodium cyanide while maintaining a safe, reliable, efficient and cost effective delivery system to customer sites and Orica stock points throughout the world. The procedure applies to the selection of delivery routes for Orica sodium cyanide and states that the “selection of route(s) is to be effected by the overall assessment of the risks associated with the utilisation of such route, taking into particular consideration likelihood of an incident occurring and the consequence of such an incident.” This procedure is applicable to all routes used for the transportation of Orica sodium cyanide as well as to Orica’s contracted transportation agencies.

ANL Shipping is a carrier service providing international shipping of containers on a fleet of their container vessels. Containers containing solid sodium cyanide are placed and secured on their vessels at the loading port by the stevedoring company and removed at the port of destination by the stevedoring company at that port.

Basically, an export or international route will include the following:

- Orica production, packaging and despatch
- Road and rail transportation to port
- International shipping to destination port
- Road transportation to customer (mining operation).

In some instances, sodium cyanide shipments are unloaded at terminals en-route to its final destination. This is known as trans-shipping and involves a temporary set down within a port facility before loading onto another vessel for continuation of the delivery. It is at the discretion of ANL to determine when and where this occurs. ANL conducts itself in accordance with the International Maritime Organisation (IMO) Dangerous Goods (IMDG) Code and in a professional manner, this extends to the selection of terminals used by ANL for trans-shipping.
Transport Practice 1.5: Follow international standards for the transportation of cyanide by sea and air

Orica's manufacturing facility and transfer stations are ICMC certified, sodium cyanide is packaged and transported in accordance with international regulatory standards, such as the United Nations Recommendation on the Transport of Dangerous Goods – Model Regulations, (2005) and National Codes of Practice such as the Australian Code for the Transport of Dangerous Goods by Road or Rail, (2015) thereby meeting the requirements of the political jurisdictions through which the loads will pass.

Orica only operates in export markets that are serviced by major international shipping companies with the ability to offer scheduled container services from point of origin to destination. Orica procedure “Carrier Assessment” (Orica ref: SUP-GLO-PRO-016-008) provides the framework for ensuring that carriers and their contractors are assessed at regular intervals to ensure that, amongst others, storage, safety, security, maintenance and emergency response standards are being maintained. Carriers are required to provide manifest documentation, to satisfy local customs regulations and the requirements of the IMDG Code, to the destination port. This documentation contains a list of the cargo types and in the case of sodium cyanide and any other hazardous cargo the quantity, unique packaging numbers, stowage reference and emergency response procedures.

g) Does the ship carrying the cyanide have a list or manifest identifying the presence and location of the cyanide or a detailed stowage plan including this information, as required under Section 5.4.3.1 of the DG Code?

ANL transports sodium cyanide by sea to various destination ports. All packaging and transportation is in accordance with the IMDG Code.

Orica prepares a dangerous goods transport document known as the Multimodal Dangerous Goods Form. This form meets the requirements of the SOLAS 74, Chapter VII, Regulation 5 and the MARPOL 73/78, Annex III, Regulation 4. This form also has a container packaging certificate included that meets the requirements of Section 5.4.2 of the IMDG Code, as well as emergency response information. Upon arrival at the Port, the ship’s master provides the port with a copy of the Multimodal Dangerous Goods Form.

Documentation provided including Dangerous Goods manifest (including stowage plan) and Packaging Certificates for each container ensure that adequate information is available in order to identify the correct stowage and separation of dangerous goods. This information then determines the placement and segregation of the container on the vessel and handling through trans-shipment ports, if applicable.

ANL operations personnel provide the vessel's Master with copies of the Emergency Information, Dangerous Goods manifest (including stowage plan), Packaging Certificates and the Multimodal Dangerous Goods Form for each hazardous cargo transport units loaded onto the ship at the port.

All goods classified as “hazardous” by international regulation (IMDG Code) or national regulations (49CFR for the USA) carried under a CMA CGM Bill of Lading (or associate company) are controlled by one of their five “hazardous desks” (Marseilles, Le Havre, Hong Kong, Melbourne and Norfolk). The requirement for management of hazardous cargo is initiated when hazardous cargo is booked into the container booking system and ensures shipments meet the IMDG Code requirements.

ANL has multiple cross checking layers to verify that products arriving at the laydown areas match those provided on the booking and that containers being loaded onto the vessels match those stipulated on the loading (or stowage) plan.

h) Does the ship carrying the cyanide have cyanide emergency response information, as required under Section 5.4.3.2 of the DG Code?

The manifests that are provided to the vessel Master contain emergency response information. The Multimodal Dangerous Goods Form also includes emergency response information.

ANL operations personnel provide the vessel's Master with copies of the Emergency Information, Dangerous Goods manifest (including stowage plan), Packaging Certificates and the Multimodal Dangerous Goods Form for each hazardous cargo transport units loaded onto the ship at the port.
Emergency response procedures for ships carrying dangerous goods, including the emergency schedules to be followed in case of incidents involving dangerous substances, materials or articles, or harmful substances (marine pollutants), is regulated under the IMDG Code. In accordance with the Code, all ships, and the companies responsible for their operation, are required to maintain a Safety Management System (SMS). Within the SMS, procedures for responding to potential shipboard emergencies are required.

**i) Does the ship comply with the stowage and separation requirements of Part 7 of the DG Code?**

ANL comply with the stowage and separation requirements of Chapter 7 of the IMDG Code through the following:

- The *Multimodal Dangerous Goods Form* used by Orica and ANL is the document referenced in the IMDG Code (Chapter 5.4) and meets the requirements of SOLAS 74, chapter VII, regulation 4, MARPOL 73/78, Annex III, Regulation 4 and the provisions of the Code.

- A copy of the *Form* is provided to ANL for assigning the container reference numbers and sending the HAZCHEM bookings for finalisation. From the *Form*, data is entered into the ANL tracking and monitoring system that allows for the determination of placement and segregation of the containers on the vessel and handling through shipment ports.

- All containers (stipulated by their reference number) must be finalised by the vessel loading cut-off time. This requires the *Form* to be provided between 48 and 24 hours prior to cut-off.

- Sodium cyanide is designated a “red line” cargo and is only loaded to the vessel when called in.

- Upon approval, the loading plan is passed onto the stevedore for loading of the vessel.

Documentation provided including Dangerous Goods manifest (including stowage plan) and Packaging Certificates for each container ensure that adequate information is available in order to identify the correct stowage and separation of dangerous goods. This information then determines the placement and segregation of the container on the vessel and handling through trans-shipment ports, if applicable.

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

ANL vessels have continuous means of tracking and communication during their voyages. ANL has their own in-house tracking systems for tracking freight, which is linked by the container number and Bill of Lading (BOL) number. Communication equipment is tested through continuous use.

Chain of custody documentation is used by ANL to prevent the loss of cargo during shipment. This documentation includes the vessel manifest and Safety Data Sheets (SDS), which identifies the location and content of each container on the vessel.

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

All packaging and transportation of sodium cyanide is required to be in accordance with the IMDG Code.

ANL operations personnel provide the vessel’s Master with copies of the Emergency Information, Dangerous Goods manifest (including stowage plan), Packaging Certificates and the *Multimodal Dangerous Goods Form* for each hazardous cargo transport units loaded onto the ship at the port.

Orica’s product is packaged into purpose designed and built and product dedicated bulk sparge isotainers or into composite intermediate bulk containers (IBCs) contained within Twenty-foot Equivalent Units (TEUs), a general purpose shipping container. Bulk sparge isotainers are rated for sea transportation and inspected by Bureau Veritas under the 2.5 and 5 year inspection regime in accordance with IMDG Code requirements.

Composite IBCs consist of a 1300 kg bulk bag contained within a hermetically sealed plastic liner, placed in a wooden outer with an integral pallet base. As per the IMO DG Code this packaging is referenced as UN/11HD2/X/****/AUS/Orica-30596/7020/1300 under the approval of the Competent Authority (where **** indicates the date the IBC was filled).
Orica’s packaging is labelled as per the IMDG Code. Bulk sparge isotainers and shipping containers containing composite IBCs are placarded with an emergency information panel (EIP) detailing the proper shipping name, dangerous goods class number, UN number, HAZCHEM Code and emergency contact information. Containers are placarded with the environmentally hazardous substance markings. Product labels are provided on the side of the IBC that allows forklift access via the pallet base. IBCs are placed into shipping containers so that the label is facing outwards.

In accordance with the International Safety Management (ISM) Code, ANL has developed, implements and maintains a Security Safety policy and management system to ensure safe operation of the ships and protection of the environment in compliance with the relevant international and flag state legislation. This includes procedures for reporting accidents, or to prepare for and respond to emergency situations.

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

ANL operations personnel provide the vessel’s Master with copies of the Emergency Information, Dangerous Goods manifest (including stowage plan), Packaging Certificates and the Multimodal Dangerous Goods Form for each hazardous cargo transport units loaded onto the ship at the port.

ANL operates in compliance with the ISM Code which provides an international standard for the safe management and operation of ships, and for pollution prevention, which ANL and its vessels have duly complied with.

In accordance with the ISM Code, ANL has developed, implements and maintains a Security Safety policy and management system to ensure safe operation of the ships and protection of the environment in compliance with the relevant international and flag state legislation. This includes procedures for reporting accidents, or to prepare for and respond to emergency situations.

### 3.0 CONCLUSION

Based on the evidence reviewed, this due diligence did not find significant issues of concern in regards to ANL’s management of solid sodium cyanide product. This assessment should not be a final acceptance of ANL for future work; rather it is recommended that Orica continue to review and monitor ANL’s performance annually and implement an adaptive management process.

### 4.0 CLOSING

We trust this due diligence letter meets your requirements. If you have any questions, please do not hesitate to contact the undersigned.

---

GOLDER ASSOCIATES PTY LTD

Craig Currie
Environmental Scientist

Ed Clerk
ICMC Lead Auditor and Technical Specialist

CC/EWC/hsl
REFERENCES


EXECUTIVE SUMMARY

Golder Associates Pty Ltd (Golder) conducted a due diligence of Maersk Line (Maersk) during April 2017 on behalf of Orica Australia Pty Ltd (Orica). The assessment was conducted by Ed Clerk who meets the International Cyanide Management Institute’s (ICMI) requirements for a Transport Technical Specialist.

The following items, as detailed in the ICMI’s Auditor Guidance for Use of Cyanide Transportation Verification Protocol (December 2016), were addressed within the due diligence:

- Transport Practice 1.1 (Questions 1-4 and 6)
- Transport Practice 1.5 (Question 1, Items g-i)
- Transport Practice 1.6
- Transport Practice 2.1
- Transport Practice 3.1.

The ICMI’s Auditor Guidance for Use of Cyanide Transportation Verification Protocol (December 2016) was used to conduct the due diligence assessment. It was not possible during this due diligence to physically inspect the shipping company operations, as such the review was based on information obtained from previous due diligence reviews, ICMI audit reports and publicly available online information.

Based on the evidence reviewed, this due diligence did not find issues of concern in regards to Maersk’s management of solid sodium cyanide product. This assessment should not be a final acceptance of Maersk for future work; rather it is recommended that Orica continue to review and monitor Maersk’s performance annually and implement an adaptive management process.
1.0 INTRODUCTION

This letter provides the results of a due diligence assessment against the shipping line Maersk, in accordance with the International Cyanide Management Code for the Manufacture, Transport and Use of Cyanide in the Production of Gold (ICMC or the Code).

Golder conducted a due diligence of Maersk during April 2017. The assessment was conducted by Ed Clerk who meets the ICMI requirements for a Transport Technical Specialist.

The following items, as detailed in the ICMI’s Auditor Guidance for Use of Cyanide Transportation Verification Protocol (December 2016), were addressed within the due diligence:

- Introduction
- ICMC Transport Verification Protocol Assessment
  - Transport Practice 1.1 (Questions 1-4 and 6)
  - Transport Practice 1.5 (Question 1, Items g-i)
  - Transport Practice 1.6
  - Transport Practice 2.1
  - Transport Practice 3.1.
- Conclusion
- References.

The ICMI’s Auditor Guidance for Use of Cyanide Transportation Verification Protocol (April 2016) was used to guide the due diligence assessment. Due to access restrictions, it was not possible during this due diligence to physically inspect the shipping company operations. The due diligence assessment was completed based on information obtained from previous due diligences, ICMI audit reports and publicly available online information.

1.1 Overview of Maersk Line

Maersk, headquartered in Copenhagen, Denmark, operates a fleet of container vessels with worldwide shipping coverage. The fleet consists of approximately 590 vessels with the capacity to handle more than three million Twenty-foot Equivalent Units (TEUs). Maersk operates a container booking and tracking system called the Global Customer Service System (GCSS). This system is the management tool for the proper stowage and handling of dangerous goods cargo.

Maersk require companies utilising their carrier services to provide evidence that their product packaging has been approved by government regulators and tested in accordance with International Maritime Organisation (IMO) Dangerous Goods (DG) Code. Maersk have the right to refuse cargo if the packaging, container and/or documentation are not satisfactory under the IMO DG Code standards.

As mentioned in the Auditor Guidance for Use of Cyanide Transportation Verification Protocol (April 2016), General Guidance notes, consigners are not able to conduct inspections and checks on shipping vessels due to port safety and security issues.

Maersk’s vessels are registered by the Lloyd’s Register Group, which provides classification and certification of ships, and inspects and approves important components and accessories. Maersk also has current certificates for its vessels under the International Ship and Port Facility Security (ISPS) Code developed by the IMO.
2.0 ICMC TRANSPORT VERIFICATION PROTOCOL ASSESSMENT

The ICMI’s Auditor Guidance for Use of Cyanide Transportation Verification Protocol (April 2016), General Guidance states:

Except as specifically identified in this Guidance document, the Cyanide Transportation Protocol is not to be used to evaluate transport by rail and ship or management of cyanide at rail terminals and port facilities due to security issues, limited access, and the inability of consignors to affect changes in the operating practices of these transport facilities. Rather than conduct Code audits of these facilities, the consignor must conduct and document due diligence investigations of rail carriers, rail terminals, shipping companies and port facilities that are engaged to handle cyanide shipments, as further discussed below under Transport Practice 1.1. The consignor’s due diligence investigation must either be conducted or reviewed by an auditor meeting ICMI requirements for a transport expert, and the auditor must conclude that the due diligence investigation has reasonably evaluated these facilities and that the consignor has, to the extent practical, implemented any necessary management measures.

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

The international sales and exports of sodium cyanide by Orica take into consideration the ports and their extended infrastructure available to service the intended target area. Orica only operates in export markets that are serviced by major international shipping companies with the ability to offer scheduled container services from point of origin to destination.

Orica procedure “Selection of Transport Routes – Transportation of Sodium Cyanide to Customer Sites or Stock Points” (Orica ref: UP-GLO-PRO-001-017) aims to minimise the risk associated with the transportation of sodium cyanide while maintaining a safe, reliable, efficient and cost effective delivery system to customer sites and Orica stock points throughout the world. The procedure applies to the selection of delivery routes for Orica sodium cyanide and states that the “selection of route(s) is to be effected by the overall assessment of the risks associated with the utilisation of such route, taking into particular consideration likelihood of an incident occurring and the consequence of such an incident.” This procedure is applicable to all routes used for the transportation of Orica sodium cyanide as well as to Orica’s contracted transportation agencies.

Maersk is a carrier service providing international shipping of containers on a fleet of their container vessels. Containers holding sodium cyanide are placed and secured on their vessels at the loading port by the port stevedoring company or service provider. As such, Maersk provide a marine carrier service and all actual handling of containers (on and off vessels) is undertaken by stevedoring companies at each port. Where a port does not have equipment to lift containers on and off the vessel, Maersk service these ports with a ‘self-gearied’ vessel that has its own lifting devices.

Basically, an export or international route will include the following:

- Orica production, packaging and despatch
- Road and rail transportation to port
- International shipping to destination port
- Road transportation to customer (mining operation).

In some instances, sodium cyanide shipments are unloaded at terminals en-route to its final destination. This is known as trans-shipping and involves a temporary set down within a port facility before loading onto another vessel for continuation of the delivery. It is at the discretion of Maersk to determine when and where this occurs. Maersk conducts itself in accordance with the International Maritime Organisation (IMO) Dangerous Goods (IMDG) Code and in a professional manner, this extends to the selection of terminals used by Maersk for trans-shipping.

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

Orica’s manufacturing facility and transfer stations are ICMC certified, sodium cyanide is packaged and transported in accordance with international regulatory standards, such as the United Nations Recommendation on the Transport of Dangerous Goods – Model Regulations, (2005) and National Codes of...
Practice such as the Australian Code for the Transport of Dangerous Goods by Road or Rail, (2015) thereby meeting the requirements of the political jurisdictions through which the loads will pass.

Orica only operates in export markets that are serviced by major international shipping companies with the ability to offer scheduled container services from point of origin to destination. Orica procedure “Carrier Assessment” (Orica ref: SUP-GLO-PRO-016-008) provides the framework for ensuring that carriers and their contractors are assessed at regular intervals to ensure that, amongst others, storage, safety, security, maintenance and emergency response standards are being maintained. Carriers are required to provide manifest documentation, to satisfy local customs regulations and the requirements of the IMDG Code, to the destination port. This documentation contains a list of the cargo types and in the case of sodium cyanide and any other hazardous cargo the quantity, unique packaging numbers, stowage reference and emergency response procedures.

g) Does the ship carrying the cyanide have a list or manifest identifying the presence and location of the cyanide or a detailed stowage plan including this information, as required under Section 5.4.3.1 of the DG Code?

Maersk transports sodium cyanide by sea to various destination ports. All packaging and transportation is in accordance with the IMO DG Code.

Orica’s manufacturing facility and transfer stations are ICMC certified, sodium cyanide is packaged and transported in accordance with international regulatory standards, such as the United Nations Recommendation on the Transport of Dangerous Goods – Model Regulations, (2005) and National Codes of Practice such as the Australian Code for the Transport of Dangerous Goods by Road or Rail, (2015) thereby meeting the requirements of the political jurisdictions through which the loads will pass.

Maersk requires specific dangerous goods transport documentation to accompany a consignment. This documentation includes:

- A consignor’s declaration stating that the goods declared are classified and packed correctly and also a declaration from the person packing the container stating that it has been done so correctly, often combined together as the Multimodal Dangerous Goods Form.
- 24 hr emergency telephone number and contact for shipments to/from the USA, Canada, Thailand, China and Australia, these are mandatory, however, where possible Maersk includes for other destinations.
- Maersk also highlights that there may be other documentation required at time of booking, and these will normally be documents as prescribed by the IMDG Code, but may also include specific documents required by a local authority, e.g. weathering certificate, Competent Authority Approval or Certificate of Analysis.

Maersk has multiple cross checking layers to verify that products arriving at the laydown areas match those provided on the booking and that containers being loaded onto the vessels match those stipulated on the loading (or stowage) plan.

Orica only operates in export markets that are serviced by major international shipping companies with the ability to offer scheduled container services from point of origin to destination. Orica procedure “Carrier Assessment” (Orica ref: SUP-GLO-PRO-016-008) provides the framework for ensuring that carriers and their contractors are assessed at regular intervals to ensure that, amongst others, storage, safety, security, maintenance and emergency response standards are being maintained. Carriers are required to provide manifest documentation, to satisfy local customs regulations and the requirements of the IMDG Code, to the destination port. This documentation contains a list of the cargo types and in the case of sodium cyanide and any other hazardous cargo the quantity, unique packaging numbers, stowage reference and emergency response procedures.
h) Does the ship carrying the cyanide have cyanide emergency response information, as required under Section 5.4.3.2 of the DG Code?

The manifests that are provided to the vessel Master contain emergency response information. The Multimodal Dangerous Goods Form also includes emergency response information.

Maersk operations personnel provide the vessel's Master with copies of the Emergency Information, Dangerous Goods manifest (including stowage plan), Packaging Certificates and the Multimodal Dangerous Goods Form for each hazardous cargo transport units loaded onto the ship at the port.

Emergency response procedures for ships carrying dangerous goods, including the emergency schedules to be followed in case of incidents involving dangerous substances, materials or articles, or harmful substances (marine pollutants), is regulated under the IMDG Code. In accordance with the Code, all ships, and the companies responsible for their operation, are required to maintain a Safety Management System (SMS). Within the SMS, procedures for responding to potential shipboard emergencies are required.

i) Does the ship comply with the stowage and separation requirements of Part 7 of the DG Code?

Documentation provided including the Dangerous Goods manifest (including stowage plan) and Packaging Certificates for each container and the Maersk’s GCSS (which records the UN classification, Dangerous Goods Class and that the product is a marine pollutant) ensure that adequate information is available in order to identify the correct stowage and separation of dangerous goods. This information then determines the placement and segregation of the container on the vessel and handling through trans-shipment ports, if applicable.

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

Maersk vessels have continuous means of tracking and communication during their voyages. Maersk operates a container booking and tracking system known as the GCSS. Maersk customers are able to access live tracking data via a website or mobile phone app. Communication equipment is tested through continuous use.

Chain of custody documentation is used by Maersk to prevent the loss of cargo during shipment. This documentation includes the vessel manifest and Safety Data Sheets (SDS), which identifies the location and content of each container on the vessel. In addition, Maersk operates the GCSS to allow them to identify at which phase of shipment each container is in.

All Maersk vessels are registered by the Lloyd’s Register Group, which provides classification and certification of ships, and inspects and approves important components and accessories.

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

Maersk is required to have current certificates for its vessels under the ISPS Code developed by the IMO.

All packaging and transportation of sodium cyanide is required to be in accordance with the IMO DG Code.

Orica's product is packaged into purpose designed and built and product dedicated bulk sparge isotainers or into composite intermediate bulk containers (IBCs) contained within Twenty-foot Equivalent Units (TEUs), a general purpose shipping container. Bulk sparge isotainers are rated for sea transportation and inspected by Bureau Veritas under the 2.5 and 5 year inspection regime in accordance with IMDG Code requirements.

Composite IBCs consist of a 1300 kg bulk bag contained within a hermetically sealed plastic liner, placed in a wooden outer with an integral pallet base. As per the IMO DG Code this packaging is referenced as UN/11HD2/X/***AUS/Orica-30596/7020/1300 under the approval of the Competent Authority (where **** indicates the date the IBC was filled).
Orica’s packaging is labelled as per the IMDG Code. Bulk sparge isotainers and shipping containers containing composite IBCs are placarded with an emergency information panel (EIP) detailing the proper shipping name, dangerous goods class number, UN number, HAZCHEM Code and emergency contact information. Containers are placarded with the environmentally hazardous substance markings. Product labels are provided on the side of the IBC that allows forklift access via the pallet base. IBCs are placed into shipping containers so that the label is facing outwards.

All sodium cyanide remains contained within its sealed containers at all times preventing contact with water and other incompatible materials.

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

Maersk has current certificates for its vessels under the ISPS Code developed by the IMO, which includes the IMDG Code (Chapter 7) and the ISM Code (Chapter 9).

In the case of an incident, Maersk’s Casualty Committee, which consists of key stakeholders from dedicated technical and operational areas within the A.P. Moller – Maersk Group, is called into action to ensure measures are taken to minimise environmental impacts. Drills are carried out periodically to ensure emergency procedures are up-to-date and functioning efficiently.

### 3.0 CONCLUSION

Based on the evidence reviewed, this due diligence did not find issues of concern in regards to Maersk’s management of solid sodium cyanide product. This assessment should not be a final acceptance of Maersk for future work; rather it is recommended that Orica continue to review and monitor Maersk’s performance annually and implement an adaptive management process.

### 4.0 CLOSING

We trust this due diligence letter meets your requirements. If you have any questions, please do not hesitate to contact the undersigned.

---

**GOLDER ASSOCIATES PTY LTD**

Craig Currie  
Environmental Scientist  

Edward Clerk  
ICMC Lead Auditor and Technical Specialist  

CC/EC/hsl
REFERENCES


ICMC DUE DILIGENCE ASSESSMENT OF NAVIERRA ULTRANAV TRANSMARES SHIPPING

Dear Owen

EXECUTIVE SUMMARY

Golder Associates Pty Ltd (Golder) conducted a due diligence of Navierra Ultranav Transmares shipping (Transmares) during June 2017 on behalf of Orica Australia Pty Ltd (Orica). The assessment was conducted by Ed Clerk who meets the International Cyanide Management Institute’s (ICMI) requirements for a Transport Technical Specialist.

The following items, as detailed in the ICMI’s Auditor Guidance for Use of Cyanide Transportation Verification Protocol (December 2016), were addressed within the due diligence:

- Transport Practice 1.1 (Questions 1-4 and 6)
- Transport Practice 1.5 (Question 1, Items g-i)
- Transport Practice 1.6
- Transport Practice 2.1
- Transport Practice 3.1.

The ICMI’s Auditor Guidance for Use of Cyanide Transportation Verification Protocol (December 2016) was used to conduct the due diligence assessment. It was not possible during this due diligence to physically inspect the shipping company operations, as such the review was based on information obtained from previous due diligence reviews, ICMI audit reports and publicly available online information.

Based on the evidence reviewed, this due diligence did not find issues of concern in regards to Transmares’ management of solid sodium cyanide product. This assessment should not be a final acceptance of Transmares for future work; rather it is recommended that Orica continue to review and monitor Transmares’ performance annually and implement an adaptive management process.

Owen Warren
Senior Manager Global Distribution
Orica

Email: owen.warren@orica.com
1.0 INTRODUCTION
This letter provides the results of a due diligence assessment against the shipping line Transmares, in accordance with the International Cyanide Management Code for the Manufacture, Transport and Use of Cyanide in the Production of Gold (ICMC or the Code).

Golder conducted a desktop due diligence assessment of Transmares during June 2017. The assessment was conducted by Ed Clerk who meets the International Cyanide Management Institute’s (ICMI) requirements for a Transport Technical Specialist.

The following items, as detailed in the ICMI’s Auditor Guidance for Use of Cyanide Transportation Verification Protocol (December 2016), were addressed within the due diligence:

- Introduction
- ICMC Transport Verification Protocol Assessment
  - Transport Practice 1.1 (Questions 1-4 and 6)
  - Transport Practice 1.5 (Question 1, Items g-i)
  - Transport Practice 1.6
  - Transport Practice 2.1
  - Transport Practice 3.1.
- Conclusion
- References.

The ICMI’s Auditor Guidance for Use of Cyanide Transportation Verification Protocol (December 2016) was used to conduct the due diligence assessment. Due to access restrictions, it was not possible during this due diligence to physically inspect the shipping company operations. The due diligence assessment was completed based on information obtained from previous due diligences, ICMI audit reports and publicly available online information.

1.1 Overview of Transmares
Headquartered in Santiago, Chile, Transmares provides transport services along the west coast of South America for containerised and break bulk cargoes. Transmares operates a fleet of container and multipurpose vessels, in sizes ranging between 5000 and 15 000 Dry Weight Tonnes (DWT), connecting ports along the west coast of South America.

Transmares’ container vessels provide regular frequented feeder services to the main container liner companies, its vessels provide the region with specialised multipurpose services between the ports of Arica, Angamos, San Antonio, San Vicente, Chacabuco and Punta Arenas.

2.0 ICMC TRANSPORT VERIFICATION PROTOCOL ASSESSMENT
The ICMI’s Auditor Guidance for Use of Cyanide Transportation Verification Protocol, General Guidance states:

Except as specifically identified in this Guidance document, the Cyanide Transportation Protocol is not to be used to evaluate transport by rail and ship or management of cyanide at rail terminals and port facilities due to security issues, limited access, and the inability of consignors to affect changes in the operating practices of these transport facilities. Rather than conduct Code audits of these facilities, the consignor must conduct due diligence investigations of rail carriers, rail terminals, shipping companies and port facilities that are engaged to handle cyanide shipments, as further discussed below under Transport Practice 1.1. The consignor’s due diligence investigation must either be conducted or reviewed by an auditor meeting ICMI requirements for a transport expert, and the auditor must conclude that the due diligence investigation has reasonably evaluated these facilities and that the consignor has, to the extent practical, implemented any necessary management measures.
Transport Practice 1.1: Select cyanide transport routes to minimise the potential for accidents and releases

The international sales and exports of sodium cyanide by Orica take into consideration the ports and their extended infrastructure available to service the intended target area. Orica only operates in export markets that are serviced by major international shipping companies with the ability to offer scheduled container services from point of origin to destination.

Orica procedure “Selection of Transport Routes – Transportation of Sodium Cyanide to Customer Sites or Stock Points” (Orica ref: UP-GLO-PRO-001-017) aims to minimise the risk associated with the transportation of sodium cyanide while maintaining a safe, reliable, efficient and cost effective delivery system to customer sites and Orica stock points throughout the world. The procedure applies to the selection of delivery routes for Orica sodium cyanide and states that the “selection of route(s) is to be effected by the overall assessment of the risks associated with the utilisation of such route, taking into particular consideration likelihood of an incident occurring and the consequence of such an incident.” This procedure is applicable to all routes used for the transportation of Orica sodium cyanide as well as to Orica’s contracted transportation agencies.

Transmares Shipping is a carrier service providing international shipping of containers on a fleet of their container vessels. Containers containing solid sodium cyanide are placed and secured on their vessels at the loading port by the stevedoring company and removed at the port of destination by the stevedoring company at that port.

Basically, an export or international route will include the following:

- Orica production, packaging and despatch
- Road and rail transportation to port
- International shipping to destination port
- Road transportation to customer (mining operation).

In some instances, sodium cyanide shipments are unloaded at terminals en-route to its final destination. This is known as trans-shipping and involves a temporary set down within a port facility before loading onto another vessel for continuation of the delivery. It is at the discretion of Transmares to determine when and where this occurs. Transmares conducts itself in accordance with the International Maritime Organisation (IMO) Dangerous Goods (IMDG) Code and in a professional manner, this extends to the selection of terminals used by Transmares for trans-shipping.

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

Orica’s manufacturing facility and transfer stations are ICMC certified, sodium cyanide is packaged and transported in accordance with international regulatory standards, such as the United Nations Recommendation on the Transport of Dangerous Goods – Model Regulations, (2005) and National Codes of Practice such as the Australian Code for the Transport of Dangerous Goods by Road or Rail, (2015) thereby meeting the requirements of the political jurisdictions through which the loads will pass.

Orica only operates in export markets that are serviced by major international shipping companies with the ability to offer scheduled container services from point of origin to destination. Orica procedure “Carrier Assessment” (Orica ref: SUP-GLO-PRO-016-008) provides the framework for ensuring that carriers and their contractors are assessed at regular intervals to ensure that, amongst others, storage, safety, security, maintenance and emergency response standards are being maintained. Carriers are required to provide manifest documentation, to satisfy local customs regulations and the requirements of the IMDG Code, to the destination port. This documentation contains a list of the cargo types and in the case of sodium cyanide and any other hazardous cargo the quantity, unique packaging numbers, stowage reference and emergency response procedures.

g) Does the ship carrying the cyanide have a list or manifest identifying the presence and location of the cyanide or a detailed stowage plan including this information, as required under Section 5.4.3.1 of the DG Code?

Transmares transports sodium cyanide by sea to various destination ports. All packaging and transportation is in accordance with the IMDG Code.
Orica prepares a dangerous goods transport document known as the Multimodal Dangerous Goods Form. This form meets the requirements of the SOLAS 74, Chapter VII, Regulation 5 and the MARPOL 73/78, Annex III, Regulation 4. This form also has a container packaging certificate included that meets the requirements of Section 5.4.2 of the IMDG Code, as well as emergency response information. Upon arrival at the Port, the ship’s master provides the port with a copy of the Multimodal Dangerous Goods Form.

Documentation provided including Dangerous Goods manifest (including stowage plan) and Packaging Certificates for each container ensure that adequate information is available in order to identify the correct stowage and separation of dangerous goods. This information then determines the placement and segregation of the container on the vessel and handling through trans-shipment ports, if applicable.

Transmares operations personnel provide the vessel's Master with copies of the Emergency Information, Dangerous Goods manifest (including stowage plan), Packaging Certificates and the Multimodal Dangerous Goods Form for each hazardous cargo transport units loaded onto the ship at the port.

Transmares has multiple cross checking layers to verify that products arriving at the laydown areas match those provided on the booking and that containers being loaded onto the vessels match those stipulated on the loading (or stowage) plan.

**h) Does the ship carrying the cyanide have cyanide emergency response information, as required under Section 5.4.3.2 of the DG Code?**

The manifests that are provided to the vessel Master contain emergency response information. The Multimodal Dangerous Goods Form also includes emergency response information.

Transmares operations personnel provide the vessel's Master with copies of the Emergency Information, Dangerous Goods manifest (including stowage plan), Packaging Certificates and the Multimodal Dangerous Goods Form for each hazardous cargo transport units loaded onto the ship at the port.

Emergency response procedures for ships carrying dangerous goods, including the emergency schedules to be followed in case of incidents involving dangerous substances, materials or articles, or harmful substances (marine pollutants), is regulated under the IMDG Code. In accordance with the Code, all ships, and the companies responsible for their operation, are required to maintain a Safety Management System (SMS). Within the SMS, procedures for responding to potential shipboard emergencies are required.

**i) Does the ship comply with the stowage and separation requirements of Part 7 of the DG Code?**

Transmares comply with the stowage and separation requirements of Chapter 7 of the IMDG Code through the following:

- The Multimodal Dangerous Goods Form used by Orica and Transmares is the document referenced in the IMDG Code (Chapter 5.4) and meets the requirements of SOLAS 74, chapter VII, regulation 4, MARPOL 73/78, Annex III, Regulation 4 and the provisions of the Code.

- A copy of the Form is provided to Transmares for assigning the container reference numbers and sending the HAZCHEM bookings for finalisation. From the Form, data is entered into the Transmares tracking and monitoring system that allows for the determination of placement and segregation of the containers on the vessel and handling through shipment ports.

- All containers (stipulated by their reference number) must be finalised by the vessel loading cut-off time. This requires the Form to be provided between 48 and 24 hours prior to cut-off.

- Sodium cyanide is designated a “red line” cargo and is only loaded to the vessel when called in.

- Upon approval, the loading plan is passed onto the stevedore for loading of the vessel.

Documentation provided including Dangerous Goods manifest (including stowage plan) and Packaging Certificates for each container ensure that adequate information is available in order to identify the correct stowage and separation of dangerous goods. This information then determines the placement and segregation of the container on the vessel and handling through trans-shipment ports, if applicable.
Transport Practice 1.6: Track cyanide shipments to prevent losses during transport

Transmares vessels have continuous means of tracking and communication during their voyages. Transmares has their own in-house tracking systems for tracking freight, which is linked by the container number and Bill of Lading (BOL) number. Communication equipment is tested through continuous use.

Chain of custody documentation is used by Transmares to prevent the loss of cargo during shipment. This documentation includes the vessel manifest and Safety Data Sheets (SDS), which identifies the location and content of each container on the vessel.

Transport Practice 2.1: Store cyanide in a manner that minimises the potential for accidental releases

All packaging and transportation of sodium cyanide is required to be in accordance with the IMDG Code.

Transmares operations personnel provide the vessel’s Master with copies of the Emergency Information, Dangerous Goods manifest (including stowage plan), Packaging Certificates and the Multimodal Dangerous Goods Form for each hazardous cargo transport units loaded onto the ship at the port.

Orica’s product is packaged into purpose designed and built and product dedicated bulk sparge isotainers or into composite intermediate bulk containers (IBCs) contained within Twenty-foot Equivalent Units (TEUs), a general purpose shipping container. Bulk sparge isotainers are rated for sea transportation and inspected by Bureau Veritas under the 2.5 and 5 year inspection regime in accordance with IMDG Code requirements.

Composite IBCs consist of a 1300 kg bulk bag contained within a hermetically sealed plastic liner, placed in a wooden outer with an integral pallet base. As per the IMO DG Code this packaging is referenced as UN/11HD2/X/****/AUS/Orica-30596/7020/1300 under the approval of the Competent Authority (where **** indicates the date the IBC was filled).

Orica’s packaging is labelled as per the IMDG Code. Bulk sparge isotainers and shipping containers containing composite IBCs are placarded with an emergency information panel (EIP) detailing the proper shipping name, dangerous goods class number, UN number, HAZCHEM Code and emergency contact information. Containers are placarded with the environmentally hazardous substance markings. Product labels are provided on the side of the IBC that allows forklift access via the pallet base. IBCs are placed into shipping containers so that the label is facing outwards.

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

Transmares operations personnel provide the vessel’s Master with copies of the Emergency Information, Dangerous Goods manifest (including stowage plan), Packaging Certificates and the Multimodal Dangerous Goods Form for each hazardous cargo transport units loaded onto the ship at the port.

3.0 CONCLUSION

Based on the evidence reviewed, this due diligence did not find significant issues of concern in regards to Transmares’ management of solid sodium cyanide product. This assessment should not be a final acceptance of Transmares for future work; rather it is recommended that Orica continue to review and monitor Transmares’ performance annually and implement an adaptive management process.
4.0 CLOSING

We trust this due diligence letter meets your requirements. If you have any questions, please do not hesitate to contact the undersigned.

GOLDER ASSOCIATES PTY LTD

Craig Currie
Environmental Scientist

Ed Clerk
ICMC Lead Auditor and Technical Specialist

CC/EWC/hsl
REFERENCES


ICMC DUE DILIGENCE ASSESSMENT OF K LINE SHIPPING

Dear Owen

EXECUTIVE SUMMARY

Golder Associates Pty Ltd (Golder) conducted a due diligence of K Line Shipping during June 2017 on behalf of Orica Australia Pty Ltd (Orica). The assessment was conducted by Ed Clerk who meets the International Cyanide Management Institute’s (ICMI) requirements for a Transport Technical Specialist.

The following items, as detailed in the ICMI’s Auditor Guidance for Use of Cyanide Transportation Verification Protocol (December 2016), were addressed within the due diligence:

- Transport Practice 1.1 (Questions 1-4 and 6)
- Transport Practice 1.5 (Question 1, Items g-i)
- Transport Practice 1.6
- Transport Practice 2.1
- Transport Practice 3.1.

The ICMI’s Auditor Guidance for Use of Cyanide Transportation Verification Protocol (December 2016) was used to conduct the due diligence assessment. It was not possible during this due diligence to physically inspect the shipping company operations, as such the review was based on information obtained from previous due diligence reviews, ICMI audit reports and publicly available online information.

Based on the evidence reviewed, this due diligence did not find issues of concern in regards to K Line’s management of solid sodium cyanide product. This assessment should not be a final acceptance of K Line for future work; rather it is recommended that Orica continue to review and monitor K Line’s performance annually and implement an adaptive management process.
1.0 INTRODUCTION
This letter provides the results of a due diligence assessment against the shipping line K Line, in accordance with the International Cyanide Management Code for the Manufacture, Transport and Use of Cyanide in the Production of Gold (ICMC or the Code).

Golder conducted a desktop due diligence assessment of K Line during June 2017. The assessment was conducted by Ed Clerk who meets the International Cyanide Management Institute’s (ICMI) requirements for a Transport Technical Specialist.

The following items, as detailed in the ICMI’s Auditor Guidance for Use of Cyanide Transportation Verification Protocol (December 2016), were addressed within the due diligence:

- Introduction
- ICMC Transport Verification Protocol Assessment
  - Transport Practice 1.1 (Questions 1-4 and 6)
  - Transport Practice 1.5 (Question 1, Items g-i)
  - Transport Practice 1.6
  - Transport Practice 2.1
  - Transport Practice 3.1.
- Conclusion
- References.

The ICMI’s Auditor Guidance for Use of Cyanide Transportation Verification Protocol (December 2016) was used to conduct the due diligence assessment. Due to access restrictions, it was not possible during this due diligence to physically inspect the shipping company operations. The due diligence assessment was completed based on information obtained from previous due diligence, ICMI audit reports and publicly available online information.

1.1 Overview of K Line
K Line Australia Kawasaki Australia Pty Ltd (K Line) is a 100% owned subsidiary of Japan’s Kawasaki Kisen Kaisha, it was established in 1970 to represent K Line’s interest and business in the Australian region. The company originally operated as a regional office to promote K Line’s shipping business of container, bulk and car carrier services.

K Line’s network of services is now extensive, with major involvement in the American, European, intra-Asian, South & Central American, West African and mainland China Trades. K Line has established itself as a worldwide major shipping line. Apart from the carriage of containerized cargo, it moves in excess of 1.1 million motor vehicles annually and is also involved in the transport of bulk ores, grains, woodchips, coal, alumina, crude oil, LNG and other energy resources.

Container ship services are offered worldwide through the four hubs of Japan, Asia, Europe and North America. K Line have established world-class alliances with shipping companies in China, Taiwan and South Korea and operate main East-West routes between Asia and North America, Asia and Europe, and Europe and North America. In addition they also provide the intra-Asian routes covering the Middle East and the Indian subcontinent, and the South-North route linking South America, Australia and Africa with Asia and other regions. K Line boasts a fleet of 534 ships of which 67 are for container ship services.
2.0 ICMC TRANSPORT VERIFICATION PROTOCOL ASSESSMENT

The ICMC’s Auditor Guidance for Use of Cyanide Transportation Verification Protocol, General Guidance states:

Except as specifically identified in this Guidance document, the Cyanide Transportation Protocol is not to be used to evaluate transport by rail and ship or management of cyanide at rail terminals and port facilities due to security issues, limited access, and the inability of consignors to affect changes in the operating practices of these transport facilities. Rather than conduct Code audits of these facilities, the consignor must conduct and document due diligence investigations of rail carriers, rail terminals, shipping companies and port facilities that are engaged to handle cyanide shipments, as further discussed below under Transport Practice 1.1. The consignor’s due diligence investigation must either be conducted or reviewed by an auditor meeting ICMC requirements for a transport expert, and the auditor must conclude that the due diligence investigation has reasonably evaluated these facilities and that the consignor has, to the extent practical, implemented any necessary management measures.

Transport Practice 1.1: Select cyanide transport routes to minimise the potential for accidents and releases

The international sales and exports of sodium cyanide by Orica take into consideration the ports and their extended infrastructure available to service the intended target area. Orica only operates in export markets that are serviced by major international shipping companies with the ability to offer scheduled container services from point of origin to destination.

Orica procedure “Selection of Transport Routes – Transportation of Sodium Cyanide to Customer Sites or Stock Points” (Orica ref: UP-GLO-PRO-001-017) aims to minimise the risk associated with the transportation of sodium cyanide while maintaining a safe, reliable, efficient and cost effective delivery system to customer sites and Orica stock points throughout the world. The procedure applies to the selection of delivery routes for Orica sodium cyanide and states that the “selection of route(s) is to be effected by the overall assessment of the risks associated with the utilisation of such route, taking into particular consideration likelihood of an incident occurring and the consequence of such an incident.” This procedure is applicable to all routes used for the transportation of Orica sodium cyanide as well as to Orica’s contracted transportation agencies.

K Line Shipping is a carrier service providing international shipping of containers on a fleet of their container vessels. Containers containing solid sodium cyanide are placed and secured on their vessels at the loading port by the stevedoring company and removed at the port of destination by the stevedoring company at that port.

Basically, an export or international route will include the following:

- Orica production, packaging and despatch
- Road and rail transportation to port
- International shipping to destination port
- Road transportation to customer (mining operation).

In some instances, sodium cyanide shipments are unloaded at terminals en-route to its final destination. This is known as trans-shipping and involves a temporary set down within a port facility before loading onto another vessel for continuation of the delivery. It is at the discretion of K Line to determine when and where this occurs. K Line conducts itself in accordance with the International Maritime Organisation (IMO) Dangerous Goods (IMDG) Code and in a professional manner, this extends to the selection of terminals used by K Line for trans-shipping.
Transport Practice 1.5: Follow international standards for the transportation of cyanide by sea and air

Orica’s manufacturing facility and transfer stations are ICMC certified, sodium cyanide is packaged and transported in accordance with international regulatory standards, such as the United Nations Recommendation on the Transport of Dangerous Goods – Model Regulations, (2005) and National Codes of Practice such as the Australian Code for the Transport of Dangerous Goods by Road or Rail, (2015) thereby meeting the requirements of the political jurisdictions through which the loads will pass.

Orica only operates in export markets that are serviced by major international shipping companies with the ability to offer scheduled container services from point of origin to destination. Orica procedure “Carrier Assessment” (Orica ref: SUP-GLO-PRO-016-008) provides the framework for ensuring that carriers and their contractors are assessed at regular intervals to ensure that, amongst others, storage, safety, security, maintenance and emergency response standards are being maintained. Carriers are required to provide manifest documentation, to satisfy local customs regulations and the requirements of the IMDG Code, to the destination port. This documentation contains a list of the cargo types and in the case of sodium cyanide and any other hazardous cargo the quantity, unique packaging numbers, stowage reference and emergency response procedures.

g) Does the ship carrying the cyanide have a list or manifest identifying the presence and location of the cyanide or a detailed stowage plan including this information, as required under Section 5.4.3.1 of the DG Code?

K Line transports sodium cyanide by sea to various destination ports. All packaging and transportation is in accordance with the IMDG Code.

Orica prepares a dangerous goods transport document known as the Multimodal Dangerous Goods Form. This form meets the requirements of the SOLAS 74, Chapter VII, Regulation 5 and the MARPOL 73/78, Annex III, Regulation 4. This form also has a container packaging certificate included that meets the requirements of Section 5.4.2 of the IMDG Code, as well as emergency response information. Upon arrival at the Port, the ship’s master provides the port with a copy of the Multimodal Dangerous Goods Form.

Documentation provided including Dangerous Goods manifest (including stowage plan) and Packaging Certificates for each container ensure that adequate information is available in order to identify the correct stowage and separation of dangerous goods. This information then determines the placement and segregation of the container on the vessel and handling through trans-shipment ports, if applicable.

K Line operations personnel provide the vessel’s Master with copies of the Emergency Information, Dangerous Goods manifest (including stowage plan), Packaging Certificates and the Multimodal Dangerous Goods Form for each hazardous cargo transport units loaded onto the ship at the port.

K Line has multiple cross checking layers to verify that products arriving at the laydown areas match those provided on the booking and that containers being loaded onto the vessels match those stipulated on the loading (or stowage) plan.

h) Does the ship carrying the cyanide have cyanide emergency response information, as required under Section 5.4.3.2 of the DG Code?

The manifests that are provided to the vessel Master contain emergency response information. The Multimodal Dangerous Goods Form also includes emergency response information.

K Line operations personnel provide the vessel’s Master with copies of the Emergency Information, Dangerous Goods manifest (including stowage plan), Packaging Certificates and the Multimodal Dangerous Goods Form for each hazardous cargo transport units loaded onto the ship at the port.

Emergency response procedures for ships carrying dangerous goods, including the emergency schedules to be followed in case of incidents involving dangerous substances, materials or articles, or harmful substances (marine pollutants), is regulated under the IMDG Code. In accordance with the Code, all ships, and the companies responsible for their operation, are required to maintain a Safety Management System (SMS). Within the SMS, procedures for responding to potential shipboard emergencies are required.
i) Does the ship comply with the stowage and separation requirements of Part 7 of the DG Code?

K Line comply with the stowage and separation requirements of Chapter 7 of the IMDG Code through the following:

- The *Multimodal Dangerous Goods Form* used by Orica and K Line is the document referenced in the IMDG Code (Chapter 5.4) and meets the requirements of SOLAS 74, chapter VII, regulation 4, MARPOL 73/78, Annex III, Regulation 4 and the provisions of the Code.

- A copy of the *Form* is provided to K Line for assigning the container reference numbers and sending the HAZCHEM bookings for finalisation. From the *Form*, data is entered into the K Line tracking and monitoring system that allows for the determination of placement and segregation of the containers on the vessel and handling through shipment ports.

- All containers (stipulated by their reference number) must be finalised by the vessel loading cut-off time. This requires the *Form* to be provided between 48 and 24 hours prior to cut-off.

- Sodium cyanide is designated a “red line” cargo and is only loaded to the vessel when called in.

- Upon approval, the loading plan is passed onto the stevedore for loading of the vessel.

Documentation provided including Dangerous Goods manifest (including stowage plan) and Packaging Certificates for each container ensure that adequate information is available in order to identify the correct stowage and separation of dangerous goods. This information then determines the placement and segregation of the container on the vessel and handling through trans-shipment ports, if applicable.

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

K Line vessels have continuous means of tracking and communication during their voyages. K Line has their own in-house tracking systems for tracking freight, which is linked by the container number and Bill of Lading (BOL) number. Communication equipment is tested through continuous use.

Chain of custody documentation is used by K Line to prevent the loss of cargo during shipment. This documentation includes the vessel manifest and Safety Data Sheets (SDS), which identifies the location and content of each container on the vessel.

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

All packaging and transportation of sodium cyanide is required to be in accordance with the IMDG Code.

K Line operations personnel provide the vessel’s Master with copies of the Emergency Information, Dangerous Goods manifest (including stowage plan), Packaging Certificates and the *Multimodal Dangerous Goods Form* for each hazardous cargo transport units loaded onto the ship at the port.

Orica’s product is packaged into purpose designed and built and product dedicated bulk sparge isotainers or into composite intermediate bulk containers (IBCs) contained within Twenty-foot Equivalent Units (TEUs), a general purpose shipping container. Bulk sparge isotainers are rated for sea transportation and inspected by Bureau Veritas under the 2.5 and 5 year inspection regime in accordance with IMDG Code requirements.

Composite IBCs consist of a 1300 kg bulk bag contained within a hermetically sealed plastic liner, placed in a wooden outer with an integral pallet base. As per the IMO DG Code this packaging is referenced as UN/11HD2/X/***/AUS/Orica-30596/7020/1300 under the approval of the Competent Authority (where **** indicates the date the IBC was filled).

Orica’s packaging is labelled as per the IMDG Code. Bulk sparge isotainers and shipping containers containing composite IBCs are placarded with an emergency information panel (EIP) detailing the proper shipping name, dangerous goods class number, UN number, HAZCHEM Code and emergency contact information. Containers are placarded with the environmentally hazardous substance markings. Product labels are provided on the side of the IBC that allows forklift access via the pallet base. IBCs are placed into shipping containers so that the label is facing outwards.
Transport Practice 3.1: Prepare detailed emergency response plans for potential cyanide releases

K Line operations personnel provide the vessel’s Master with copies of the Emergency Information, Dangerous Goods manifest (including stowage plan), Packaging Certificates and the Multimodal Dangerous Goods Form for each hazardous cargo transport units loaded onto the ship at the port.

3.0 CONCLUSION

Based on the evidence reviewed, this due diligence did not find significant issues of concern in regards to K Line’s management of solid sodium cyanide product. This assessment should not be a final acceptance of K Line for future work; rather it is recommended that Orica continue to review and monitor K Line’s performance annually and implement an adaptive management process.

4.0 CLOSING

We trust this due diligence letter meets your requirements. If you have any questions, please do not hesitate to contact the undersigned.

GOLDER ASSOCIATES PTY LTD

Craig Currie
Environmental Scientist

Ed Clerk
ICMC Lead Auditor and Technical Specialist

CC/EWC/hsl
REFERENCES


EXECUTIVE SUMMARY

Golder Associates Pty Ltd (Golder) conducted a due diligence of Mitsui O.S.K. Lines Ltd (MOL) during June 2017 on behalf of Orica Australia Pty Ltd (Orica). The assessment was conducted by Ed Clerk who meets the International Cyanide Management Institute’s (ICMI) requirements for a Transport Technical Specialist.

The following items, as detailed in the ICMI’s Auditor Guidance for Use of Cyanide Transportation Verification Protocol (December 2016), were addressed within the due diligence:

- Transport Practice 1.1 (Questions 1-4 and 6)
- Transport Practice 1.5 (Question 1, Items g-i)
- Transport Practice 1.6
- Transport Practice 2.1
- Transport Practice 3.1.

The ICMI’s Auditor Guidance for Use of Cyanide Transportation Verification Protocol (December 2016) was used to conduct the due diligence assessment. It was not possible during this due diligence to physically inspect the shipping company operations, as such the review was based on information obtained from previous due diligence reviews, ICMI audit reports and publicly available online information.

Based on the evidence reviewed, this due diligence did not find issues of concern in regards to MOL’s management of solid sodium cyanide product. This assessment should not be a final acceptance of MOL for future work; rather it is recommended that Orica continue to review and monitor MOL’s performance annually and implement an adaptive management process.
1.0 INTRODUCTION

This letter provides the results of a due diligence assessment against the shipping line MOL, in accordance with the *International Cyanide Management Code for the Manufacture, Transport and Use of Cyanide in the Production of Gold* (ICMC or the Code).

Golder conducted a desktop due diligence assessment of MOL during June 2017. The assessment was conducted by Ed Clerk who meets the International Cyanide Management Institute’s (ICMI) requirements for a Transport Technical Specialist.

The following items, as detailed in the ICMI’s *Auditor Guidance for Use of Cyanide Transportation Verification Protocol* (December 2016), were addressed within the due diligence:

- Introduction
- ICMC Transport Verification Protocol Assessment
  - Transport Practice 1.1 (Questions 1-4 and 6)
  - Transport Practice 1.5 (Question 1, Items g-i)
  - Transport Practice 1.6
  - Transport Practice 2.1
  - Transport Practice 3.1.
- Conclusion
- References.

The ICMI’s *Auditor Guidance for Use of Cyanide Transportation Verification Protocol* (December 2016) was used to conduct the due diligence assessment. Due to access restrictions, it was not possible during this due diligence to physically inspect the shipping company operations. The due diligence assessment was completed based on information obtained from previous due diligences, ICMI audit reports and publicly available online information.

1.1 Overview of MOL

Headquartered in Tokyo, Japan, MOL has over 130 years’ experience and possesses the world’s largest ocean shipping fleet.

MOL operates specialised bulk carriers for iron ore, coal, and woodchips; tankers that transport crude oil and LNG; car carriers; cruise ships; ferries and coastal liners; and container ships that deliver a variety of finished products as part of the largest global network of liner and logistics services.

MOL’s containership services span the globe, their network of calling ports is among the largest in the world and is particularly strong in Asian, South American and African markets. Since 2012, MOL has provided services within the framework of the G6 Alliance on the Asia-Europe-Mediterranean Sea routes, Asia-North America West Coast and East Coast routes, and East-West routes including transatlantic services.

2.0 ICMC TRANSPORT VERIFICATION PROTOCOL ASSESSMENT

The ICMI’s *Auditor Guidance for Use of Cyanide Transportation Verification Protocol*, General Guidance states:

*Except as specifically identified in this Guidance document, the Cyanide Transportation Protocol is not to be used to evaluate transport by rail and ship or management of cyanide at rail terminals and port facilities due to security issues, limited access, and the inability of consignors to affect changes in the operating practices of these transport facilities. Rather than conduct Code audits of these facilities, the consignor must conduct and document due diligence investigations of rail carriers, rail terminals, shipping companies and port facilities that are engaged to handle cyanide shipments, as further discussed below under Transport Practice 1.1. The consignor’s due diligence investigation must either be conducted or reviewed by an auditor meeting ICMI requirements for a transport expert, and the auditor must conclude that the due diligence investigation has reasonably evaluated these facilities and that the consignor has, to the extent practical, implemented any necessary management measures.*
Transport Practice 1.1: Select cyanide transport routes to minimise the potential for accidents and releases

The international sales and exports of sodium cyanide by Orica take into consideration the ports and their extended infrastructure available to service the intended target area. Orica only operates in export markets that are serviced by major international shipping companies with the ability to offer scheduled container services from point of origin to destination.

Orica procedure “Selection of Transport Routes – Transportation of Sodium Cyanide to Customer Sites or Stock Points” (Orica ref: UP-GLO-PRO-001-017) aims to minimise the risk associated with the transportation of sodium cyanide while maintaining a safe, reliable, efficient and cost effective delivery system to customer sites and Orica stock points throughout the world. The procedure applies to the selection of delivery routes for Orica sodium cyanide and states that the “selection of route(s) is to be effected by the overall assessment of the risks associated with the utilisation of such route, taking into particular consideration likelihood of an incident occurring and the consequence of such an incident.” This procedure is applicable to all routes used for the transportation of Orica sodium cyanide as well as to Orica's contracted transportation agencies.

MOL Shipping is a carrier service providing international shipping of containers on a fleet of their container vessels. Containers containing solid sodium cyanide are placed and secured on their vessels at the loading port by the stevedoring company and removed at the port of destination by the stevedoring company at that port.

Basically, an export or international route will include the following:

- Orica production, packaging and despatch
- Road and rail transportation to port
- International shipping to destination port
- Road transportation to customer (mining operation).

In some instances, sodium cyanide shipments are unloaded at terminals en-route to its final destination. This is known as trans-shipping and involves a temporary set down within a port facility before loading onto another vessel for continuation of the delivery. It is at the discretion of MOL to determine when and where this occurs. MOL conducts itself in accordance with the International Maritime Organisation (IMO) Dangerous Goods (IMDG) Code and in a professional manner, this extends to the selection of terminals used by MOL for trans-shipping.

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

Orica's manufacturing facility and transfer stations are ICMC certified, sodium cyanide is packaged and transported in accordance with international regulatory standards, such as the United Nations Recommendation on the Transport of Dangerous Goods – Model Regulations, (2005) and National Codes of Practice such as the Australian Code for the Transport of Dangerous Goods by Road or Rail, (2015) thereby meeting the requirements of the political jurisdictions through which the loads will pass.

Orica only operates in export markets that are serviced by major international shipping companies with the ability to offer scheduled container services from point of origin to destination. Orica procedure “Carrier Assessment” (Orica ref: SUP-GLO-PRO-016-008) provides the framework for ensuring that carriers and their contractors are assessed at regular intervals to ensure that, amongst others, storage, safety, security, maintenance and emergency response standards are being maintained. Carriers are required to provide manifest documentation, to satisfy local customs regulations and the requirements of the IMDG Code, to the destination port. This documentation contains a list of the cargo types and in the case of sodium cyanide and any other hazardous cargo the quantity, unique packaging numbers, stowage reference and emergency response procedures.

\( g \) Does the ship carrying the cyanide have a list or manifest identifying the presence and location of the cyanide or a detailed stowage plan including this information, as required under Section 5.4.3.1 of the DG Code?

MOL transports sodium cyanide by sea to various destination ports. All packaging and transportation is in accordance with the IMDG Code.
Orica prepares a dangerous goods transport document known as the *Multimodal Dangerous Goods Form*. This form meets the requirements of the SOLAS 74, Chapter VII, Regulation 5 and the MARPOL 73/78, Annex III, Regulation 4. This form also has a container packaging certificate included that meets the requirements of Section 5.4.2 of the IMDG Code, as well as emergency response information. Upon arrival at the Port, the ship’s master provides the port with a copy of the *Multimodal Dangerous Goods Form*.

Documentation provided including Dangerous Goods manifest (including stowage plan) and Packaging Certificates for each container ensure that adequate information is available in order to identify the correct stowage and separation of dangerous goods. This information then determines the placement and segregation of the container on the vessel and handling through trans-shipment ports, if applicable.

MOL operations personnel provide the vessel’s Master with copies of the Emergency Information, Dangerous Goods manifest (including stowage plan), Packaging Certificates and the *Multimodal Dangerous Goods Form* for each hazardous cargo transport units loaded onto the ship at the port.

MOL has multiple cross checking layers to verify that products arriving at the laydown areas match those provided on the booking and that containers being loaded onto the vessels match those stipulated on the loading (or stowage) plan.

**h) Does the ship carrying the cyanide have cyanide emergency response information, as required under Section 5.4.3.2 of the DG Code?**

The manifests that are provided to the vessel Master contain emergency response information. The *Multimodal Dangerous Goods Form* also includes emergency response information.

MOL operations personnel provide the vessel’s Master with copies of the Emergency Information, Dangerous Goods manifest (including stowage plan), Packaging Certificates and the *Multimodal Dangerous Goods Form* for each hazardous cargo transport units loaded onto the ship at the port.

Emergency response procedures for ships carrying dangerous goods, including the emergency schedules to be followed in case of incidents involving dangerous substances, materials or articles, or harmful substances (marine pollutants), is regulated under the IMDG Code. In accordance with the Code, all ships, and the companies responsible for their operation, are required to maintain a Safety Management System (SMS). Within the SMS, procedures for responding to potential shipboard emergencies are required.

**i) Does the ship comply with the stowage and separation requirements of Part 7 of the DG Code?**

MOL comply with the stowage and separation requirements of Chapter 7 of the IMDG Code through the following:

- The *Multimodal Dangerous Goods Form* used by Orica and MOL is the document referenced in the IMDG Code (Chapter 5.4) and meets the requirements of SOLAS 74, chapter VII, regulation 4, MARPOL 73/78, Annex III, Regulation 4 and the provisions of the Code.

- A copy of the Form is provided to MOL for assigning the container reference numbers and sending the HAZCHEM bookings for finalisation. From the Form, data is entered into the MOL tracking and monitoring system that allows for the determination of placement and segregation of the containers on the vessel and handling through shipment ports.

- All containers (stipulated by their reference number) must be finalised by the vessel loading cut-off time. This requires the Form to be provided between 48 and 24 hours prior to cut-off.

- Sodium cyanide is designated a “red line” cargo and is only loaded to the vessel when called in.

- Upon approval, the loading plan is passed onto the stevedore for loading of the vessel.

Documentation provided including Dangerous Goods manifest (including stowage plan) and Packaging Certificates for each container ensure that adequate information is available in order to identify the correct stowage and separation of dangerous goods. This information then determines the placement and segregation of the container on the vessel and handling through trans-shipment ports, if applicable.
Transport Practice 1.6: Track cyanide shipments to prevent losses during transport

MOL vessels have continuous means of tracking and communication during their voyages. MOL has their own in-house tracking systems for tracking freight, which is linked by the container number and Bill of Lading (BOL) number. Communication equipment is tested through continuous use.

Chain of custody documentation is used by MOL to prevent the loss of cargo during shipment. This documentation includes the vessel manifest and Safety Data Sheets (SDS), which identifies the location and content of each container on the vessel.

Transport Practice 2.1: Store cyanide in a manner that minimises the potential for accidental releases

All packaging and transportation of sodium cyanide is required to be in accordance with the IMDG Code.

MOL operations personnel provide the vessel’s Master with copies of the Emergency Information, Dangerous Goods manifest (including stowage plan), Packaging Certificates and the Multimodal Dangerous Goods Form for each hazardous cargo transport units loaded onto the ship at the port.

Orica’s product is packaged into purpose designed and built and product dedicated bulk sparge isotainers or into composite intermediate bulk containers (IBCs) contained within Twenty-foot Equivalent Units (TEUs), a general purpose shipping container. Bulk sparge isotainers are rated for sea transportation and inspected by Bureau Veritas under the 2.5 and 5 year inspection regime in accordance with IMDG Code requirements.

Composite IBCs consist of a 1300 kg bulk bag contained within a hermetically sealed plastic liner, placed in a wooden outer with an integral pallet base. As per the IMO DG Code this packaging is referenced as UN/11HD2/X/***/AUS/Orica-30596/7020/1300 under the approval of the Competent Authority (where **** indicates the date the IBC was filled).

Orica’s packaging is labelled as per the IMDG Code. Bulk sparge isotainers and shipping containers containing composite IBCs are placarded with and emergency information panel (EIP) detailing the proper shipping name, dangerous goods class number, UN number, HAZCHEM Code and emergency contact information. Containers are placarded with the environmentally hazardous substance markings. Product labels are provided on the side of the IBC that allows forklift access via the pallet base. IBCs are placed into shipping containers so that the label is facing outwards.

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

MOL operations personnel provide the vessel’s Master with copies of the Emergency Information, Dangerous Goods manifest (including stowage plan), Packaging Certificates and the Multimodal Dangerous Goods Form for each hazardous cargo transport units loaded onto the ship at the port.

3.0 CONCLUSION

Based on the evidence reviewed, this due diligence did not find significant issues of concern in regards to MOL’s management of solid sodium cyanide product. This assessment should not be a final acceptance of MOL for future work; rather it is recommended that Orica continue to review and monitor MOL’s performance annually and implement an adaptive management process.
4.0 CLOSING
We trust this due diligence letter meets your requirements. If you have any questions, please do not hesitate to contact the undersigned.

GOLDER ASSOCIATES PTY LTD

Craig Currie
Environmental Scientist

Ed Clerk
ICMC Lead Auditor and Technical Specialist

CC/EWC/hsl

\"golder.gds\gap\perth\jobs\env\2016 - environment\1665113 - orica icmc audit ocean freight supply chain\correspondence ouf001 - 034 due diligences\1665113-033-l-rev0 dd mol shipping.docx
REFERENCES


ICMC DUE DILIGENCE ASSESSMENT OF ORIENT OVERSEAS CONTAINER LINE

Dear Owen

EXECUTIVE SUMMARY

Golder Associates Pty Ltd (Golder) conducted a due diligence of Orient Overseas Container Line (OOCL) during June 2017 on behalf of Orica Australia Pty Ltd (Orica). The assessment was conducted by Ed Clerk who meets the International Cyanide Management Institute’s (ICMI) requirements for a Transport Technical Specialist.

The following items, as detailed in the ICMI’s Auditor Guidance for Use of Cyanide Transportation Verification Protocol (December 2016), were addressed within the due diligence:

- Transport Practice 1.1 (Questions 1-4 and 6)
- Transport Practice 1.5 (Question 1, Items g-i)
- Transport Practice 1.6
- Transport Practice 2.1
- Transport Practice 3.1.

The ICMI’s Auditor Guidance for Use of Cyanide Transportation Verification Protocol (December 2016) was used to conduct the due diligence assessment. It was not possible during this due diligence to physically inspect the shipping company operations, as such the review was based on information obtained from previous due diligence reviews, ICMI audit reports and publicly available online information.

Based on the evidence reviewed, this due diligence did not find issues of concern in regards to OOCL’s management of solid sodium cyanide product. This assessment should not be a final acceptance of OOCL for future work; rather it is recommended that Orica continue to review and monitor OOCL’s performance annually and implement an adaptive management process.
1.0 INTRODUCTION

This letter provides the results of a due diligence assessment against the shipping line OOCL, in accordance with the International Cyanide Management Code for the Manufacture, Transport and Use of Cyanide in the Production of Gold (ICMC or the Code).

Golder conducted a desktop due diligence assessment of OOCL during June 2017. The assessment was conducted by Ed Clerk who meets the International Cyanide Management Institute’s (ICMI) requirements for a Transport Technical Specialist.

The following items, as detailed in the ICMI’s Auditor Guidance for Use of Cyanide Transportation Verification Protocol (December 2016), were addressed within the due diligence:

- Introduction
- ICMC Transport Verification Protocol Assessment
  - Transport Practice 1.1 (Questions 1-4 and 6)
  - Transport Practice 1.5 (Question 1, Items g-i)
  - Transport Practice 1.6
  - Transport Practice 2.1
  - Transport Practice 3.1.
- Conclusion
- References.

The ICMI’s Auditor Guidance for Use of Cyanide Transportation Verification Protocol (December 2016) was used to conduct the due diligence assessment. Due to access restrictions, it was not possible during this due diligence to physically inspect the shipping company operations. The due diligence assessment was completed based on information obtained from previous due diligences, ICMI audit reports and publicly available online information.

1.1 Overview of OOCL

Orient Overseas Container Line and OOCL are the trade names for transportation services provided separately by Orient Overseas Container Line Limited (OOCLL) and OOCL (Europe) Limited respectively, both are wholly-owned subsidiaries of Orient Overseas (International) Limited, a public company listed on the Hong Kong Stock Exchange.

OOCL is one of the world’s largest integrated international container transportation, logistics and terminal operator companies. As one of Hong Kong’s most recognized global brands, OOCL provides customers with fully-integrated logistics and containerised transportation services, with a network that encompasses Asia, Europe, North America and Australasia.

OOCL is one of the leading international carriers serving China, providing a full range of logistics and transportation services throughout the country. It is also an industry leader in the use of information technology and e-commerce to manage the entire cargo and supply chain process.

Dangerous Goods Coordinators are available to offer shippers all the regional advice that is required. A shipper’s or customer’s dangerous goods cargo is checked promptly and accurately. Legal requirements concerning all of the countries and ports related to transport are taken into account. In addition, OOCL ensures safe transport by observing the relevant stowage and segregation requirements of dangerous goods based on international standards.
2.0 ICMC TRANSPORT VERIFICATION PROTOCOL ASSESSMENT

The ICMI’s Auditor Guidance for Use of Cyanide Transportation Verification Protocol, General Guidance states:

Except as specifically identified in this Guidance document, the Cyanide Transportation Protocol is not to be used to evaluate transport by rail and ship or management of cyanide at rail terminals and port facilities due to security issues, limited access, and the inability of consignors to affect changes in the operating practices of these transport facilities. Rather than conduct Code audits of these facilities, the consignor must conduct and document due diligence investigations of rail carriers, rail terminals, shipping companies and port facilities that are engaged to handle cyanide shipments, as further discussed below under Transport Practice 1.1. The consignor’s due diligence investigation must either be conducted or reviewed by an auditor meeting ICMI requirements for a transport expert, and the auditor must conclude that the due diligence investigation has reasonably evaluated these facilities and that the consignor has, to the extent practical, implemented any necessary management measures.

Transport Practice 1.1: Select cyanide transport routes to minimise the potential for accidents and releases

The international sales and exports of sodium cyanide by Orica take into consideration the ports and their extended infrastructure available to service the intended target area. Orica only operates in export markets that are serviced by major international shipping companies with the ability to offer scheduled container services from point of origin to destination.

Orica procedure “Selection of Transport Routes – Transportation of Sodium Cyanide to Customer Sites or Stock Points” (Orica ref: UP-GLO-PRO-001-017) aims to minimise the risk associated with the transportation of sodium cyanide while maintaining a safe, reliable, efficient and cost-effective delivery system to customer sites and Orica stock points throughout the world. The procedure applies to the selection of delivery routes for Orica sodium cyanide and states that the “selection of route(s) is to be effected by the overall assessment of the risks associated with the utilisation of such route, taking into particular consideration likelihood of an incident occurring and the consequence of such an incident.” This procedure is applicable to all routes used for the transportation of Orica sodium cyanide as well as to Orica’s contracted transportation agencies.

OOCL Shipping is a carrier service providing international shipping of containers on a fleet of their container vessels. Containers containing solid sodium cyanide are placed and secured on their vessels at the loading port by the stevedoring company and removed at the port of destination by the stevedoring company at that port.

Basically, an export or international route will include the following:

- Orica production, packaging and despatch
- Road and rail transportation to port
- International shipping to destination port
- Road transportation to customer (mining operation).

In some instances, sodium cyanide shipments are unloaded at terminals en-route to its final destination. This is known as trans-shipping and involves a temporary set down within a port facility before loading onto another vessel for continuation of the delivery. It is at the discretion of OOCL to determine when and where this occurs. OOCL conducts itself in accordance with the International Maritime Organisation (IMO) Dangerous Goods (IMDG) Code and in a professional manner, this extends to the selection of terminals used by OOCL for trans-shipping.
Transport Practice 1.5: Follow international standards for the transportation of cyanide by sea and air

Orica’s manufacturing facility and transfer stations are ICMC certified, sodium cyanide is packaged and transported in accordance with international regulatory standards, such as the United Nations Recommendation on the Transport of Dangerous Goods – Model Regulations, (2005) and National Codes of Practice such as the Australian Code for the Transport of Dangerous Goods by Road or Rail, (2015) thereby meeting the requirements of the political jurisdictions through which the loads will pass.

Orica only operates in export markets that are serviced by major international shipping companies with the ability to offer scheduled container services from point of origin to destination. Orica procedure “Carrier Assessment” (Orica ref: SUP-GLO-PRO-016-008) provides the framework for ensuring that carriers and their contractors are assessed at regular intervals to ensure that, amongst others, storage, safety, security, maintenance and emergency response standards are being maintained. Carriers are required to provide manifest documentation, to satisfy local customs regulations and the requirements of the IMDG Code, to the destination port. This documentation contains a list of the cargo types and in the case of sodium cyanide and any other hazardous cargo the quantity, unique packaging numbers, stowage reference and emergency response procedures.

g) Does the ship carrying the cyanide have a list or manifest identifying the presence and location of the cyanide or a detailed stowage plan including this information, as required under Section 5.4.3.1 of the DG Code?

OOCL transports sodium cyanide by sea to various destination ports. All packaging and transportation is in accordance with the IMDG Code.

Orica prepares a dangerous goods transport document known as the Multimodal Dangerous Goods Form. This form meets the requirements of the SOLAS 74, Chapter VII, Regulation 5 and the MARPOL 73/78, Annex III, Regulation 4. This form also has a container packaging certificate included that meets the requirements of Section 5.4.2 of the IMDG Code, as well as emergency response information. Upon arrival at the Port, the ship’s master provides the port with a copy of the Multimodal Dangerous Goods Form.

Documentation provided including Dangerous Goods manifest (including stowage plan) and Packaging Certificates for each container ensure that adequate information is available in order to identify the correct stowage and separation of dangerous goods. This information then determines the placement and segregation of the container on the vessel and handling through trans-shipment ports, if applicable.

OOCL operations personnel provide the vessel’s Master with copies of the Emergency Information, Dangerous Goods manifest (including stowage plan), Packaging Certificates and the Multimodal Dangerous Goods Form for each hazardous cargo transport units loaded onto the ship at the port.

OOCL has multiple cross checking layers to verify that products arriving at the laydown areas match those provided on the booking and that containers being loaded onto the vessels match those stipulated on the loading (or stowage) plan.

h) Does the ship carrying the cyanide have cyanide emergency response information, as required under Section 5.4.3.2 of the DG Code?

The manifests that are provided to the vessel Master contain emergency response information. The Multimodal Dangerous Goods Form also includes emergency response information.

OOCL operations personnel provide the vessel’s Master with copies of the Emergency Information, Dangerous Goods manifest (including stowage plan), Packaging Certificates and the Multimodal Dangerous Goods Form for each hazardous cargo transport units loaded onto the ship at the port.

Emergency response procedures for ships carrying dangerous goods, including the emergency schedules to be followed in case of incidents involving dangerous substances, materials or articles, or harmful substances (marine pollutants), is regulated under the IMDG Code. In accordance with the Code, all ships, and the companies responsible for their operation, are required to maintain a Safety Management System (SMS). Within the SMS, procedures for responding to potential shipboard emergencies are required.
i) Does the ship comply with the stowage and separation requirements of Part 7 of the DG Code?

OOCL comply with the stowage and separation requirements of Chapter 7 of the IMDG Code through the following:

- The *Multimodal Dangerous Goods Form* used by Orica and OOCL is the document referenced in the IMDG Code (Chapter 5.4) and meets the requirements of SOLAS 74, chapter VII, regulation 4, MARPOL 73/78, Annex III, Regulation 4 and the provisions of the Code.

- A copy of the *Form* is provided to OOCL for assigning the container reference numbers and sending the HAZCHEM bookings for finalisation. From the *Form*, data is entered into the OOCL tracking and monitoring system that allows for the determination of placement and segregation of the containers on the vessel and handling through shipment ports.

- All containers (stipulated by their reference number) must be finalised by the vessel loading cut-off time. This requires the *Form* to be provided between 48 and 24 hours prior to cut-off.

- Sodium cyanide is designated a “red line” cargo and is only loaded to the vessel when called in.

- Upon approval, the loading plan is passed onto the stevedore for loading of the vessel.

Documentation provided including Dangerous Goods manifest (including stowage plan) and Packaging Certificates for each container ensure that adequate information is available in order to identify the correct stowage and separation of dangerous goods. This information then determines the placement and segregation of the container on the vessel and handling through trans-shipment ports, if applicable.

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

OOCL vessels have continuous means of tracking and communication during their voyages. OOCL has their own in-house tracking systems for tracking freight, which is linked by the container number and Bill of Lading (BOL) number. Communication equipment is tested through continuous use.

Chain of custody documentation is used by OOCL to prevent the loss of cargo during shipment. This documentation includes the vessel manifest and Safety Data Sheets (SDS), which identifies the location and content of each container on the vessel.

Transport Practice 2.1: Store cyanide in a manner that minimises the potential for accidental releases

All packaging and transportation of sodium cyanide is required to be in accordance with the IMDG Code.

OOCL operations personnel provide the vessel’s Master with copies of the Emergency Information, Dangerous Goods manifest (including stowage plan), Packaging Certificates and the *Multimodal Dangerous Goods Form* for each hazardous cargo transport units loaded onto the ship at the port.

Orica’s product is packaged into purpose designed and built and product dedicated bulk sparge isotainers or into composite intermediate bulk containers (IBCs) contained within Twenty-foot Equivalent Units (TEUs), a general purpose shipping container. Bulk sparge isotainers are rated for sea transportation and inspected by Bureau Veritas under the 2.5 and 5 year inspection regime in accordance with IMDG Code requirements.

Composite IBCs consist of a 1300 kg bulk bag contained within a hermetically sealed plastic liner, placed in a wooden outer with an integral pallet base. As per the IMO DG Code this packaging is referenced as UN/11HD2/X/***/AUS/Orica-30596/7020/1300 under the approval of the Competent Authority (where **** indicates the date the IBC was filled).

Orica’s packaging is labelled as per the IMDG Code. Bulk sparge isotainers and shipping containers containing composite IBCs are placarded with an emergency information panel (EIP) detailing the proper shipping name, dangerous goods class number, UN number, HAZCHEM Code and emergency contact information. Containers are placarded with the environmentally hazardous substance markings. Product labels are provided on the side of the IBC that allows forklift access via the pallet base. IBCs are placed into shipping containers so that the label is facing outwards.
Transport Practice 3.1: Prepare detailed emergency response plans for potential cyanide releases

OOCL operations personnel provide the vessel’s Master with copies of the Emergency Information, Dangerous Goods manifest (including stowage plan), Packaging Certificates and the Multimodal Dangerous Goods Form for each hazardous cargo transport units loaded onto the ship at the port.

3.0 CONCLUSION

Based on the evidence reviewed, this due diligence did not find significant issues of concern in regards to OOCL’s management of solid sodium cyanide product. This assessment should not be a final acceptance of OOCL for future work; rather it is recommended that Orica continue to review and monitor OOCL’s performance annually and implement an adaptive management process.

4.0 CLOSING

We trust this due diligence letter meets your requirements. If you have any questions, please do not hesitate to contact the undersigned.

GOLDER ASSOCIATES PTY LTD

Craig Currie
Environmental Scientist

Ed Clerk
ICMC Lead Auditor and Technical Specialist

CC/EWC/hsl
REFERENCES


ICMC DUE DILIGENCE ASSESSMENT OF TOLL SHIPPING

Dear Owen

EXECUTIVE SUMMARY

Golder Associates Pty Ltd (Golder) conducted a due diligence of Toll Shipping (Toll) during July 2017 on behalf of Orica Australia Pty Ltd (Orica). The assessment was conducted by Ed Clerk who meets the International Cyanide Management Institute’s (ICMI) requirements for a Transport Technical Specialist.

The following items, as detailed in the ICMI’s Auditor Guidance for Use of Cyanide Transportation Verification Protocol (December 2016), were addressed within the due diligence:

- Transport Practice 1.1 (Questions 1-4 and 6)
- Transport Practice 1.5 (Question 1, Items g-i)
- Transport Practice 1.6
- Transport Practice 2.1
- Transport Practice 3.1.

The ICMI’s Auditor Guidance for Use of Cyanide Transportation Verification Protocol (December 2016) was used to conduct the due diligence assessment. It was not possible during this due diligence to physically inspect the shipping company operations, as such the review was based on information obtained from previous due diligence reviews, ICMI audit reports and publicly available online information.

Based on the evidence reviewed, this due diligence did not find issues of concern in regards to Toll’s management of solid sodium cyanide product. This assessment should not be a final acceptance of Toll for future work; rather it is recommended that Orica continue to review and monitor Toll’s performance annually and implement an adaptive management process.

24 October 2017

Project No. 1778636-005-L-Rev0

Owen Warren
Senior Manager Global Distribution
Orica
Email: owen.warren@orica.com
1.0 INTRODUCTION

This letter provides the results of a due diligence assessment against the shipping line Toll, in accordance with the International Cyanide Management Code for the Manufacture, Transport and Use of Cyanide in the Production of Gold (ICMC or the Code).

Golder conducted a due diligence of Toll during May 2017. The assessment was conducted by Ed Clerk who meets the ICMI requirements for a Transport Technical Specialist.

The following items, as detailed in the ICMI's Auditor Guidance for Use of Cyanide Transportation Verification Protocol (December 2016), were addressed within the due diligence:

- Introduction
- ICMC Transport Verification Protocol Assessment
  - Transport Practice 1.1 (Questions 1-4 and 6)
  - Transport Practice 1.5 (Question 1, Items g-i)
  - Transport Practice 1.6
  - Transport Practice 2.1
  - Transport Practice 3.1.
- Conclusion
- References.

The ICMI's Auditor Guidance for Use of Cyanide Transportation Verification Protocol (April 2016) was used to guide the due diligence assessment. Due to access restrictions, it was not possible during this due diligence to physically inspect the shipping company operations. The due diligence assessment was completed based on information obtained from previous due diligences, ICMI audit reports and publicly available online information.

1.1 Overview of Toll

Headquartered in Melbourne, Australia and with regional offices and agents around the globe, Toll provides an international multimodal transportation service. Toll has a strong Asia Pacific focus though operates a network of sites throughout the world including Africa, the Middle East, Americas and Europe. The Toll Group employs approximately 10 000 people at 600 freight, warehouse/logistics, aviation, marine and or support facilities throughout its global network.

Toll provide supply chain solutions and transport logistics for a range of industries and also work in partnership with niche service providers to offer specialised services such as metals logistics, aviation fuel logistics and dangerous goods management. With a fleet of approximately 13,000 units of varied size (containers, ships, vessels and aeroplanes) operating across the Asia Pacific region alone, Toll is able to transport a variety of bulk product for customers in the mining, resources, construction, infrastructure and agricultural sectors.

The Toll Group have specialised vehicles and specialist trained personnel, enabling them to transport all nine classes of dangerous goods, complying with the regional, national and international regulatory schemes applicable in the communities in which they operate.

Toll Shipping holds the following accreditations:

- ISO 9001:2008 Quality management systems
- International Safety Management (ISM)
- International Ship & Port Facility Security (ISPS)
- National Self Insurer OH&S
- Mass Management for Victoria and Tasmania, Australia.
2.0 ICMC TRANSPORT VERIFICATION PROTOCOL ASSESSMENT

The ICMI’s Auditor Guidance for Use of Cyanide Transportation Verification Protocol, General Guidance states:

"Except as specifically identified in this Guidance document, the Cyanide Transportation Protocol is not to be used to evaluate transport by rail and ship or management of cyanide at rail terminals and port facilities due to security issues, limited access, and the inability of consignors to affect changes in the operating practices of these transport facilities. Rather than conduct Code audits of these facilities, the consignor must conduct and document due diligence investigations of rail carriers, rail terminals, shipping companies and port facilities that are engaged to handle cyanide shipments, as further discussed below under Transport Practice 1.1. The consignor’s due diligence investigation must either be conducted or reviewed by an auditor meeting ICMI requirements for a transport expert, and the auditor must conclude that the due diligence investigation has reasonably evaluated these facilities and that the consignor has, to the extent practical, implemented any necessary management measures."

Transport Practice 1.1: Select cyanide transport routes to minimise the potential for accidents and releases

The international sales and exports of sodium cyanide by Orica take into consideration the ports and their extended infrastructure available to service the intended target area. Orica only operates in export markets that are serviced by major international shipping companies with the ability to offer scheduled container services from point of origin to destination.

Orica procedure “Selection of Transport Routes – Transportation of Sodium Cyanide to Customer Sites or Stock Points” (Orica ref: UP-GLO-PRO-001-017) aims to minimise the risk associated with the transportation of sodium cyanide while maintaining a safe, reliable, efficient and cost effective delivery system to customer sites and Orica stock points throughout the world. The procedure applies to the selection of delivery routes for Orica sodium cyanide and states that the “selection of route(s) is to be effected by the overall assessment of the risks associated with the utilisation of such route, taking into particular consideration likelihood of an incident occurring and the consequence of such an incident.” This procedure is applicable to all routes used for the transportation of Orica sodium cyanide as well as to Orica’s contracted transportation agencies.

Toll is a carrier service providing international shipping of containers on a fleet of their container vessels. Containers containing solid sodium cyanide are placed and secured on their vessels at the loading port by the stevedoring company and removed at the port of destination by the stevedoring company at that port.

Basically, an export or international route will include the following:

- Orica production, packaging and despatch
- Road and rail transportation to port
- International shipping to destination port
- Road transportation to customer (mining operation).

In some instances, sodium cyanide shipments are unloaded at terminals en-route to its final destination. This is known as trans-shipping and involves a temporary set down within a port facility before loading onto another vessel for continuation of the delivery. It is at the discretion of Toll to determine when and where this occurs. Toll conducts itself in accordance with the International Maritime Organisation (IMO) Dangerous Goods (IMDG) Code and in a professional manner, this extends to the selection of terminals used by Toll for trans-shipping.
Transport Practice 1.5: Follow international standards for the transportation of cyanide by sea and air

Orica’s manufacturing facility and transfer stations are ICMC certified, sodium cyanide is packaged and transported in accordance with international regulatory standards, such as the United Nations Recommendation on the Transport of Dangerous Goods – Model Regulations, (2005) and National Codes of Practice such as the Australian Code for the Transport of Dangerous Goods by Road or Rail, (2015) thereby meeting the requirements of the political jurisdictions through which the loads will pass.

Orica only operates in export markets that are serviced by major international shipping companies with the ability to offer scheduled container services from point of origin to destination. Orica procedure “Carrier Assessment” (Orica ref: SUP-GLO-PRO-016-008) provides the framework for ensuring that carriers and their contractors are assessed at regular intervals to ensure that, amongst others, storage, safety, security, maintenance and emergency response standards are being maintained. Carriers are required to provide manifest documentation, to satisfy local customs regulations and the requirements of the IMDG Code, to the destination port. This documentation contains a list of the cargo types and in the case of sodium cyanide and any other hazardous cargo the quantity, unique packaging numbers, stowage reference and emergency response procedures.

**g) Does the ship carrying the cyanide have a list or manifest identifying the presence and location of the cyanide or a detailed stowage plan including this information, as required under Section 5.4.3.1 of the DG Code?**

Toll transports sodium cyanide by sea to various destination ports. All packaging and transportation is in accordance with the IMDG Code.

Orica prepares a dangerous goods transport document known as the *Multimodal Dangerous Goods Form*. This form meets the requirements of the SOLAS 74, Chapter VII, Regulation 5 and the MARPOL 73/78, Annex III, Regulation 4. This form also has a container packaging certificate included that meets the requirements of Section 5.4.2 of the IMDG Code, as well as emergency response information. Upon arrival at the Port, the ship’s master provides the Port with a copy of the *Multimodal Dangerous Goods Form*. Documentation provided including Dangerous Goods manifest (including stowage plan) and Packaging Certificates for each container ensure that adequate information is available in order to identify the correct stowage and separation of dangerous goods. This information then determines the placement and segregation of the container on the vessel and handling through trans-shipment ports, if applicable.

Toll operations personnel provide the vessel’s Master with copies of the Emergency Information, Dangerous Goods manifest (including stowage plan), Packaging Certificates and the *Multimodal Dangerous Goods Form* for each hazardous cargo transport units loaded onto the ship at the port.

Toll has multiple cross checking layers to verify that products arriving at the laydown areas match those provided on the booking and that containers being loaded onto the vessels match those stipulated on the loading (or stowage) plan.

**h) Does the ship carrying the cyanide have cyanide emergency response information, as required under Section 5.4.3.2 of the DG Code?**

The manifests that are provided to the vessel Master contain emergency response information. The *Multimodal Dangerous Goods Form* also includes emergency response information.

Toll operations personnel provide the vessel’s Master with copies of the Emergency Information, Dangerous Goods manifest (including stowage plan), Packaging Certificates and the *Multimodal Dangerous Goods Form* for each hazardous cargo transport units loaded onto the ship at the port.

Emergency response procedures for ships carrying dangerous goods, including the emergency schedules to be followed in case of incidents involving dangerous substances, materials or articles, or harmful substances (marine pollutants), is regulated under the IMDG Code. In accordance with the Code, all ships, and the companies responsible for their operation, are required to maintain a Safety Management System (SMS). Within the SMS, procedures for responding to potential shipboard emergencies are required.
i) Does the ship comply with the stowage and separation requirements of Part 7 of the DG Code?

Toll comply with the stowage and separation requirements of Chapter 7 of the IMDG Code through the following:

- The *Multimodal Dangerous Goods Form* used by Orica and Toll is the document referenced in the IMDG Code (Chapter 5.4) and meets the requirements of SOLAS 74, chapter VII, regulation 4, MARPOL 73/78, Annex III, Regulation 4 and the provisions of the Code.

- A copy of the *Form* is provided to Toll for assigning the container reference numbers and sending the HAZCHEM bookings for finalisation. From the *Form*, data is entered into the Toll Online tracking and monitoring system that allows for the determination of placement and segregation of the containers on the vessel and handling through shipment ports.

- All containers (stipulated by their reference number) must be finalised by the vessel loading cut-off time. This requires the *Form* to be provided between 48 and 24 hours prior to cut-off.

- Sodium cyanide is designated a “red line” cargo and is only loaded to the vessel when called in.

- Upon approval, the loading plan is passed onto the stevedore for loading of the vessel.

Documentation provided including Dangerous Goods manifest (including stowage plan) and Packaging Certificates for each container ensure that adequate information is available in order to identify the correct stowage and separation of dangerous goods. This information then determines the placement and segregation of the container on the vessel and handling through trans-shipment ports, if applicable.

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

Toll vessels have continuous means of tracking and communication during their voyages. Communication equipment is tested through continuous use.

Toll has their own in-house tracking system, known as Toll Online, for tracking freight via the container and Bill of Lading (BOL) numbers.

Toll Online is an integrated freight processing tool, it provides access to freight management data for precise tracking of consignments including:

- track and trace data
- POD (Proof of Delivery) data
- consignment entry with label and manifest printing
- event and POD subscriptions
- depot management and returns
- issue management
- arrivals search
- transfers

Toll provide item-level freight tracking, radio frequency identification (RFID) and mobile technologies, and other tools to ensure that a product’s freight journey is completed in a transparent and efficient manner.

Additionally, chain of custody documentation is used by Toll to prevent the loss of cargo during shipment. This documentation includes the vessel manifest and Safety Data Sheets (SDS), which identifies the location and content of each container on the vessel.
Transport Practice 2.1: Store cyanide in a manner that minimises the potential for accidental releases

All packaging and transportation of sodium cyanide is required to be in accordance with the IMDG Code.

Toll operations personnel provide the vessel’s Master with copies of the Emergency Information, Dangerous Goods manifest (including stowage plan), Packaging Certificates and the Multimodal Dangerous Goods Form for each hazardous cargo transport units loaded onto the ship at the port.

Orica’s product is packaged into purpose designed and built and product dedicated bulk sparge isotainers or into composite intermediate bulk containers (IBCs) contained within Twenty-foot Equivalent Units (TEUs), a general purpose shipping container. Bulk sparge isotainers are rated for sea transportation and inspected by Bureau Veritas under the 2.5 and 5 year inspection regime in accordance with IMDG Code requirements.

Composite IBCs consist of a 1300 kg bulk bag contained within a hermetically sealed plastic liner, placed in a wooden outer with an integral pallet base. As per the IMO DG Code this packaging is referenced as UN/11HD2/X/***/AUS/Orica-30596/7020/1300 under the approval of the Competent Authority (where **** indicates the date the IBC was filled).

Orica’s packaging is labelled as per the IMDG Code. Bulk sparge isotainers and shipping containers containing composite IBCs are placarded with and emergency information panel (EIP) detailing the proper shipping name, dangerous goods class number, UN number, HAZCHEM Code and emergency contact information. Containers are placarded with the environmentally hazardous substance markings. Product labels are provided on the side of the IBC that allows forklift access via the pallet base. IBCs are placed into shipping containers so that the label is facing outwards.

In accordance with the International Safety Management (ISM) Code, Toll has developed, implements and maintains a Security Safety policy and management system to ensure safe operation of the ships and protection of the environment in compliance with the relevant international and flag state legislation. This includes procedures for reporting accidents, or to prepare for and respond to emergency situations.

All sodium cyanide remains contained within its sealed containers at all times preventing contact with water and other incompatible materials.

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

Toll operations personnel provide the vessel’s Master with copies of the Emergency Information, Dangerous Goods manifest (including stowage plan), Packaging Certificates and the Multimodal Dangerous Goods Form for each hazardous cargo transport units loaded onto the ship at the port.

Toll operates in compliance with the ISM Code which provides an international standard for the safe management and operation of ships, and for pollution prevention, which Toll and its vessels have duly complied with.

In accordance with the ISM Code, Toll has developed, implements and maintains a Security Safety policy and management system to ensure safe operation of the ships and protection of the environment in compliance with the relevant international and flag state legislation. This includes procedures for reporting accidents, or to prepare for and respond to emergency situations.

3.0 CONCLUSION

Based on the evidence reviewed, this due diligence did not find significant issues of concern in regards to Toll’s management of solid sodium cyanide product. This assessment should not be a final acceptance of Toll for future work; rather it is recommended that Orica continue to review and monitor Toll’s performance annually and implement an adaptive management process.
4.0 CLOSING

We trust this due diligence letter meets your requirements. If you have any questions, please do not hesitate to contact the undersigned.

GOLDER ASSOCIATES PTY LTD

Craig Currie
Environmental Scientist

Ed Clerk
ICMC Lead Auditor and Technical Specialist

CC/EWC/hsl
REFERENCES
APPENDIX B

Port Due Diligence Assessments
ICMC DUE DILIGENCE ASSESSMENT FOR THE PORT OF BRISBANE

Dear Owen

EXECUTIVE SUMMARY

Golder Associates Pty Ltd (Golder) conducted a due diligence of the port of Brisbane, Australia during May 2017 on behalf of Orica Australia Pty Ltd (Orica). The assessment was conducted by Ed Clerk who meets the International Cyanide Management Institute’s (ICMI) requirements for a Transport Technical Specialist.

The following items, as detailed in the ICMI’s Auditor Guidance for Use of Cyanide Transportation Verification Protocol (December 2016), were addressed within the due diligence:

- Transport Practice 1.1 (Questions 1-4 and 6)
- Transport Practice 1.5 (Question 1, Items g-i)
- Transport Practice 1.6
- Transport Practice 2.1
- Transport Practice 3.1.

The ICMI’s Auditor Guidance for Use of Cyanide Transportation Verification Protocol (December 2016) was used to conduct the due diligence assessment. It was not possible during this due diligence to physically inspect the port, as such the review was based on information obtained from previous due diligence reviews, ICMI audit reports and publicly available online information.

Golder’s assessment of the port of Brisbane found no issues of concern in regards to the port’s management of solid sodium cyanide product.

This assessment should not be a final acceptance of the port of Brisbane for future work; rather it is recommended that Orica continue to review and monitor the port’s performance annually and implement an adaptive management process.
1.0 INTRODUCTION

This letter provides the results of a due diligence assessment against the port of Brisbane, Australia, in accordance with the International Cyanide Management Code for the Manufacture, Transport and Use of Cyanide in the Production of Gold (ICMC or the Code).

Golder conducted a desktop due diligence assessment of the port of Brisbane, Australia during May 2017. The assessment was conducted by Ed Clerk who meets the International Cyanide Management Institute’s (ICMI) requirements for a Transport Technical Specialist.

The following items, as detailed in the ICMI’s Auditor Guidance for Use of Cyanide Transportation Verification Protocol (December 2016), were addressed within the due diligence:

- Introduction
- ICMC Transport Verification Protocol Assessment
  - Transport Practice 1.1 (Questions 1-4 and 6)
  - Transport Practice 1.5 (Question 1, Items g-i)
  - Transport Practice 1.6
  - Transport Practice 2.1
  - Transport Practice 3.1.
- Conclusion
- References.

The ICMI’s Auditor Guidance for Use of Cyanide Transportation Verification Protocol (December 2016) was used to conduct the due diligence assessment. Due to access restrictions, it was not possible during this due diligence to physically inspect the port of Brisbane. The due diligence assessment was completed based on information obtained from previous due diligences, ICMI audit reports and publicly available online information.

1.1 Overview of Port of Brisbane, Australia

The port of Brisbane is one of Australia’s fastest growing multi-cargo ports handling over $50 billion of international freight; equivalent to over 15 per cent of Queensland’s Gross State Product. Owned by Q Port Holdings, the Port of Brisbane Pty Ltd (PBPL) is responsible for developing and maintaining port infrastructure and facilities, and for the provision of key services including maintaining navigable access to the port for commercial shipping, and the operation of the Brisbane Multi-modal Terminal. Located at the mouth of the Brisbane River, the port of Brisbane’s strategic location offers an efficient entry to market through direct connectivity to Australia’s major road and rail networks.

Between the port of Brisbane and its upriver facilities there are a total of 29 operating berths and more than 7700 m of quay line. The port of Brisbane has the equivalent of eight 300 m container berths (2469 m of quayline), which are leased and operated by three stevedores – Patrick, DP World and Brisbane Container Terminals – all of which use automated container handling equipment. DP World Brisbane leases and operates Berths 4-7, Patrick leases and operates Berths 8-10 and Brisbane Container Terminals occupies Berth 11 and 12. Total container throughput in the 12 months prior to April 2017 was 1 205 630 twenty-foot equivalent units (TEUs).
Overview of port operations:

- Port protocols exist for docking of vessels (e.g. use of Pilots, use of tug boats, management of different weather conditions, tides, currents and safety and general port operations). This sees to the safe docking and turnaround of the vessels in and out of the port.

- Entry into port is controlled by the port’s Pilot who understands the port protocols and any unique issues regarding the approach and docking of a vessel at the port. The Ship’s Captain works in conjunction with the Pilot as he understands his vessel and can implement and assist with the Pilot’s instructions.

- The approach of the vessel to the ports will take into any account any channels, special navigation points and as mentioned above the currents, tides and weather.

- Once a vessel is secure alongside the wharf the shipping activities changeover to port activities. The vessel’s manifest of what containers are required to be unloaded from the vessel, including the manifest for containers for loading are handed over. This manifest will identify hazardous cargos and their UN number and classification and segregation requirements.

Other port operations, including stevedoring and towage, are carried out by private operators who lease land from PBPL. Vessel traffic services are the responsibility of the Queensland Department of Transport and Main Roads, and pilotage services are carried out by a private operator.

Stevedoring operations include:

- Handling of the containers whether full or empty on and off the vessels; container storage areas for general cargo, port security, control systems for companies and their vehicles collecting and or delivering containers.

- Software programs that control container placement and movement; these software packages identify each individual container placement area in designated stacks. The input information for the placement of containers comes from the vessel’s manifest.

PBPL is responsible for the management of dangerous goods in the port, including the loading and unloading of ships alongside and movement across the wharf. Vessel Traffic Services (VTS) is responsible for monitoring and managing the safe movement of ships in Queensland waters. VTS will assist the port authority in controlling traffic movement in the port, maintaining on/water safety distances, and responding to emergency situations.

2.0 ICMC TRANSPORT VERIFICATION PROTOCOL ASSESSMENT

The ICMI’s Auditor Guidance for Use of Cyanide Transportation Verification Protocol, General Guidance states:

*Except as specifically identified in this Guidance document, the Cyanide Transportation Protocol is not to be used to evaluate transport by rail and ship or management of cyanide at rail terminals and port facilities due to security issues, limited access, and the inability of consignors to affect changes in the operating practices of these transport facilities. Rather than conduct Code audits of these facilities, the consignor must conduct and document due diligence investigations of rail carriers, rail terminals, shipping companies and port facilities that are engaged to handle cyanide shipments, as further discussed below under Transport Practice 1.1. The consignor’s due diligence investigation must either be conducted or reviewed by an auditor meeting ICMI requirements for a transport expert, and the auditor must conclude that the due diligence investigation has reasonably evaluated these facilities and that the consignor has, to the extent practical, implemented any necessary management measures.*

Transport Practice 1.1: Select cyanide transport routes to minimise the potential for accidents and releases

The international sales and exports of sodium cyanide by Orica take into consideration the ports and their extended infrastructure available to service the intended target area. Orica only operates in export markets that are serviced by major international shipping companies with the ability to offer scheduled container services from point of origin to destination.
Orica procedure “Selection of Transport Routes – Transportation of Sodium Cyanide to Customer Sites or Stock Points” (Orica ref: UP-GLO-PRO-001-017) aims to minimise the risk associated with the transportation of sodium cyanide while maintaining a safe, reliable, efficient and cost effective delivery system to customer sites and Orica stock points throughout the world. The procedure applies to the selection of delivery routes for Orica sodium cyanide and states that the “selection of route(s) is to be effected by the overall assessment of the risks associated with the utilisation of such route, taking into particular consideration likelihood of an incident occurring and the consequence of such an incident.” This procedure is applicable to all routes used for the transportation of Orica sodium cyanide as well as to Orica’s contracted transportation agencies.

The port of Brisbane’s strategic location offers entry to international markets through direct connectivity to Australia’s major road and rail networks and international shipping lines.

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

Orica's manufacturing facility and transfer stations are ICMC certified. Sodium cyanide is packaged and transported in accordance with international regulatory standards, such as the United Nations Recommendation on the Transport of Dangerous Goods – Model Regulations, (2005) and National Codes of Practice such as the Australian Code for the Transport of Dangerous Goods by Road or Rail, (2015) thereby meeting the requirements of the political jurisdictions through which the loads will pass.

Orica only operates in export markets that are serviced by major international shipping companies with the ability to offer scheduled container services from point of origin to destination. Orica procedure “Carrier Assessment” (Orica ref: SUP-GLO-PRO-016-008) provides the framework for ensuring that carriers and their contractors are assessed at regular intervals to ensure that, amongst others, storage, safety, security, maintenance and emergency response standards are being maintained. Carriers are required to provide manifest documentation, to satisfy local customs regulations and the requirements of the IMDG Code, to the destination port. This documentation contains a list of the cargo types and in the case of sodium cyanide and any other hazardous cargo the quantity, unique packaging numbers, stowage reference and emergency response procedures.

Australia is both an IMO Member State (1952) and SOLAS Signatory Nation (1983), thereby requiring the port of Brisbane to adhere to the international regulations for the transportation and handling of dangerous goods as set out in the IMDG Code (Parts 4, 5 and 7) and SOLAS Convention ((1974) Chapter 7).

**g) Does the ship carrying the cyanide have a list or manifest identifying the presence and location of the cyanide or a detailed stowage plan including this information, as required under Section 5.4.3.1 of the DG Code?**

The Australian Maritime Safety Authority (AMSA) develops and implements policies, statutes and regulations governing the carriage of dangerous goods and other goods by ships in accordance with relative national and international requirements. The Port Authority (PBPL), is responsible for supervising the safety of ships carrying dangerous goods and other goods, processing declarations made by ships carrying dangerous goods, providing accreditation services for personnel involved in the declaration of dangerous goods and inspection of containers, and inspecting containers holding dangerous goods.

As an IMO Member State and to comply with the IMDG Code, vessels are required to declare dangerous cargo 24 hours prior to loading/handling of such cargo to the PBPL.

The port of Brisbane operates under National regulations, including Australian Standard 3856-2005 (Handling and Transport of Dangerous Cargoes in Port Areas), AMSA Marine Order 41 (Carriage of Dangerous Goods), AMSA Marine Order 42 (Carriage, Stowage and Securing of Cargoes and Containers) and the Queensland Transport Operations Marine Safety Act 1994, which ensures its compliance with regards to the transportation, handling and storage of dangerous goods.

**h) Does the ship carrying the cyanide have cyanide emergency response information, as required under Section 5.4.3.2 of the DG Code?**

Dangerous goods delivered to or from the port are required to be appropriately manifested, packaged, labelled and placarded. Documentation that accompanies the cyanide throughout transportation by sea and delivery at ports includes emergency response information along with the dangerous goods manifest, packing certificates and Multimodal Dangerous Goods Form.
Emergency response procedures for ships carrying dangerous goods, including the emergency schedules to be followed in case of incidents involving dangerous substances, materials or articles, or harmful substances (marine pollutants), is regulated under the IMDG Code. In accordance with the Code, all ships, and the companies responsible for their operation, are required to maintain a Safety Management System (SMS). Within the SMS, procedures for responding to potential shipboard emergencies are required.

Port operations personnel provide the vessel’s Master with copies of the Emergency Information, Dangerous Goods manifest (including stowage plan) and Packaging Certificates for each hazardous cargo transport units loaded onto the ship at the port of origin.

AMSA Marine Order 41 (Carriage of Dangerous Goods) requires the owner of a vessel on which it is intended to carry dangerous goods in packaged form to possess detailed instructions on emergency response and medical first aid relevant to incidents involving those goods.

The port of Brisbane also has its own emergency response procedures and capabilities.

i) Does the ship comply with the stowage and separation requirements of Part 7 of the DG Code?

As a member of the IMO and to comply with the IMDG Code and National Regulations vessels are required to declare dangerous cargo 24 hours prior to loading/handling of such cargo, additionally, all cargo listed on the dangerous cargo manifest must be stowed and handled as prescribed by its UN number and dangerous goods class.

The port of Brisbane has dedicated storage areas for specialised products including dangerous goods; cyanide containers are segregated and stacked separately. All sodium cyanide remains packaged within its sealed container at all times.

Australian Standard 3856-2005 (Handling and Transport of Dangerous Cargoes in Port Areas) sets out requirements and recommendations for the safe entry, presence, handling and transport of dangerous cargoes, as listed in the IMDG Code and occurring within port areas. The purpose of this Standard is to provide minimum acceptable safety requirements for the handling and transport of dangerous goods at port facilities, including operating procedures, repair work, emergency planning and fire protection. It provides technical guidance that may assist in the handling and transport of dangerous cargoes in port areas in accordance with regulatory requirements.

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

Maritime Safety Queensland (MSQ), through the authority of the Harbour Master, has jurisdiction over the safe movement of all shipping within the pilotage area. The scheduling of ship movements is initiated by the agent submitting movement details for a vessel to Brisbane VTS Centre via the QSHIPS ship planning programme.

Chain of custody documentation is used by shipping companies to prevent the loss of cargo during shipment. This documentation includes the vessel manifest – which identifies the location and content of each container on the vessel along with packing certificates, Multimodal Dangerous Goods Forms and Safety Data Sheets (SDS).

Division 13 of the Transport Operations (Marine Safety) Regulation 2004 outlines the duties of owners and masters of vessels in relation to the carriage of dangerous goods. The regulation requires that ships carrying dangerous goods and bulk liquids must comply with the appropriate directions of the IMDG code and Australian Standard 3856-2005 and are to notify PBPL and VTS of the intent to bring dangerous cargo into or depart from a pilotage area.

Ships have to report the information, namely the arrival and/or departure of the ship, the removal of the ship to another berth or anchorage, the transfer of the cargo to another ship the loading of the cargo, and the details of the cargo in an approved form. In the port of Brisbane agents/masters are to submit dangerous goods information electronically to the PBPL through the ‘DGTrack’ system.

Transport Practice 2.1: Store cyanide in a manner that minimises the potential for accidental releases

Sodium cyanide transited through the port of Brisbane is temporary and remains on site for less than a day. This is a management measure to minimise potential for accidental releases during storage. All sodium
cyanide transited through the port of Brisbane remains contained within its sealed containers at all times preventing contact with water and other incompatible materials.

PBPL is responsible for the security and protection of the port's infrastructure and assets, and the provision of risk-based security services.

In response to the risk of terrorism, the Commonwealth Government of Australia has interpreted the International Ship and Port Facility and Security (ISPS) Code, through its introduction of the Maritime Transport and Offshore Facilities Security Act (MTOFSA) and Regulation 2003. In June 2004, the Office of Transport Security (OTS) approved the PBPL’s maritime security plan, compliant with MTOFSA and the ISPS Code.

In addition to PBPL's maritime security plan, security regulated ships, port facilities and port service providers also have maritime security plans which outline the measures and procedures undertaken to protect vessels that trade in Australian seaports and the port infrastructure that services those vessels.

Port security officers conduct mobile patrols on both land and water at all times. All persons wishing to access the port must be able, when requested, to demonstrate they have official business in the port. All crew members leaving a security controlled berth/terminal must show appropriate identification for example, a seafarer's book or a copy of their passport in order to gain re-entry. All visitors and service providers to vessels must be included on the agent's list of authorised visitors and must be able to provide proof of identity. Port access by members of the public is prohibited.

A number of cameras are stationed around the port to assist security officers monitoring the operations. It is an offence to enter or leave the port area by any means other than a designated entrance or exit.

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

The port of Brisbane is certified under the IMO’s International Convention on Oil Pollution Preparedness, Response and Cooperation 1990 (OPRC 90). States which are party to OPRC 90 protocol are required to establish a national system for responding to oil and hazardous/noxious substances pollution incidents, including a designated national authority, a national operational contact point and a national contingency plan. This needs to be supported by a minimum level of response equipment, communications plans, regular training and exercises.

AMSA, a federal government self-funded maritime safety agency established in 1990, is responsible for providing a national response capability for marine pollution. AMSA administers the National Plan to Combat Pollution of the Sea by Oil and other Noxious and Hazardous Substances, a cooperative arrangement between the Federal, State and Northern Territory (NT) Governments and the shipping, oil, exploration and chemical industries, emergency services and fire brigades.

Under National Plan arrangements, a wide strategic range of response equipment is held at nine regional stockpiles. Equipment provided by AMSA is generally targeted at larger spills, though this is complemented by equipment held by port authorities, State Governments and individual oil and chemical companies.

Section 12 of the port of Brisbane’s Port Procedures and Shipping Information Guidelines document contains information and guidelines to assist ship’s masters, owners, and agents of vessels arriving at and traversing the area with regards to initial emergency response procedures to dangerous incidents, emergencies, terrorist acts and disasters.

**3.0 CONCLUSION**

Based on the evidence reviewed, this due diligence did not find significant issues of concern in regards to the port of Brisbane’s management of solid sodium cyanide product. It was not possible during this due diligence to physically inspect the port, as such the review was based on information obtained from previous due diligence reviews, ICMI audit reports and publicly available online information. The Auditor recommends that Orica undertakes annual reviews at the port to monitor the management of dangerous goods.

This assessment should not be a final acceptance of the port of Brisbane for future work; rather it is recommended that Orica continue to review and monitor the port’s performance annually and implement an adaptive management process.
4.0 CLOSING
We trust this due diligence letter meets your requirements. If you have any questions, please do not hesitate to contact the undersigned.

GOLDER ASSOCIATES PTY LTD

Craig Currie
Environmental Scientist

Ed Clerk
ICMC Lead Auditor and Technical Specialist

CC/EWC/hsl
REFERENCES


Queensland Government, Department of Transport and Main Roads (2015). Port Procedures and Information for Shipping – Brisbane

Queensland Transport Operations (Marine Safety) Regulation 2016

ICMC DUE DILIGENCE ASSESSMENT FOR THE PORT OF MELBOURNE

Dear Owen

EXECUTIVE SUMMARY

Golder Associates Pty Ltd (Golder) conducted a due diligence of the port of Melbourne, Australia during May 2017 on behalf of Orica Australia Pty Ltd (Orica). The assessment was conducted by Ed Clerk who meets the International Cyanide Management Institute’s (ICMI) requirements for a Transport Technical Specialist.

The following items, as detailed in the ICMI’s Auditor Guidance for Use of Cyanide Transportation Verification Protocol (December 2016), were addressed within the due diligence:

- Transport Practice 1.1 (Questions 1-4 and 6)
- Transport Practice 1.5 (Question 1, Items g-i)
- Transport Practice 1.6
- Transport Practice 2.1
- Transport Practice 3.1.

The ICMI’s Auditor Guidance for Use of Cyanide Transportation Verification Protocol (December 2016) was used to conduct the due diligence assessment. It was not possible during this due diligence to physically inspect the port, as such the review was based on information obtained from previous due diligence reviews, ICMI audit reports and publicly available online information.

Golder’s assessment of the port of Melbourne found no issues of concern in regards to the port’s management of solid sodium cyanide product.

This assessment should not be a final acceptance of the port of Melbourne for future work; rather it is recommended that Orica continue to review and monitor the port’s performance annually and implement an adaptive management process.
1.0 INTRODUCTION

This letter provides the results of a due diligence assessment against the port of Melbourne, Australia, in accordance with the *International Cyanide Management Code for the Manufacture, Transport and Use of Cyanide in the Production of Gold* (ICMC or the Code).

Golder conducted a desktop due diligence assessment of the port of Melbourne, Australia during May 2017. The assessment was conducted by Ed Clerk who meets the International Cyanide Management Institute’s (ICMI) requirements for a Transport Technical Specialist.

The following items, as detailed in the ICMI’s *Auditor Guidance for Use of Cyanide Transportation Verification Protocol* (December 2016), were addressed within the due diligence:

- Introduction
- ICMC Transport Verification Protocol Assessment
  - Transport Practice 1.1 (Questions 1-4 and 6)
  - Transport Practice 1.5 (Question 1, Items g-i)
  - Transport Practice 1.6
  - Transport Practice 2.1
  - Transport Practice 3.1.
- Conclusion
- References.

The ICMI’s *Auditor Guidance for Use of Cyanide Transportation Verification Protocol* (December 2016) was used to conduct the due diligence assessment. Due to access restrictions, it was not possible during this due diligence to physically inspect the port of Melbourne. The due diligence assessment was completed based on information obtained from previous due diligences, ICMI audit reports and publicly available online information.

1.1 Overview of Port of Melbourne, Australia

The port of Melbourne is the leading international container terminal in Australasia. It handles around 36% of Australia’s container trade, and over 2.64 million Twenty-foot equivalent units (TEUs) annually. Overall, the port of Melbourne owns and manages around 500 hectares of port land. The port precinct, with most of its related infrastructure extends west from the Bolte Bridge to the west bank of the Maribyrnong River and south of the West Gate Freeway (M1) around Webb Dock. It is primarily a container port though its multipurpose terminals handle a variety of non-containerised pack types. These include farm equipment and machinery, and breakbulk commodities like timber, paper, iron and steel.

The port of Melbourne is operated by Victorian Ports Corporation (Melbourne) (VPCM). As a government owned entity, VPCM’s responsibilities include the management of commercial shipping in Port Phillip, waterside emergency and marine pollution response, and the management of Station Pier as Victoria’s premier cruise shipping facility.

The critical work of the Harbour Master also resides with the authority.

Overview of port operations:

- Port protocols exist for docking of vessels (e.g. use of Pilots, use of tug boats, management of different weather conditions, tides, currents and safety and general port operations). This sees to the safe docking and turnaround of the vessels in and out of the port.

- Entry into port is controlled by the port’s Pilot who understands the port protocols and any unique issues regarding the approach and docking of a vessel at the port. The Ship’s Captain works in conjunction with the Pilot as he understands his vessel and can implement and assist with the Pilot’s instructions.
The approach of the vessel to the ports will take into account any channels, special navigation points and as mentioned above the currents, tides and weather.

Once a vessel is secure alongside the wharf the shipping activities changeover to port activities. The vessels manifest of what containers are required to be unloaded from the vessel, including the manifest for containers for loading are handed over. This manifest will identify hazardous cargos and their UN number and classification and segregation requirements.

Stevedoring companies DP World, Patrick, Smit Lamnalco and Svitzer manage the onshore (wharf) operations at the various dedicated cargo terminals.

Stevedoring operations include:

- Handling of the containers whether full or empty on and off the vessels; container storage areas for general cargo, port security, control systems for companies and their vehicles collecting and or delivering containers.

- Software programs that control container placement and movement; these software packages identify each individual container placement area in designated stacks. The input information for the placement of containers comes from the vessel’s manifest.

Unless kept in a restricted area, quantities of dangerous goods exceeding 500 kg are delivered to, and removed from, the designated berth within 12 hrs of being loaded/unloaded from a vessel.

2.0 ICMC TRANSPORT VERIFICATION PROTOCOL ASSESSMENT

The ICMI’s Auditor Guidance for Use of Cyanide Transportation Verification Protocol, General Guidance states:

Except as specifically identified in this Guidance document, the Cyanide Transportation Protocol is not to be used to evaluate transport by rail and ship or management of cyanide at rail terminals and port facilities due to security issues, limited access, and the inability of consignors to affect changes in the operating practices of these transport facilities. Rather than conduct Code audits of these facilities, the consignor must conduct and document due diligence investigations of rail carriers, rail terminals, shipping companies and port facilities that are engaged to handle cyanide shipments, as further discussed below under Transport Practice 1.1. The consignor’s due diligence investigation must either be conducted or reviewed by an auditor meeting ICMI requirements for a transport expert, and the auditor must conclude that the due diligence investigation has reasonably evaluated these facilities and that the consignor has, to the extent practical, implemented any necessary management measures.

Transport Practice 1.1: Select cyanide transport routes to minimise the potential for accidents and releases

The international sales and exports of sodium cyanide by Orica take into consideration the ports and their extended infrastructure available to service the intended target area. Orica only operates in export markets that are serviced by major international shipping companies with the ability to offer scheduled container services from point of origin to destination.

Orica procedure “Selection of Transport Routes – Transportation of Sodium Cyanide to Customer Sites or Stock Points” (Orica ref: UP-GLO-PRO-001-017) aims to minimise the risk associated with the transportation of sodium cyanide while maintaining a safe, reliable, efficient and cost effective delivery system to customer sites and Orica stock points throughout the world. The procedure applies to the selection of delivery routes for Orica sodium cyanide and states that the “selection of route(s) is to be effected by the overall assessment of the risks associated with the utilisation of such route, taking into particular consideration likelihood of an incident occurring and the consequence of such an incident.” This procedure is applicable to all routes used for the transportation of Orica sodium cyanide as well as to Orica’s contracted transportation agencies.

The port of Melbourne’s strategic location offers entry to international markets through direct connectivity to Australia’s major road and rail networks and international shipping lines.
Transport Practice 1.5: Follow international standards for the transportation of cyanide by sea and air

Orica's manufacturing facility and transfer stations are ICMC certified. Sodium cyanide is packaged and transported in accordance with international regulatory standards, such as the United Nations Recommendation on the Transport of Dangerous Goods – Model Regulations, (2005) and National Codes of Practice such as the Australian Code for the Transport of Dangerous Goods by Road or Rail, (2015) thereby meeting the requirements of the political jurisdictions through which the loads will pass.

Orica only operates in export markets that are serviced by major international shipping companies with the ability to offer scheduled container services from point of origin to destination. Orica procedure “Carrier Assessment” (Orica ref: SUP-GLO-PRO-016-008) provides the framework for ensuring that carriers and their contractors are assessed at regular intervals to ensure that, amongst others, storage, safety, security, maintenance and emergency response standards are being maintained. Carriers are required to provide manifest documentation, to satisfy local customs regulations and the requirements of the IMDG Code, to the destination port. This documentation contains a list of the cargo types and in the case of sodium cyanide and any other hazardous cargo the quantity, unique packaging numbers, stowage reference and emergency response procedures.

Australia is both an IMO Member State (1952) and SOLAS Signatory Nation (1983), thereby requiring the port of Melbourne to adhere to the international regulations for the transportation and handling of dangerous goods as set out in the IMDG Code (Parts 4, 5 and 7) and SOLAS Convention ((1974) Chapter 7).

**g) Does the ship carrying the cyanide have a list or manifest identifying the presence and location of the cyanide or a detailed stowage plan including this information, as required under Section 5.4.3.1 of the DG Code?**

The Australian Maritime Safety Authority (AMSA) develops and implements policies, statutes and regulations governing the carriage of dangerous goods and other goods by ships in accordance with relative national and international requirements. The Port Authority (VPCM) is responsible for supervising the safety of ships carrying dangerous goods and other goods, processing declarations made by ships carrying dangerous goods, providing accreditation services for personnel involved in the declaration of dangerous goods and inspection of containers, and inspecting containers holding dangerous goods.

As an IMO Member State and to comply with the IMDG Code, VPCM require that notification of the carriage of dangerous goods is received at least 24 hours prior to arrival in the port either by vessel or road in the form of a suitably prepared manifest and submitted via the electronic reporting system- Dangerous Goods (DG) Hub.

The port of Melbourne operates under National orders and standards, State regulations and local guidelines, including *Australian Standard 3856-2005 (Handling and Transport of Dangerous Cargoes in Port Areas)*, *AMSA Marine Order 41 (Carriage of Dangerous Goods)*, *AMSA Marine Order 42 (Carriage, Stowage and Securing of Cargoes and Containers)* and the *Dangerous Goods Storage and Handling Regulations (2012) and VPCM’s Packaged Dangerous Goods Handling Guideline*, which ensures its compliance with regards to the transportation, handling and storage of dangerous goods.

**h) Does the ship carrying the cyanide have cyanide emergency response information, as required under Section 5.4.3.2 of the DG Code?**

Dangerous goods delivered to or from the port are required to be appropriately manifested, packaged, labelled and placarded. Documentation that accompanies the cyanide throughout transportation by sea and delivery at ports includes emergency response information along with the dangerous goods manifest, packing certificates and Multimodal Dangerous Goods Form.

Emergency response procedures for ships carrying dangerous goods, including the emergency schedules to be followed in case of incidents involving dangerous substances, materials or articles, or harmful substances (marine pollutants), is regulated under the IMDG Code. In accordance with the Code, all ships, and the companies responsible for their operation, are required to maintain a Safety Management System (SMS). Within the SMS, procedures for responding to potential shipboard emergencies are required.
Emergency procedures are required for handling all foreseeable emergencies during a packaged dangerous Goods operation. Emergency procedures may vary but should include as a minimum: raising of an alarm, action by persons to ensure their own safety and the safety of those around them, action by persons to minimise the damage to people, property and the environment and the method of informing emergency services, port of Melbourne, government agencies, adjacent properties, dangerous goods owners including charterers and their agents.

i) Does the ship comply with the stowage and separation requirements of Part 7 of the DG Code?

As a member of the IMO and to comply with the IMDG Code and National Regulations vessels are required to declare dangerous cargo 24 hours prior to loading/handling of such cargo, additionally, all cargo listed on the dangerous cargo manifest must be stowed and handled as prescribed by its UN number and dangerous goods class.

The port of Melbourne has dedicated storage areas for specialised products including dangerous goods; cyanide containers are segregated and stacked separately. All sodium cyanide remains packaged within its sealed container at all times. Quantities of dangerous goods exceeding 500 kg are delivered to, and removed from, the port within 12 hrs of being loaded/unloaded from a vessel.

Australian Standard 3856-2005 (Handling and Transport of Dangerous Cargoes in Port Areas) sets out requirements and recommendations for the safe entry, presence, handling and transport of dangerous cargoes, as listed in the IMDG Code and occurring within port areas. It provides technical guidance that may assist in the handling and transport of dangerous cargoes in port areas in accordance with regulatory requirements.

Worksafe Victoria’s Code of Practice for the Storage and Handling of Dangerous Goods (2013) also provides guidance on safe separation distances and the risk associated with the chemical and physical reaction between the dangerous goods and other substances or articles at the premises. The Code of Practice is designed to comply with the requirements of the Dangerous Goods Storage and Handling Regulations (2012).

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

Communication operations at Melbourne Vessel Traffic Services (VTS) in the Port Operations Control Centre coordinate marine operations. The service operates around the clock to provide safe and efficient marine and navigational services across 101 242 hectares of declared port waters.

VPCM, in consultation with the shipping and export industry, has developed the DG Hub to assist users in reporting their DG information throughout the supply chain. The DG Hub is an efficient, consistent and faster method for transporters to supply their DG data and it assists in streamlining the way users report DG information through the port community. Exporters, packers, transport companies, freight forwarders and shipping lines create and distribute Multimodal Dangerous Goods Forms and vessel DG manifests using the system.

Chain of custody documentation is also used by shipping companies to prevent the loss of cargo during shipment. This documentation includes the vessel manifest – which identifies the location and content of each container on the vessel along with packing certificates, Multimodal Dangerous Goods Forms and Safety Data Sheets (SDS).

Transport Practice 2.1: Store cyanide in a manner that minimises the potential for accidental releases

In response to the risk of terrorism, the Commonwealth Government of Australia has interpreted the International Ship and Port Facility and Security (ISPS) Code, through its introduction of the Maritime Transport and Offshore Facilities Security Act (MTOFSA) and Regulation 2003. The port of Melbourne is a security regulated port as set out in the MTOFSA

To fulfil regulatory requirements, the port of Melbourne has an approved Maritime Security Plan (MSP) which excludes Station Pier as VPCM has its own Station Pier MSP.
A person must be nominated in writing by the cargo terminal hirer, shipping agent or ship’s Master, as an approved person to enter the cargo terminal area of Station Pier. This includes international seafarers.

Worksafe Victoria’s *Code of Practice for the Storage and Handling of Dangerous Goods* (2013) provides guidance for spill containment requirements for dangerous goods storage facilities/areas. Occupiers storing and handling dangerous goods must ensure that in each area where dangerous goods are stored or handled, provision is made for spill containment that will eliminate the risk from any spill or leak of solid or liquid dangerous goods and must also be able to contain within the premises, the dangerous goods that have been spilled or leaked and any solid or liquid effluent arising from an incident.

Unless kept in a restricted area, quantities of dangerous goods exceeding 500 kg are delivered to, and removed from, the designated berths or storage areas within 12 hrs of being loaded/unloaded from a vessel. Sodium cyanide transited through the port of Melbourne is temporary and remains on site for less than 12 hours, as required. This is a management measure to minimise potential for accidental releases during storage. All sodium cyanide transited through the port of Melbourne remains contained within its sealed containers at all times preventing contact with water and other incompatible materials.

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

The port of Melbourne is certified under the IMO’s International Convention on Oil Pollution Preparedness, Response and Cooperation 1990 (OPRC 90). States which are party to OPRC 90 protocol are required to establish a national system for responding to oil and hazardous/noxious substances pollution incidents, including a designated national authority, a national operational contact point and a national contingency plan. This needs to be supported by a minimum level of response equipment, communications plans, regular training and exercises.

AMSA, a federal government self-funded maritime safety agency established in 1990, is responsible for providing a national response capability for marine pollution. AMSA administers the *National Plan to Combat Pollution of the Sea by Oil and other Noxious and Hazardous Substances*, a cooperative arrangement between the Federal, State and Northern Territory (NT) Governments and the shipping, oil, exploration and chemical industries, emergency services and fire brigades.

Under National Plan arrangements, a wide strategic range of response equipment is held at nine regional stockpiles. Equipment provided by AMSA is generally targeted at larger spills, though this is complemented by equipment held by port authorities, State Governments and individual oil and chemical companies.

The port of Melbourne has a plan in place to manage emergencies which is the Port of Melbourne Emergency Management Plan (EMP). The EMP provides an integrated framework for emergency management within the port’s areas of responsibility and seeks to support an “all agencies” and “all hazards” approach for the prevention, preparedness, response and recovery of port related emergencies. The EMP is also required to be integrated with VPCM’s Melbourne Port Emergency Management Plan (MPEMP).

**3.0 CONCLUSION**

Based on the evidence reviewed, this due diligence did not find significant issues of concern in regards to the port of Melbourne’s management of solid sodium cyanide product. It was not possible during this due diligence to physically inspect the port, as such the review was based on information obtained from previous due diligence reviews, ICMI audit reports and publicly available online information. The Auditor recommends that Orica undertakes annual reviews at the port to monitor the management of dangerous goods.

This assessment should not be a final acceptance of the port of Melbourne for future work; rather it is recommended that Orica continue to review and monitor the port’s performance annually and implement an adaptive management process.
4.0 CLOSING

We trust this due diligence letter meets your requirements. If you have any questions, please do not hesitate to contact the undersigned.

GOLDER ASSOCIATES PTY LTD

Craig Currie
Environmental Scientist

Ed Clerk
ICMC Lead Auditor and Technical Specialist

CC/EWC/hsl
REFERENCES


ICMC DUE DILIGENCE ASSESSMENT FOR THE PORT OF TAURANGA

Dear Owen

EXECUTIVE SUMMARY

Golder Associates Pty Ltd (Golder) conducted a due diligence of the port of Tauranga, New Zealand during April 2017 on behalf of Orica Australia Pty Ltd (Orica). The assessment was conducted by Ed Clerk who meets the International Cyanide Management Institute’s (ICMI) requirements for a Transport Technical Specialist.

The following items, as detailed in the ICMI’s Auditor Guidance for Use of Cyanide Transportation Verification Protocol (December 2016), were addressed within the due diligence:

- Transport Practice 1.1 (Questions 1-4 and 6)
- Transport Practice 1.5 (Question 1, Items g-i)
- Transport Practice 1.6
- Transport Practice 2.1
- Transport Practice 3.1.

The ICMI’s Auditor Guidance for Use of Cyanide Transportation Verification Protocol (December 2016) was used to conduct the due diligence assessment. It was not possible during this due diligence to physically inspect the port, as such the review was based on information obtained from previous due diligence reviews, ICMI audit reports and publicly available online information.

Golder’s assessment of the port of Tauranga found no issues of concern in regards to the port’s management of solid sodium cyanide product.

This assessment should not be a final acceptance of the port of Tauranga for future work; rather it is recommended that Orica continue to review and monitor the port of Tauranga’s performance annually and implement an adaptive management process.

31 July 2017

Project No. 1665113-003-L-Rev0

Owen Warren
Senior Manager Global Distribution
Orica

Email: owen.warren@orica.com
1.0 INTRODUCTION

This letter provides the results of a due diligence assessment against the port of Tauranga, New Zealand, in accordance with the International Cyanide Management Code for the Manufacture, Transport and Use of Cyanide in the Production of Gold (ICMC or the Code).

Golder conducted a desktop due diligence assessment of the port of Tauranga, New Zealand during April 2017. The assessment was conducted by Ed Clerk who meets the International Cyanide Management Institute’s (ICMI) requirements for a Transport Technical Specialist.

The following items, as detailed in the ICMI’s Auditor Guidance for Use of Cyanide Transportation Verification Protocol (December 2016), were addressed within the due diligence:

- Introduction
- ICMC Transport Verification Protocol Assessment
  - Transport Practice 1.1 (Questions 1-4 and 6)
  - Transport Practice 1.5 (Question 1, Items g-i)
  - Transport Practice 1.6
  - Transport Practice 2.1
  - Transport Practice 3.1.
- Conclusion
- References.

The ICMI’s Auditor Guidance for Use of Cyanide Transportation Verification Protocol (December 2016) was used to conduct the due diligence assessment. Due to access restrictions, it was not possible during this due diligence to physically inspect the port of Tauranga. The due diligence assessment was completed based on information obtained from previous due diligences, ICMI audit reports and publicly available online information.

1.1 Overview of Port of Tauranga, New Zealand

The port of Tauranga (Tauranga) is located in the Bay of Plenty region, on New Zealand’s North Island. It is operated by the company, Port of Tauranga Ltd and is New Zealand’s largest freight gateway port. The world’s largest shipping lines regularly call at the port of Tauranga, exporting a wide range of New Zealand products and importing products from all over the world.

The Tauranga Container Terminal has dedicated road and rail access, streamlining cargo movement into and out of the port, and is a key link in the MetroPort (land port) Auckland onward freight service. The Terminal operates a fleet of 36 straddle carriers linked by leading-edge information technology, ensuring the efficient movement of containers and allowing customers to track their cargo through every step in the process.

In the last financial year Tauranga handled 510,074 Twenty-foot equivalent units (TEUs) and is on track to handle more than one million TEUs in the 2017 financial year.

Overview of port operations:

- Port protocols exist for docking of vessels (e.g. use of Pilots, use of tug boats, management of different weather conditions, tides, currents and safety and general port operations). This sees to the safe docking and turnaround of the vessels in and out of the port.

- Entry into port is controlled by the port’s Pilot who understands the port protocols and any unique issues regarding the approach and docking of a vessel at the port. The Ship’s Captain works in conjunction with the Pilot as he understands his vessel and can implement and assist with the Pilot’s instructions.
The approach of the vessel to the ports will take into any account any channels, special navigation points and as mentioned above the currents, tides and weather.

Once a vessel is secure alongside the wharf the shipping activities changeover to port activities. The vessels manifest of what containers are required to be unloaded from the vessel, including the manifest for containers for loading are handed over. This manifest will identify hazardous cargos and their UN number and classification and segregation requirements.

Stevedoring is the process of loading vessels and stowing cargo. At Tauranga this service is provided by privately-owned companies under contract to exporters, importers or shipping companies. Stevedoring companies employ their own workforce and directly service their own customers.

Stevedoring operations include:

- Handling of the containers whether full or empty on and off the vessels; container storage areas for general cargo, port security, control systems for companies and their vehicles collecting and or delivering containers.

- Software programs that control container placement and movement; these software packages identify each individual container placement area in designated stacks. The input information for the placement of containers comes from the vessel's manifest.

At Tauranga, all cargo, which is, or contains Dangerous Goods, is to be received, stored and despatched using appropriate hazard control procedures based on the IMDG classification. The port area is regarded as a large ship and all cargo is to be planned and stowed in terms of the Code. Planners preparing cargo for loading into ships use the IMDG Code to ensure safe and compliant stowage of the vessel.

### 2.0 ICMC TRANSPORT VERIFICATION PROTOCOL ASSESSMENT

The ICMI's Auditor Guidance for Use of Cyanide Transportation Verification Protocol, General Guidance states:

> Except as specifically identified in this Guidance document, the Cyanide Transportation Protocol is not to be used to evaluate transport by rail and ship or management of cyanide at rail terminals and port facilities due to security issues, limited access, and the inability of consignors to affect changes in the operating practices of these transport facilities. Rather than conduct Code audits of these facilities, the consignor must conduct and document due diligence investigations of rail carriers, rail terminals, shipping companies and port facilities that are engaged to handle cyanide shipments, as further discussed below under Transport Practice 1.1. The consignor’s due diligence investigation must either be conducted or reviewed by an auditor meeting ICMI requirements for a transport expert, and the auditor must conclude that the due diligence investigation has reasonably evaluated these facilities and that the consignor has, to the extent practical, implemented any necessary management measures.

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

The international sales and exports of sodium cyanide by Orica take into consideration the ports and their extended infrastructure available to service the intended target area. Orica only operates in export markets that are serviced by major international shipping companies with the ability to offer scheduled container services from point of origin to destination.

Orica procedure “Selection of Transport Routes – Transportation of Sodium Cyanide to Customer Sites or Stock Points” (Orica ref: UP-GLO-PRO-001-017) aims to minimise the risk associated with the transportation of sodium cyanide while maintaining a safe, reliable, efficient and cost effective delivery system to customer sites and Orica stock points throughout the world. The procedure applies to the selection of delivery routes for Orica sodium cyanide and states that the “selection of route(s) is to be effected by the overall assessment of the risks associated with the utilisation of such route, taking into particular consideration likelihood of an incident occurring and the consequence of such an incident.” This procedure is applicable to all routes used for the transportation of Orica sodium cyanide as well as to Orica’s contracted transportation agencies.

The port of Tauranga's location is central to key export commodity sources. There is direct and dedicated access to New Zealand’s largest import market, the capacity to expand infrastructure as demand increases, and unrivalled sea, road and rail connections.
Transport Practice 1.5: Follow international standards for the transportation of cyanide by sea and air

Orica’s manufacturing facility and transfer stations are ICMC certified. Sodium cyanide is packaged and transported in accordance with international regulatory standards, such as the United Nations Recommendation on the Transport of Dangerous Goods – Model Regulations, (2005) and National Codes of Practice such as the Australian Code for the Transport of Dangerous Goods by Road or Rail, (2015) thereby meeting the requirements of the political jurisdictions through which the loads will pass.

Orica only operates in export markets that are serviced by major international shipping companies with the ability to offer scheduled container services from point of origin to destination. Orica procedure “Carrier Assessment” (Orica ref: SUP-GLO-PRO-016-008) provides the framework for ensuring that carriers and their contractors are assessed at regular intervals to ensure that, amongst others, storage, safety, security, maintenance and emergency response standards are being maintained. Carriers are required to provide manifest documentation, to satisfy local customs regulations and the requirements of the IMDG Code, to the destination port. This documentation contains a list of the cargo types and in the case of sodium cyanide and any other hazardous cargo the quantity, unique packaging numbers, stowage reference and emergency response procedures.

New Zealand is both an IMO Member State (1960) and SOLAS Signatory Nation (1990), thereby requiring the port of Tauranga to adhere to the international regulations for the transportation and handling of dangerous goods as set out in the IMDG Code (Parts 4, 5 and 7) and SOLAS Convention ((1974) Chapter 7).

g) Does the ship carrying the cyanide have a list or manifest identifying the presence and location of the cyanide or a detailed stowage plan including this information, as required under Section 5.4.3.1 of the DG Code?

Maritime New Zealand (MNZ) is the national regulatory, compliance and response agency for the safety, security and environmental protection of coastal and inland waterways. MNZ develops and implements policies, statutes and regulations governing the carriage of dangerous goods and other goods by ships in accordance with relative national and international requirements. This includes supervising the safety of ships carrying dangerous goods, processing declarations made by ships carrying dangerous goods, providing accreditation services for personnel involved in the handling of dangerous goods and the inspection of containers holding dangerous goods.

Maritime Rule Part 24A: Carriage of Cargoes – Dangerous Goods Subpart D – Documentation and Notification 24A.82 requires that when transporting dangerous goods both the shipper and the carrier are to complete dangerous goods transport documents in accordance with Chapter 5.4 of the IMDG Code. Furthermore Subpart 24A.83 IMDG Documentation – Operator and Master states that the ships master must not accept any consignment of dangerous goods for carriage unless a dangerous goods transport document and container packing certificates are received prior.

The shipper responsible for a consignment of dangerous goods must, before the consignment is loaded on the ship, provide the ship’s operator with notification of the shipper’s intention to transport the consignment, including an accurate description of the contents. If the consignment is dangerous goods freight, then all dangerous goods transport documents relevant to that consignment and all container and vehicle packing certificates must be provided.

The port of Tauranga operates under the requirements of overarching national legislation such as the Maritime Transport Act 1994 and Hazardous Substances and New Organisms Act 1996. Additionally there are Maritime and Marine Protection Rules as enforced by MNZ, such as Maritime Rules 24A and 24B concerning the carriage of dangerous goods and stowage and security requirements for all vessels, respectively. Locally, the port of Tauranga’s Dangerous Goods and Hazardous Substances Code of Practice (designed in accordance with applicable legislation) ensures its compliance with regards to the transportation, handling and storage of dangerous goods.
h) Does the ship carrying the cyanide have cyanide emergency response information, as required under Section 5.4.3.2 of the DG Code?

Dangerous goods delivered to or from the port are required to be appropriately manifested, packaged, labelled and placarded. Documentation that accompanies the cyanide throughout transportation by sea and delivery at ports includes emergency response information along with the dangerous goods manifest, packing certificates and Multimodal Dangerous Goods Form.

Emergency response procedures for ships carrying dangerous goods, including the emergency schedules to be followed in case of incidents involving dangerous substances, materials or articles, or harmful substances (marine pollutants), is regulated under the IMDG Code. In accordance with the Code, all ships, and the companies responsible for their operation, are required to maintain a Safety Management System (SMS). Within the SMS, procedures for responding to potential shipboard emergencies are required.

Port operations personnel provide the vessel’s Master with copies of the Emergency Information, Dangerous Goods manifest (including stowage plan) and Packaging Certificates for each hazardous cargo transport units loaded onto the ship at the port of origin.

Maritime Rule Part 24A: Carriage of Cargoes – Dangerous Goods Subpart E – Hazard Management and Emergency Response details the requirements for ships carrying dangerous goods and their emergency response procedures. The Rule states that the operator of the ship must ensure that procedures for managing hazards associated with dangerous goods are adopted, maintained and carried on the ship in a readily accessible place. Crew members are required to be familiarised with the emergency response procedures.

i) Does the ship comply with the stowage and separation requirements of Part 7 of the DG Code?

As a member of the IMO and to comply with the IMDG Code and National Maritime Regulations vessels are required to declare dangerous cargo before arriving at or leaving the port, additionally, all cargo listed on the dangerous cargo manifest must be stowed and handled as prescribed by its UN number and dangerous goods class.

Cargo containing Dangerous Goods (either import or export) is stored in planned positions which minimise hazard and facilitate the management of any incidents that may occur. The port of Tauranga’s Terminal computer based cargo allocation system (SPARCS) has a program titled Expert Decking, which will allocate a yard storage position for Dangerous Goods consignments based on the policies detailed.

Copies of dangerous goods manifests from vessels are stored in folders related to the relevant vessel and voyage. A “Dangerous Goods in Yard” list can be produced at any given time using SPARCS. This will give container numbers, positions, class, UN numbers, and container weight for all dangerous goods containers currently in the yard.

Any damaged dangerous goods cargo is placed in a designated isolation storage bund area.

Tauranga’s Dangerous Goods and Hazardous Substances Code of Practice contains detailed procedural information for the receipt, handling, storage and segregation of dangerous goods based on their class numbers.

Worksafe New Zealand has developed Codes of Practice that manage the risks associated with manufacturing, using, handling or storing hazardous substances. The Codes of Practice are derived from the requirements of the Hazardous Substances and New Organisms (HSNO) Act 1996. This is the overarching legislation that aims to protect the environment, and the health and safety of people and communities, by preventing or managing the adverse effects of hazardous substances and new organisms. Current Codes of Practice for the storage and separation of hazardous substances in New Zealand ports include HSNOCOP-16 Hazardous Substances Storage Code, HSNOCOP-28 Incompatible Hazardous Substances Separations, HSNOCOP-47 Secondary Containment Systems and Information on HSNOCOP-2 Signage for Premises Storing Hazardous Substances & Dangerous Goods.

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

The Dispatch Centre organises ship movements, tracks pilotage operations, and supervises terminal operations via real-time CCTV monitoring.
Chain of custody documentation is used by shipping companies to prevent the loss of cargo during shipment. This documentation includes the vessel manifest – which identifies the location and content of each container on the vessel along with packing certificates, Multimodal Dangerous Goods Forms and Safety Data Sheets (SDS).

The SPARCS terminal computer based cargo allocation system has the capacity to track containers of dangerous goods via the inputs from shipping manifests and other delivery documentation. Programming will allocate a yard storage position for dangerous goods consignments based on the nature of the goods. A Dangerous Goods in Yard list can be produced at any given time using SPARCS. This will give container numbers, positions, class, UN numbers, and container weight for all dangerous goods containers currently in the yard.

Transport Practice 2.1: Store cyanide in a manner that minimises the potential for accidental releases

The port of Tauranga has a statutory obligation to comply with the Port’s New Zealand Customs (NZC) Procedure Statement, the Customs & Excise Act 1996, the Maritime Security Act 2004 and the Health & Safety at Work Act 2015. The entire area within the port of Tauranga security fence line is a designated Customs Controlled Area (CCA) and the port is required to monitor and control all persons entering the CCA.

Access to the wharf area is restricted to authorised persons only. Entry on to the port area is controlled by barrier arms at all road gates. Surrounding roads, Rata Street and Tasman Quay gates are only open to heavy vehicles and light vehicles carrying security access cards. The Hull Road gate is manned 24 hours a day, seven days per week, and is monitored by a Customer Service Centre. Only heavy vehicles, authorised persons and visitors with legitimate business reason are permitted on to the port. The gate at Sulphur Point on the Tauranga side of the harbour is manned 24 hours per day.

All dangerous goods are stored in accordance with the detailed management procedures as specified in the Dangerous Goods and Hazardous Substances Code of Practice Section 5. At least two (2) days before the arrival of a vessel, the Agent or Stevedore is to supply a copy of the dangerous goods declaration for every consignment which carries an IMDG classification. Cargo containing dangerous goods is stored in pre-planned positions. There are a series of maps which indicate which classes of dangerous goods can be stored where.

The HSNO Act 1996 and its associated Codes of Practice- HSNOCOP-16, HSNOCOP-28 and HSNOCOP-2 ensure that cyanide is stored securely and with adequate ventilation.

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

The port of Tauranga has an Emergency Procedures Manual (EPM) which covers the port storage areas, the commercial wharves and vessels berthed alongside them. The purpose of the manual is to provide a guide for the initial response to an emergency situation and to facilitate the early calling of the emergency services when required; to ensure the provision of first aid for injured persons in an effort to preserve human life; to ensure the efficient communication between emergency services and port personnel and to control or limit the effect an emergency might have on the port facilities and employees.

The EPM contains procedural and scenario based information for emergency situations involving hazardous substances including the necessary contacts and steps to follow in order to raise an alarm or safely evacuate from an area. Section 7.5.3 Hazardous Substances Spills describes the process for dealing with spills on berthed ships and on the wharf area. The emergency procedure information contained in the EPM is reinforced in the Dangerous Goods and Hazardous Substances Code of Practice Section 12- Emergency Procedures for Hazardous Substances Spills.

The port of Tauranga is certified under the IMO’s International Convention on Oil Pollution Preparedness, Response and Cooperation 1990 (OPRC 90). States which are party to OPRC 90 protocol are required to establish a national system for responding to oil and hazardous/noxious substances pollution incidents, including a designated national authority, a national operational contact point and a national contingency plan. This needs to be supported by a minimum level of response equipment, communications plans, regular training and exercises.
Code of Practice HSNOCP-36 Preparing for a Chemical Emergency also provides a comprehensive guide to emergency management suitable for use by businesses and facilities engaged in the storage, transport, use and handling of chemicals and hazardous substances.

3.0 CONCLUSION

Based on the evidence reviewed, this due diligence did not find significant issues of concern in regards to the port of Tauranga’s management of solid sodium cyanide product. It was not possible during this due diligence to physically inspect the port, as such the review was based on information obtained from previous due diligence reviews, ICMI audit reports and publicly available online information. The Auditor recommends that Orica undertakes annual reviews at the port to monitor the management of dangerous goods.

This assessment should not be a final acceptance of the port of Tauranga for future work; rather it is recommended that Orica continue to review and monitor the port’s performance annually and implement an adaptive management process.

4.0 CLOSING

We trust this due diligence letter meets your requirements. If you have any questions, please do not hesitate to contact the undersigned.

GOLDER ASSOCIATES PTY LTD

Craig Currie
Environmental Scientist

Ed Clerk
ICMC Lead Auditor and Technical Specialist

CC/EWC/hsl
REFERENCES


ICMC DUE DILIGENCE ASSESSMENT FOR THE PORT OF AUCKLAND

Dear Owen

EXECUTIVE SUMMARY

Golder Associates Pty Ltd (Golder) conducted a due diligence of the port of Auckland, New Zealand during April 2017 on behalf of Orica Australia Pty Ltd (Orica). The assessment was conducted by Ed Clerk who meets the International Cyanide Management Institute’s (ICMI) requirements for a Transport Technical Specialist.

The following items, as detailed in the ICMI’s Auditor Guidance for Use of Cyanide Transportation Verification Protocol (December 2016), were addressed within the due diligence:

- Transport Practice 1.1 (Questions 1-4 and 6)
- Transport Practice 1.5 (Question 1, Items g-i)
- Transport Practice 1.6
- Transport Practice 2.1
- Transport Practice 3.1.

The ICMI’s Auditor Guidance for Use of Cyanide Transportation Verification Protocol (December 2016) was used to conduct the due diligence assessment. It was not possible during this due diligence to physically inspect the port, as such the review was based on information obtained from previous due diligence reviews, ICMI audit reports consignors and publicly available online information.

Golder’s assessment of the port of Auckland found no issues of concern in regards to the port’s management of solid sodium cyanide product.

This assessment should not be a final acceptance of the port of Auckland for future work; rather it is recommended that Orica continue to review and monitor the port of Auckland’s performance annually and implement an adaptive management process.
1.0 INTRODUCTION

This letter provides the results of a due diligence assessment against the port of Auckland, New Zealand, in accordance with the International Cyanide Management Code for the Manufacture, Transport and Use of Cyanide in the Production of Gold (ICMC or the Code).

Golder conducted a desktop due diligence assessment of the port of Auckland, New Zealand during April 2017. The assessment was conducted by Ed Clerk who meets the International Cyanide Management Institute’s (ICMI) requirements for a Transport Technical Specialist.

The following items, as detailed in the ICMI’s Auditor Guidance for Use of Cyanide Transportation Verification Protocol (December 2016), were addressed within the due diligence:

- Introduction
- ICMC Transport Verification Protocol Assessment
  - Transport Practice 1.1 (Questions 1-4 and 6)
  - Transport Practice 1.5 (Question 1, Items g-i)
  - Transport Practice 1.6
  - Transport Practice 2.1
  - Transport Practice 3.1.
- Conclusion
- References.

The ICMI’s Auditor Guidance for Use of Cyanide Transportation Verification Protocol (December 2016) was used to conduct the due diligence assessment. Due to access restrictions, it was not possible during this due diligence to physically inspect the port of Auckland. The due diligence assessment was completed based on information obtained from previous due diligences, ICMI audit reports and publicly available online information.

1.1 Overview of Port of Auckland, New Zealand

The port of Auckland is located next to Auckland’s central business district. The port is configured into two main terminals, the Multi-Purpose Bledisloe Terminal and the Fergusson Container Terminal.

Ports of Auckland (POA) manages the berths and wharf space, with cargo-handling services provided by third-party stevedoring companies.

A vital link in the inland transport and logistics chain, the port of Auckland offers four parallel rail lines – each 500 metres long which can accommodate 128 wagons at a time for the loading and discharge of sea containers. The rail exchange connects the port of Auckland with inland freight hubs.

A Harbour Control team schedules commercial movements around the harbour to ensure that adequate resources are available for each movement. It has an advisory role for providing information to ships and other craft entering the harbour limits. The port uses the Transas Navi-Harbour system in conjunction with an Automated Identification System (AIS) to keep track of the movements of all ships as they travel between Cape Reinga and Tauranga.

Overview of port operations:

- Port protocols exist for docking of vessels (e.g. use of Pilots, use of tug boats, management of different weather conditions, tides, currents and safety and general port operations). This sees to the safe docking and turnaround of the vessels in and out of the port.

- Entry into port is controlled by the port’s Pilot who understands the port protocols and any unique issues regarding the approach and docking of a vessel at the port. The Ship’s Captain works in conjunction with the Pilot as he understands his vessel and can implement and assist with the Pilot’s instructions.
The approach of the vessel to the ports will take into any account any channels, special navigation points and as mentioned above the currents, tides and weather.

Once a vessel is secure alongside the wharf the shipping activities changeover to port activities. The vessels manifest of what containers are required to be unloaded from the vessel, including the manifest for containers for loading are handed over. This manifest will identify hazardous cargos and their UN number and classification and segregation requirements.

Stevedoring operations include:

- Handling of the containers whether full or empty on and off the vessels; container storage areas for general cargo, port security, control systems for companies and their vehicles collecting and or delivering containers.
- Software programs that control container placement and movement; these software packages identify each individual container placement area in designated stacks. The input information for the placement of containers comes from the vessel’s manifest.

Containers of dangerous goods discharged by vessels at the container terminal are assigned a Land and Remove Time (L&R) by the port of Auckland’s checking system. Sodium cyanide has an L&R time of 72 hours, requiring it be landed and removed from the port within this timeframe. The port uses a charging system for dangerous goods to encourage containers to be collected within the allowable timeframe.

2.0 ICMC TRANSPORT VERIFICATION PROTOCOL ASSESSMENT

The ICMI’s Auditor Guidance for Use of Cyanide Transportation Verification Protocol, General Guidance states:

Except as specifically identified in this Guidance document, the Cyanide Transportation Protocol is not to be used to evaluate transport by rail and ship or management of cyanide at rail terminals and port facilities due to security issues, limited access, and the inability of consignors to affect changes in the operating practices of these transport facilities. Rather than conduct Code audits of these facilities, the consignor must conduct and document due diligence investigations of rail carriers, rail terminals, shipping companies and port facilities that are engaged to handle cyanide shipments, as further discussed below under Transport Practice 1.1. The consignor’s due diligence investigation must either be conducted or reviewed by an auditor meeting ICMI requirements for a transport expert, and the auditor must conclude that the due diligence investigation has reasonably evaluated these facilities and that the consignor has, to the extent practical, implemented any necessary management measures.

Transport Practice 1.1: Select cyanide transport routes to minimise the potential for accidents and releases

The international sales and exports of sodium cyanide by Orica take into consideration the ports and their extended infrastructure available to service the intended target area. Orica only operates in export markets that are serviced by major international shipping companies with the ability to offer scheduled container services from point of origin to destination.

Orica procedure “Selection of Transport Routes – Transportation of Sodium Cyanide to Customer Sites or Stock Points” (Orica ref: UP-GLO-PRO-001-017) aims to minimise the risk associated with the transportation of sodium cyanide while maintaining a safe, reliable, efficient and cost effective delivery system to customer sites and Orica stock points throughout the world. The procedure applies to the selection of delivery routes for Orica sodium cyanide and states that the “selection of route(s) is to be effected by the overall assessment of the risks associated with the utilisation of such route, taking into particular consideration likelihood of an incident occurring and the consequence of such an incident.” This procedure is applicable to all routes used for the transportation of Orica sodium cyanide as well as to Orica’s contracted transportation agencies.

One of New Zealand’s busiest and most efficient ports, the port of Auckland can complete turn-around of ships in a matter of hours. The port is connected via rail to a network of inland freight hubs (Wiri, Mt Maunganui and Longburn) which provide further rail and road transportation linkages for industry users. These hubs all operate as an open platform, available to all stakeholders in the supply chain and offering regional importers and exporters a seamless, flexible service to overseas markets.
Transport Practice 1.5: Follow international standards for the transportation of cyanide by sea and air

Orica’s manufacturing facility and transfer stations are ICMC certified. Sodium cyanide is packaged and transported in accordance with international regulatory standards, such as the United Nations Recommendation on the Transport of Dangerous Goods – Model Regulations, (2005) and National Codes of Practice such as the Australian Code for the Transport of Dangerous Goods by Road or Rail, (2015) thereby meeting the requirements of the political jurisdictions through which the loads will pass.

Orica only operates in export markets that are serviced by major international shipping companies with the ability to offer scheduled container services from point of origin to destination. Orica procedure “Carrier Assessment” (Orica ref: SUP-GLO-PRO-016-008) provides the framework for ensuring that carriers and their contractors are assessed at regular intervals to ensure that, amongst others, storage, safety, security, maintenance and emergency response standards are being maintained. Carriers are required to provide manifest documentation, to satisfy local customs regulations and the requirements of the IMDG Code, to the destination port. This documentation contains a list of the cargo types and in the case of sodium cyanide and any other hazardous cargo the quantity, unique packaging numbers, stowage reference and emergency response procedures.

New Zealand is both an IMO Member State (1960) and SOLAS Signatory Nation (1990), thereby requiring the port of Auckland to adhere to the international regulations for the transportation and handling of dangerous goods as set out in the IMDG Code (Parts 4, 5 and 7) and SOLAS Convention ((1974) Chapter 7).

g) Does the ship carrying the cyanide have a list or manifest identifying the presence and location of the cyanide or a detailed stowage plan including this information, as required under Section 5.4.3.1 of the DG Code?

Maritime New Zealand (MNZ) is the national regulatory, compliance and response agency for the safety, security and environmental protection of coastal and inland waterways. MNZ develops and implements policies, statutes and regulations governing the carriage of dangerous goods and other goods by ships in accordance with relative national and international requirements. This includes supervising the safety of ships carrying dangerous goods, processing declarations made by ships carrying dangerous goods, providing accreditation services for personnel involved in the handling of dangerous goods and the inspection of containers holding dangerous goods.

Maritime Rule Part 24A: Carriage of Cargoes – Dangerous Goods Subpart D – Documentation and Notification 24A.82 requires that when transporting dangerous goods both the shipper and the carrier are to complete dangerous goods transport documents in accordance with Chapter 5.4 of the IMDG Code. Furthermore Subpart 24A.83 IMDG Documentation – Operator and Master states that the ships master must not accept any consignment of dangerous goods for carriage unless a dangerous goods transport document and container packing certificates are received prior.

The shipper responsible for a consignment of dangerous goods must, before the consignment is loaded on the ship, provide the ship’s operator with notification of the shipper’s intention to transport the consignment, including an accurate description of the contents. If the consignment is dangerous goods freight, then all dangerous goods transport documents relevant to that consignment and all container and vehicle packing certificates must be provided.

The port of Auckland operates under the requirements of overarching national legislation such as the Maritime Transport Act, 1994 and Hazardous Substances and New Organisms Act 1996. Additionally there are Maritime and Marine Protection Rules as enforced by MNZ, such as Maritime Rules 24A and 24B concerning the carriage of dangerous goods and stowage and security requirements for all vessels, respectively.

h) Does the ship carrying the cyanide have cyanide emergency response information, as required under Section 5.4.3.2 of the DG Code?

Dangerous goods delivered to or from the port are required to be appropriately manifested, packaged, labelled and placarded. Documentation that accompanies the cyanide throughout transportation by sea and delivery at ports includes emergency response information along with the dangerous goods manifest, packing certificates and Multimodal Dangerous Goods Form.
Emergency response procedures for ships carrying dangerous goods, including the emergency schedules to be followed in case of incidents involving dangerous substances, materials or articles, or harmful substances (marine pollutants), is regulated under the IMDG Code. In accordance with the Code, all ships, and the companies responsible for their operation, are required to maintain a Safety Management System (SMS). Within the SMS, procedures for responding to potential shipboard emergencies are required.

Port operations personnel provide the vessel’s Master with copies of the Emergency Information, Dangerous Goods manifest (including stowage plan) and Packaging Certificates for each hazardous cargo transport units loaded onto the ship at the port of origin.

Maritime Rule Part 24A: Carriage of Cargoes – Dangerous Goods Subpart E – Hazard Management and Emergency Response details the requirements for ships carrying dangerous goods and their emergency response procedures. The Rule states that the operator of the ship must ensure that procedures for managing hazards associated with dangerous goods are adopted, maintained and carried on the ship in a readily accessible place. Crew members are required to be familiarised with the emergency response procedures.

i) Does the ship comply with the stowage and separation requirements of Part 7 of the DG Code?

As a member of the IMO and to comply with the IMDG Code and National Maritime Regulations vessels are required to declare dangerous cargo before arriving at or leaving the port, additionally, all cargo listed on the dangerous cargo manifest must be stowed and handled as prescribed by its UN number and dangerous goods class.

The port of Auckland has dedicated storage areas for specialised products including dangerous goods; cyanide containers are segregated and stacked separately. All sodium cyanide remains packaged within its sealed container at all times.

Worksafe New Zealand has developed Codes of Practice that manage the risks associated with manufacturing, using, handling or storing hazardous substances. The Codes of Practice are derived from the requirements of the Hazardous Substances and New Organisms (HSNO) Act 1996. This is the overarching legislation that aims to protect the environment, and the health and safety of people and communities, by preventing or managing the adverse effects of hazardous substances and new organisms. Current Codes of Practice for the storage and separation of hazardous substances in New Zealand ports include HSNOCOP-16 Hazardous Substances Storage Code, HSNOCOP-28 Incompatible Hazardous Substances Separations, HSNOCOP-47 Secondary Containment Systems and Information on HSNOCOP-2 Signage for Premises Storing Hazardous Substances & Dangerous Goods.

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

The Harbour Control team organises ship movements, tracks pilotage operations, and supervises terminal operations via real-time CCTV monitoring.

Chain of custody documentation is used by shipping companies to prevent the loss of cargo during shipment. This documentation includes the vessel manifest – which identifies the location and content of each container on the vessel along with packing certificates, Multimodal Dangerous Goods Forms and Safety Data Sheets (SDS).

Transport Practice 2.1: Store cyanide in a manner that minimises the potential for accidental releases


For the import of dangerous goods, the port enforces either a Direct to Motor Vehicle (DMV) or L&R process. Allowable dwell times are specified based on dangerous goods class and UN numbers, the dwell time commences from the time the container is discharged onto the wharf. The sodium cyanide allowable dwell time is 72 hours.
The HSNO Act 1996 and its associated Codes of Practice- HSNOCOP-16, HSNOCOP-28 and HSNOCOP-2 ensure that cyanide is stored securely and with adequate ventilation.

The port of Auckland has dedicated storage areas for specialised products including dangerous goods; cyanide containers are segregated and stacked separately. All sodium cyanide remains packaged within its sealed container at all times preventing contact with water and other incompatible materials.

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

New Zealand has been a member State of the IMO Council since 1960, it complies with the requirements of the IMDG Code.

The MNZ is the competent authority and has responsibility for all forms of marine emergencies, including administering the National Contingency Plan (NCP) for dealing with pollution by oil and other noxious substances in marine and freshwater environments.

The port of Auckland is certified under the IMO’s International Convention on Oil Pollution Preparedness, Response and Cooperation 1990 (OPRC 90). States which are party to OPRC 90 protocol are required to establish a national system for responding to oil and hazardous/noxious substances pollution incidents, including a designated national authority, a national operational contact point and a national contingency plan. This needs to be supported by a minimum level of response equipment, communications plans, regular training and exercises.

Code of Practice HSNOCOP-36 Preparing for a Chemical Emergency also provides a comprehensive guide to emergency management suitable for use by businesses and facilities engaged in the storage, transport, use and handling of chemicals and hazardous substances.

3.0 CONCLUSION

Based on the evidence reviewed, this due diligence did not find significant issues of concern in regards to the port of Auckland’s management of solid sodium cyanide product. It was not possible during this due diligence to physically inspect the port, as such the review was based on information obtained from previous due diligence reviews, ICMI audit reports and publicly available online information. The Auditor recommends that Orica undertakes annual reviews at the port to monitor the management of dangerous goods.

This assessment should not be a final acceptance of the port of Auckland for future work; rather it is recommended that Orica continue to review and monitor the port’s performance annually and implement an adaptive management process.

4.0 CLOSING

We trust this due diligence letter meets your requirements. If you have any questions, please do not hesitate to contact the undersigned.

GOLDER ASSOCIATES PTY LTD

Craig Currie
Environmental Scientist

Ed Clerk
ICMC Lead Auditor and Technical Specialist

CC/EWC/hsl
REFERENCES


ICMC DUE DILIGENCE ASSESSMENT FOR THE PORT OF LAE

Dear Owen

EXECUTIVE SUMMARY

Golder Associates Pty Ltd (Golder) conducted a due diligence of the port of Lae, Papua New Guinea (PNG) during May 2017 on behalf of Orica Australia Pty Ltd (Orica). The assessment was conducted by Ed Clerk who meets the International Cyanide Management Institute’s (ICMI) requirements for a Transport Technical Specialist.

The following items, as detailed in the ICMI’s Auditor Guidance for Use of Cyanide Transportation Verification Protocol (December 2016), were addressed within the due diligence:

- Transport Practice 1.1 (Questions 1-4 and 6)
- Transport Practice 1.5 (Question 1, Items g-i)
- Transport Practice 1.6
- Transport Practice 2.1
- Transport Practice 3.1.

The ICMI’s Auditor Guidance for Use of Cyanide Transportation Verification Protocol (December 2016) was used to conduct the due diligence assessment. It was not possible during this due diligence to physically inspect the port, as such the review was based on information obtained from previous due diligence reviews, ICMI audit reports and publicly available online information.

Golder’s assessment of the port of Lae found no issues of concern in regards to the port’s management of solid sodium cyanide product.

This assessment should not be a final acceptance of the port of Lae for future work; rather it is recommended that Orica continue to review and monitor the port’s performance annually and implement an adaptive management process.
1.0 INTRODUCTION

This letter provides the results of a due diligence assessment against the port of Lae, PNG, in accordance with the International Cyanide Management Code for the Manufacture, Transport and Use of Cyanide in the Production of Gold (ICMC or the Code). The letter follows Orica’s acceptance of Golder’s proposal (Golder’s reference P1665113-001-M-Rev0).

Golder conducted a desktop due diligence assessment of the port of Lae, PNG during May 2017. The assessment was conducted by Ed Clerk who meets the International Cyanide Management Institute’s (ICMI) requirements for a Transport Technical Specialist.

The following items, as detailed in the ICMI’s Auditor Guidance for Use of Cyanide Transportation Verification Protocol (December 2016), were addressed within the due diligence:

- Introduction
- ICMC Transport Verification Protocol Assessment
  - Transport Practice 1.1 (Questions 1-4 and 6)
  - Transport Practice 1.5 (Question 1, Items g-i)
  - Transport Practice 1.6
  - Transport Practice 2.1
  - Transport Practice 3.1.
- Conclusion
- References.

The ICMI’s Auditor Guidance for Use of Cyanide Transportation Verification Protocol (December 2016) was used to conduct the due diligence assessment. Due to access restrictions, it was not possible during this due diligence to physically inspect the port of Lae. The due diligence assessment was completed based on information obtained from previous due diligences, ICMI audit reports and publicly available online information.

1.1 Overview of Port of Lae, Papua New Guinea

The port of Lae is PNG’s largest and busiest port, located in the Morobe province of PNG. Lae is the second largest city and the capital of the province. The port of Lae handles bulk cargo, tankers and liquefied natural gas carriers, RO-RO vessels and general container cargo. There are no wharf mounted gantry cranes, however forklifts are available and capable of lifting up to 20 tonne containers.

The port has seven berths with a maximum length of 220 m and maximum depth of 13.7 m. Port of Lae handles approximately half of the throughput of PNG’s 22 declared ports, and more than 60% of the international and coastal trade registered in PNG Ports Corporation Limited (PNGPCL) ports, it generates more than 50% of PNGPCL’s total revenue.

Lae serves as a gateway linking the world market with a large hinterland comprising Morobe province, the city of Lae (PNG’s industrial and commercial centre), and five resource-rich provinces in the Highlands. PNG’s most significant road, the Highlands Highway, runs from Lae to the Highlands region, dispensing imports ranging from heavy machinery to food products in the region and bringing the country’s major export items to Lae port.

Overview of port operations:

- Port protocols exist for docking of vessels (e.g. use of Pilots, use of tug boats, management of different weather conditions, tides, currents and safety and general port operations). This sees to the safe docking and turnaround of the vessels in and out of the port.
Entry into port is controlled by the port’s Pilot who understands the port protocols and any unique issues regarding the approach and docking of a vessel at the port. The Ship’s Captain works in conjunction with the Pilot as he understands his vessel and can implement and assist with the Pilot’s instructions.

The approach of the vessel to the ports will take into any account any channels, special navigation points and as mentioned above the currents, tides and weather.

Once a vessel is secure alongside the wharf the shipping activities changeover to port activities. The vessels manifest of what containers are required to be unloaded from the vessel, including the manifest for containers for loading are handed over. This manifest will identify hazardous cargos and their UN number and classification and segregation requirements.

Stevedoring service providers Lae Port Services and United Stevedores, manage the onshore (wharf) operations at the dedicated container terminal. This is the terminal currently used by ICMI accredited transporters to facilitate the unloading of their vessels.

Stevedoring operations include:

- Handling of the containers whether full or empty on and off the vessels; container storage areas for general cargo, port security, control systems for companies and their vehicles collecting and or delivering containers.

- Software programs that control container placement and movement; these software packages identify each individual container placement area in designated stacks. The input information for the placement of containers comes from the vessel’s manifest.

When cyanide containers are discharged from a vessel, the normal practice is for the containers to be loaded directly onto onward transport trucks and to be removed from the port.

2.0 ICMC TRANSPORT VERIFICATION PROTOCOL ASSESSMENT

The ICMI’s Auditor Guidance for Use of Cyanide Transportation Verification Protocol, General Guidance states:

Except as specifically identified in this Guidance document, the Cyanide Transportation Protocol is not to be used to evaluate transport by rail and ship or management of cyanide at rail terminals and port facilities due to security issues, limited access, and the inability of consignors to affect changes in the operating practices of these transport facilities. Rather than conduct Code audits of these facilities, the consignor must conduct and document due diligence investigations of rail carriers, rail terminals, shipping companies and port facilities that are engaged to handle cyanide shipments, as further discussed below under Transport Practice 1.1. The consignor’s due diligence investigation must either be conducted or reviewed by an auditor meeting ICMI requirements for a transport expert, and the auditor must conclude that the due diligence investigation has reasonably evaluated these facilities and that the consignor has, to the extent practical, implemented any necessary management measures.

Transport Practice 1.1: Select cyanide transport routes to minimise the potential for accidents and releases

The international sales and exports of sodium cyanide by Orica take into consideration the ports and their extended infrastructure available to service the intended target area. Orica only operates in export markets that are serviced by major international shipping companies with the ability to offer scheduled container services from point of origin to destination.

Orica procedure “Selection of Transport Routes – Transportation of Sodium Cyanide to Customer Sites or Stock Points” (Orica ref: UP-GLO-PRO-001-017) aims to minimise the risk associated with the transportation of sodium cyanide while maintaining a safe, reliable, efficient and cost effective delivery system to customer sites and Orica stock points throughout the world. The procedure applies to the selection of delivery routes for Orica sodium cyanide and states that the “selection of route(s) is to be effected by the overall assessment of the risks associated with the utilisation of such route, taking into particular consideration likelihood of an incident occurring and the consequence of such an incident.” This procedure is applicable to all routes used for the transportation of Orica sodium cyanide as well as to Orica’s contracted transportation agencies.
Lae port serves as a gateway linking the world market with a large hinterland comprising Morobe province, the city of Lae (PNG’s industrial and commercial centre), and five resource-rich provinces in the Highlands. PNG’s most significant road, the Highlands Highway, runs from Lae to the Highlands region, dispensing imports ranging from heavy machinery to food products in the region.

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

Orica’s manufacturing facility and transfer stations are ICMC certified. Sodium cyanide is packaged and transported in accordance with international regulatory standards, such as the United Nations Recommendation on the Transport of Dangerous Goods – Model Regulations, (2005) and National Codes of Practice such as the Australian Code for the Transport of Dangerous Goods by Road or Rail, (2015) thereby meeting the requirements of the political jurisdictions through which the loads will pass.

Orica only operates in export markets that are serviced by major international shipping companies with the ability to offer scheduled container services from point of origin to destination. Orica procedure “Carrier Assessment” (Orica ref: SUP-GLO-PRO-016-008) provides the framework for ensuring that carriers and their contractors are assessed at regular intervals to ensure that, amongst others, storage, safety, security, maintenance and emergency response standards are being maintained. Carriers are required to provide manifest documentation, to satisfy local customs regulations and the requirements of the IMDG Code, to the destination port. This documentation contains a list of the cargo types and in the case of sodium cyanide and any other hazardous cargo the quantity, unique packaging numbers, stowage reference and emergency response procedures.

PNG is both an IMO Member State (1976) and SOLAS Signatory Nation (1980), thereby requiring the port of Lae to adhere to the international regulations for the transportation and handling of dangerous goods as set out in the IMDG Code (Parts 4, 5 and 7) and SOLAS Convention ((1974) Chapter 7).

PNG’s maritime and merchant shipping legislation and their supporting regulations were enacted to ensure compliance with international standards and best shipping practices that are accepted universally by the maritime nations in the world under the auspices of the IMO.

**g) Does the ship carrying the cyanide have a list or manifest identifying the presence and location of the cyanide or a detailed stowage plan including this information, as required under Section 5.4.3.1 of the DG Code?**

The PNG Harbours Management Services (PNGHMS) develops and implements policies, statutes and regulations governing the carriage of dangerous goods and other goods by ships in accordance with relative national and international requirements. This includes supervising the safety of ships carrying dangerous goods and other goods, processing declarations made by ships carrying dangerous goods, providing accreditation services for personnel involved in the declaration of dangerous goods and inspection of containers, and inspecting containers holding dangerous goods.

As an IMO Member State and to comply with the IMDG Code, vessels are required to declare dangerous cargo before arriving at or leaving the port, to the PNG Ports Corporation.

The port of Lae operates under PNG national legislation for the transport and handling of dangerous goods. The *Merchant Shipping (Dangerous Goods) Regulation (2007)* and the *Merchant Shipping Act (1975)* contain the requirements for ports and shippers. The carriage of dangerous goods except as otherwise stated in the Regulations, directly incorporates the requirements of the IMDG Code and these Regulations have the force of law in PNG.

**h) Does the ship carrying the cyanide have cyanide emergency response information, as required under Section 5.4.3.2 of the DG Code?**

Dangerous goods delivered to or from the port are required to be appropriately manifested, packaged, labelled and placarded. Documentation that accompanies the cyanide throughout transportation by sea and delivery at ports includes emergency response information along with the dangerous goods manifest, packing certificates and Multimodal Dangerous Goods Form.
Emergency response procedures for ships carrying dangerous goods, including the emergency schedules to be followed in case of incidents involving dangerous substances, materials or articles, or harmful substances (marine pollutants), is regulated under the IMDG Code. In accordance with the Code, all ships, and the companies responsible for their operation, are required to maintain a Safety Management System (SMS). Within the SMS, procedures for responding to potential shipboard emergencies are required.

Port operations personnel provide the vessel’s Master with copies of the Emergency Information, Dangerous Goods manifest (including stowage plan) and Packaging Certificates for each hazardous cargo transport units loaded onto the ship at the port of origin.

Section 17(a) of the Merchant Shipping (Dangerous Goods) Regulation (2007) states no owner or master of a vessel can permit dangerous goods to be loaded or carried on board unless information providing emergency response information is also on board that vessel. The emergency response information required must include contingency plans specific to that ship and the equipment provided on board and specific emergency response information for every type of dangerous good carried on board.

Section 18(a) of the Merchant Shipping (Dangerous Goods) Regulation (2007) states any person involved in packing, shipping, receiving for carriage, handling dangerous goods or serving on board a ship where they are required to engage in deck duties, other than in a certificated capacity, must have received training in the safe handling of dangerous goods, recognition of hazard types, labelling requirements and general safety issues with regard to possible incidents involving such goods.

i) Does the ship comply with the stowage and separation requirements of Part 7 of the DG Code?

As a member of the IMO and to comply with the IMDG Code and National Regulations vessels are required to declare dangerous cargo before arriving at or leaving the port, additionally, all cargo listed on the dangerous cargo manifest must be stowed and handled as prescribed by the requirements of Section 11 and 12 of the Merchant Shipping (Dangerous Goods) Regulation (2007), which meets international standards for dangerous goods stowage and segregation.

The port of Lae has a berthage reservation system which is used to prioritise and grant berth windows to vessels. Vessels are required to give advance notice and use the PNGHMS Dangerous Goods Declaration (2011) form and await issue of a Permit to Convey or Handle Dangerous Goods.

When dangerous goods are discharged from a vessel, they are placed on the wharf and then transferred to a designated point in the yard. Segregation of dangerous goods is completed in accordance with the “Dangerous Goods & Combustible Liquids Storage Compatibility Chart” a copy of which is held in each forklift. Sodium cyanide is not stored at the port of Lae and only held there for short periods while customs clearances are being finalised. When sodium cyanide is held at the port, containers are stored outside to prevent the build-up of hydrogen cyanide gas.

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

The Control Centre organises ship movements, tracks pilotage operations, and supervises terminal operations via real-time CCTV monitoring.

Chain of custody documentation is used by shipping companies to prevent the loss of cargo during shipment. This documentation includes the vessel manifest – which identifies the location and content of each container on the vessel along with packing certificates, Multimodal Dangerous Goods Forms and Safety Data Sheets (SDS).

When cargo is discharged, the stevedores check the security seals against the manifest and discharge paperwork. If the seals do not match, the cargo owner is notified. Clerks match up paperwork with what has been discharged against the vessel manifests.
Transport Practice 2.1: Store cyanide in a manner that minimises the potential for accidental releases

There is an overarching container storage plan. Segregation of dangerous goods is completed in consultation with the stevedores. When cyanide containers are discharged from a vessel, the normal practice is for the containers to be loaded directly on to trucks to remove them from the port. At the port of Lae, PNG Ports has a fee schedule in place for dangerous goods that does not allow any free storage time. This assists in minimising the amount of dangerous goods left on the site. In the event that a cyanide container is delayed on the port (e.g. while customs clearance is being completed), containers are stored with other dangerous goods and appropriately segregated.

All sodium cyanide containers and isotanks are labelled with emergency information panels for transport by sea from Australia. These panels are visible to people working in the vicinity of the cargo and serve as notification that cyanide is present in the area. The port has designated smoking areas which are away from where the cyanide is being handled. Personal protective equipment required to be worn at the port includes: hard hat, safety boots and high visibility shirt/vest. These measures are suitable for the handling of cyanide that is completed at the port of Lae.

Entrances and exits to the site are manned by security guards. There are security guards at the berth face and patrolling the site. There is a fence around the perimeter of the site. CCTV is also used. On the water side, there is a 100 m exclusion zone. Ship tracking is also conducted. Personnel on site carry access identification cards. Visitors to site need to make prior arrangements to gain access.

When cargo is discharged, the stevedores check the security seals against the manifest and discharge paperwork. If the seals do not match, the cargo owner is contacted as are the police and port security. Customs is notified of discrepancies on international cargo.

PNG Ports hold a Port Safety and Security Meeting three times a year. Attending these meetings are the police, fire brigade, customs, Department of Defence, hospital representatives, ambulance department and stevedores. During this meeting safety and security matters are discussed between the stakeholders, as well as any upcoming changes that are to be implemented.

PNG Ports work to the requirements of the International Maritime Organisation’s International Ship and Port Facility Security Code.

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

The port of Lae has an emergency management plan in place. The plan identifies three evacuation muster points. Communication is completed through the use of radios. While visitors to site can be identified and accounted for in an evacuation, regular employees cannot be accounted for except through consultation with work mates. The emergency response plan captures several scenarios that could occur including tsunami and earthquake. Tsunami panels have also been erected in front of the berth.

In the event of an emergency involving cyanide, PNG Ports will evacuate the area and contact Orica to assist in the emergency.

The port of Lae conducts both emergency exercises and drills. Emergency exercises are attended by port security, police, defence force, fire department and ambulance. The last exercise was completed in October 2015. Emergency drills are internal activities. The last drill was conducted in March 2016. The Department of Transport requires both exercises and drills are conducted.

In the event that an evacuation is required, access ways are clear as they allow for the entry and exit of heavy vehicles for container transport.

After an emergency response has been completed, whether through an exercise or incident, a debrief is completed to identify positives and weaknesses in the emergency response. The emergency response plan is updated accordingly.

Spill kits are available in the port of Lae. There is also a spill trailer that can be moved around the site.

The National Maritime Safety Authority (NMSA) is the competent national authority for PNG.
3.0 CONCLUSION

Based on the evidence reviewed, this due diligence did not find significant issues of concern in regards to the port of Lae's management of solid sodium cyanide product. It was not possible during this due diligence to physically inspect the port, as such the review was based on information obtained from previous due diligence reviews, ICMI audit reports and publicly available online information. The Auditor recommends that Orica undertakes annual reviews at the port to monitor the management of dangerous goods.

This assessment should not be a final acceptance of the port of Lae for future work; rather it is recommended that Orica continue to review and monitor the port’s performance annually and implement an adaptive management process.

4.0 CLOSING

We trust this due diligence letter meets your requirements. If you have any questions, please do not hesitate to contact the undersigned.

GOLDER ASSOCIATES PTY LTD

Craig Currie
Environmental Scientist

Ed Clerk
ICMC Lead Auditor and Technical Specialist

CC/EWC/hsl
REFERENCES


ICMC DUE DILIGENCE ASSESSMENT FOR THE PORT OF BUSAN

Dear Owen

EXECUTIVE SUMMARY

Golder Associates Pty Ltd (Golder) conducted a due diligence of the port of Busan, South Korea during May 2017 on behalf of Orica Australia Pty Ltd (Orica). The assessment was conducted by Ed Clerk who meets the International Cyanide Management Institute’s (ICMI) requirements for a Transport Technical Specialist.

The following items, as detailed in the ICMI’s Auditor Guidance for Use of Cyanide Transportation Verification Protocol (December 2016), were addressed within the due diligence:

- Transport Practice 1.1 (Questions 1-4 and 6)
- Transport Practice 1.5 (Question 1, Items g-i)
- Transport Practice 1.6
- Transport Practice 2.1
- Transport Practice 3.1.

The ICMI’s Auditor Guidance for Use of Cyanide Transportation Verification Protocol (December 2016) was used to conduct the due diligence assessment. It was not possible during this due diligence to physically inspect the port, as such the review was based on information obtained from previous due diligence reviews, ICMI audit reports and publicly available online information.

Golder’s assessment of the port of Busan found no issues of concern in regards to the port’s management of solid sodium cyanide product.

This assessment should not be a final acceptance of the port of Busan for future work; rather it is recommended that Orica continue to review and monitor the port’s performance annually and implement an adaptive management process.
1.0 INTRODUCTION

This letter provides the results of a due diligence assessment against the port of Busan, South Korea, in accordance with the International Cyanide Management Code for the Manufacture, Transport and Use of Cyanide in the Production of Gold (ICMC or the Code).

Golder conducted a desktop due diligence assessment of the port of Busan, South Korea during May 2017. The assessment was conducted by Ed Clerk who meets the International Cyanide Management Institute’s (ICMI) requirements for a Transport Technical Specialist.

The following items, as detailed in the ICMI’s Auditor Guidance for Use of Cyanide Transportation Verification Protocol (December 2016), were addressed within the due diligence:

- Introduction
- ICMC Transport Verification Protocol Assessment
  - Transport Practice 1.1 (Questions 1-4 and 6)
  - Transport Practice 1.5 (Question 1, Items g-i)
  - Transport Practice 1.6
  - Transport Practice 2.1
  - Transport Practice 3.1.
- Conclusion
- References.

The ICMI’s Auditor Guidance for Use of Cyanide Transportation Verification Protocol (December 2016) was used to conduct the due diligence assessment. Due to access restrictions, it was not possible during this due diligence to physically inspect the port of Busan. The due diligence assessment was completed based on information obtained from previous due diligences, ICMI audit reports and publicly available online information.

1.1 Overview of Port of Busan, South Korea

The port of Busan is located at the mouth of the Naktong River in South Korea. It is the fifth busiest container port in the world and the largest transhipment port in north-east Asia.

The Busan Port Authority (BPA) is responsible for developing, managing, and operating the port of Busan. The BPA’s jurisdiction extends to Gamcheon port, which supplements the port of Busan, and Busan New port on Gaduk Island.

The port of Busan is a vital gateway for Korea, connecting the country to the Pacific Ocean and Asia. It is Korea’s main port, handling approximately 40% of the country’s overseas cargo and 80% of its container cargo. Approximately 130 international vessels call at the port each day.

Annual figures (obtained for the period 2005 to 2014) show that the port of Busan handled in excess of 13 million Twenty-foot Equivalent Units (TEUs) in a 12 month period. This included 3.7 million TEUs of imports, 3.7 million TEUs of exports, 5.8 million TEUs of transhipments and 6.2 thousand TEUs of coastal cargoes and almost 365 thousand TEUs containing hazardous goods.

There are four dedicated container terminals, these are Gamman, Shinsundae, Singamman and Gamcheon. TEU capacities range from 340 000 to over 1 200 000 per year.
Overview of port operations:

- Port protocols exist for docking of vessels (e.g. use of Pilots, use of tug boats, management of different weather conditions, tides, currents and safety and general port operations). This sees to the safe docking and turnaround of the vessels in and out of the port.

- Entry into port is controlled by the port's Pilot who understands the port protocols and any unique issues regarding the approach and docking of a vessel at the port. The Ship’s Captain works in conjunction with the Pilot as he understands his vessel and can implement and assist with the Pilot’s instructions.

- The approach of the vessel to the ports will take into any account any channels, special navigation points and as mentioned above the currents, tides and weather.

- Once a vessel is secure alongside the wharf the shipping activities changeover to port activities. The vessels manifest of what containers are required to be unloaded from the vessel, including the manifest for containers for loading are handed over. This manifest will identify hazardous cargos and their UN number and classification and segregation requirements.

Up to six third party stevedoring companies manage the different onshore terminal operations at the dedicated container terminals.

Stevedoring operations include:

- Handling of the containers whether full or empty on and off the vessels; container storage areas for general cargo, port security, control systems for companies and their vehicles collecting and or delivering containers.

- Software programs that control container placement and movement; these software packages identify each individual container placement area in designated stacks. The input information for the placement of containers comes from the vessel's manifest.

Containers of cyanide received at the port of Busan are already sealed for transport. During periods of transit at the port of Busan containers of hazardous materials, including solid sodium cyanide, are stored at the Korail Interim Storage Facility in a dedicated dangerous goods area with an on-site security presence, including CCTV system to monitor container movements as well as anyone who may be in the storage facility. All container movements in and out of the transit storage facility are monitored using a bar code system operated from a central control room.

2.0 ICMC TRANSPORT VERIFICATION PROTOCOL ASSESSMENT

The ICMI’s Auditor Guidance for Use of Cyanide Transportation Verification Protocol, General Guidance states:

Except as specifically identified in this Guidance document, the Cyanide Transportation Protocol is not to be used to evaluate transport by rail and ship or management of cyanide at rail terminals and port facilities due to security issues, limited access, and the inability of consignors to affect changes in the operating practices of these transport facilities. Rather than conduct Code audits of these facilities, the consignor must conduct and document due diligence investigations of rail carriers, rail terminals, shipping companies and port facilities that are engaged to handle cyanide shipments, as further discussed below under Transport Practice 1.1. The consignor’s due diligence investigation must either be conducted or reviewed by an auditor meeting ICMI requirements for a transport expert, and the auditor must conclude that the due diligence investigation has reasonably evaluated these facilities and that the consignor has, to the extent practical, implemented any necessary management measures.

Transport Practice 1.1: Select cyanide transport routes to minimise the potential for accidents and releases

The international sales and exports of sodium cyanide by Orica take into consideration the ports and their extended infrastructure available to service the intended target area. Orica only operates in export markets that are serviced by major international shipping companies with the ability to offer scheduled container services from point of origin to destination.
Orica procedure “Selection of Transport Routes – Transportation of Sodium Cyanide to Customer Sites or Stock Points” (Orica ref: UP-GLO-PRO-001-017) aims to minimise the risk associated with the transportation of sodium cyanide while maintaining a safe, reliable, efficient and cost effective delivery system to customer sites and Orica stock points throughout the world. The procedure applies to the selection of delivery routes for Orica sodium cyanide and states that the “selection of route(s) is to be effected by the overall assessment of the risks associated with the utilisation of such route, taking into particular consideration likelihood of an incident occurring and the consequence of such an incident.” This procedure is applicable to all routes used for the transportation of Orica sodium cyanide as well as to Orica’s contracted transportation agencies.

The port of Busan is located in relative close proximity to cyanide manufacturers, is connected to a well-developed intermodal transportation system consisting of railways, highways, waterways and pipelines, and is serviced by shipping companies that have routes to over 600 ports in 180 countries, including routes through the Asia-Pacific region.

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

Orica’s manufacturing facility and transfer stations are ICMC certified. Sodium cyanide is packaged and transported in accordance with international regulatory standards, such as the United Nations Recommendation on the Transport of Dangerous Goods – Model Regulations, (2005) and National Codes of Practice such as the Australian Code for the Transport of Dangerous Goods by Road or Rail, (2015) thereby meeting the requirements of the political jurisdictions through which the loads will pass.

Orica only operates in export markets that are serviced by major international shipping companies with the ability to offer scheduled container services from point of origin to destination. Orica procedure “Carrier Assessment” (Orica ref: SUP-GLO-PRO-016-008) provides the framework for ensuring that carriers and their contractors are assessed at regular intervals to ensure that, amongst others, storage, safety, security, maintenance and emergency response standards are being maintained. Carriers are required to provide manifest documentation, to satisfy local customs regulations and the requirements of the IMDG Code, to the destination port. This documentation contains a list of the cargo types and in the case of sodium cyanide and any other hazardous cargo the quantity, unique packaging numbers, stowage reference and emergency response procedures.

South Korea is both an IMO Member State (1986) and SOLAS Signatory Nation (1985), thereby requiring the port of Busan to adhere to the international regulations for the transportation and handling of dangerous goods as set out in the IMDG Code (Parts 4, 5 and 7) and SOLAS Convention ((1974) Chapter 7).

**g) Does the ship carrying the cyanide have a list or manifest identifying the presence and location of the cyanide or a detailed stowage plan including this information, as required under Section 5.4.3.1 of the DG Code?**

The BPA implements policies, statutes and regulations governing the carriage of dangerous goods and other goods by ships in accordance with relative national and international requirements. This includes supervising the safety of ships carrying dangerous goods and other goods, processing declarations made by ships carrying dangerous goods, providing accreditation services for personnel involved in the declaration of dangerous goods and inspection of containers, and inspecting containers holding dangerous goods.

As an IMO Member State and to comply with the IMDG Code, vessels are required to declare dangerous cargo before arriving at or leaving the port, to the BPA.

**h) Does the ship carrying the cyanide have cyanide emergency response information, as required under Section 5.4.3.2 of the DG Code?**

Dangerous goods delivered to or from the port are required to be appropriately manifested, packaged, labelled and placarded. Documentation that accompanies the cyanide throughout transportation by sea and delivery at ports includes emergency response information along with the dangerous goods manifest, packing certificates and Multimodal Dangerous Goods Form.

Emergency response procedures for ships carrying dangerous goods, including the emergency schedules to be followed in case of incidents involving dangerous substances, materials or articles, or harmful substances (marine pollutants), is regulated under the IMDG Code. In accordance with the Code, all ships, and the companies responsible for their operation, are required to maintain a Safety Management System (SMS). Within the SMS, procedures for responding to potential shipboard emergencies are required.
Port operations personnel provide the vessel's Master with copies of the Emergency Information, Dangerous Goods manifest (including stowage plan) and Packaging Certificates for each hazardous cargo transport units loaded onto the ship at the port of origin.

**i) Does the ship comply with the stowage and separation requirements of Part 7 of the DG Code?**

As a member of the IMO and to comply with the IMDG Code and National Regulations vessels are required to declare dangerous cargo before arriving at or leaving the port, additionally, all cargo listed on the dangerous cargo manifest must be stowed and handled as prescribed by its UN number and dangerous goods class.

The port of Busan has dedicated terminals and storage areas for specialised products including dangerous goods; cyanide containers are segregated and stacked separately. All sodium cyanide remains sealed within its container at all times.

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

The BPA coordinates the operation of the port of Busan, and must be informed of all ship movements and major operations. The production schedule (ship movement plan) is maintained by the BPA in consultation with the wharf operators. The BPA coordinates ship movements, tracks pilotage operations, and supervises terminal operations via real-time CCTV monitoring. The BPA is responsible for enforcing regulations on behalf of the MOF at the port of Busan including inspecting containers holding dangerous goods.

Vessels arriving at or departing from the port of Busan are required to declare dangerous cargo to the BPA by submitting a *Transport Document for Goods by Sea (Package)* form. This documentation is accompanied by the vessel’s manifest and Material Safety Data Sheets (MSDS), which identifies the location and content of each container on the vessel, including containers with cyanide and other dangerous goods. The relevant port stevedoring company receives the vessels manifest which includes the containers for unloading and handling by them. This information is then captured in the stevedore’s management systems which assists with the location where each container from the vessel is to be placed after unloading. Transport from the unloading berth to the interim storage facility is controlled by documentary checks detailing the container details and the containers contents.

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

The port of Busan has dedicated dangerous goods areas for hazardous goods awaiting loading to arriving vessels. The port is not used for the interim storage of cyanide as it is a transhipping depot used to transfer cyanide containers from trucks to ships.

The port operations for dangerous goods are registered and licensed by the government. Containers departing the port are checked against documentation for matching container numbers and product detail.

The cyanide product is packed initially into intermediate bulk containers and then into sealed shipping containers for transport to the port of Busan’s Korail Interim Storage Facility where it is stored in a dedicated Dangerous Goods storage facility located in a secure rail shunting yard, pending shipment. All sodium cyanide remains contained within its sealed containers at all times preventing contact with water and other incompatible materials.

All cargo in and out of the facility is recorded by an electronic recording system managed by Korail.

The area in which the containers are stored whilst transiting the port is suitable to effectively contain any spillage of solid sodium cyanide that may occur. The facility is well demarcated, certified to handle and store all categories of dangerous goods, including Class 6.1, and contains fire-fighting equipment.

Pier 2 at the port of Busan is for the loading of all dangerous goods at the port. Containers from the Korail Interim Storage Facility are transported by truck to Pier 2 of North port where it is loaded directly onto ships.
Transport Practice 3.1: Prepare detailed emergency response plans for potential cyanide releases

In January 2000 the National Maritime Police Agency (MPA) prepared the National Disaster Prevention Master Plan to provide for response to emergencies in the marine environment. The MPA is now called the Korea Coast Guard and is a department of the Ministry of Public Safety and Security (MPSS), since government restructuring in November 2014. The Coast Guard has overall responsibility for marine pollution response in Republic of Korea waters. It has five regional Coast Guard headquarters (Donghae, Busan, Mokpo, Incheon and Jeju).

The Coast Guard, with the support of private contractors, manages the response to and monitoring of a Hazardous and Noxious Substances (HNS) incident and some equipment is readily available (such as PPE, respirators, pumps, power packs and air monitoring equipment).

The port of Busan is certified under the IMO’s International Convention on Oil Pollution Preparedness, Response and Cooperation 1990 (OPRC 90). States which are party to OPRC 90 protocol are required to establish a national system for responding to oil and hazardous/noxious substances pollution incidents, including a designated national authority, a national operational contact point and a national contingency plan. This needs to be supported by a minimum level of response equipment, communications plans, regular training and exercises.

Additionally, the MPSS is an organisation that provides for the safety of people and disaster management that handles a wide range of disaster scenarios and safety concerns. It was established in an effort to create a prompt, comprehensive system, able to cope with disasters and safety issues by building a systematic disasters and safety management system across major infrastructure areas and industry bodies.

3.0 CONCLUSION

Based on the evidence reviewed, this due diligence did not find significant issues of concern in regards to the port of Busan’s management of solid sodium cyanide product. It was not possible during this due diligence to physically inspect the port, as such the review was based on information obtained from previous due diligence reviews, ICMI audit reports and publicly available online information. The Auditor recommends that Orica undertakes annual reviews at the port to monitor the management of dangerous goods.

This assessment should not be a final acceptance of the port of Busan for future work; rather it is recommended that Orica continue to review and monitor the port’s performance annually and implement an adaptive management process.

4.0 CLOSING

We trust this due diligence letter meets your requirements. If you have any questions, please do not hesitate to contact the undersigned.

GOLDER ASSOCIATES PTY LTD

Craig Currie
Environmental Scientist

Ed Clerk
ICMC Lead Auditor and Technical Specialist

CC/EWC/hsl
REFERENCES

Golder Associates (2016). ICMC Due Diligence Assessment for the Port of Busan. Reference number 1668932-L-Rev0


SeaRates.com (2017). Port of Busan (Korea (South)). Available at: https://www.searates.com/port/pusan_kr.htm Accessed 31 May 2017

Dear Owen

EXECUTIVE SUMMARY

Golder Associates Pty Ltd (Golder) conducted a due diligence of the port of Shanghai, China during May 2017 on behalf of Orica Australia Pty Ltd (Orica). The assessment was conducted by Ed Clerk who meets the International Cyanide Management Institute’s (ICMI) requirements for a Transport Technical Specialist.

The following items, as detailed in the ICMI’s Auditor Guidance for Use of Cyanide Transportation Verification Protocol (December 2016), were addressed within the due diligence:

- Transport Practice 1.1 (Questions 1-4 and 6)
- Transport Practice 1.5 (Question 1, Items g-i)
- Transport Practice 1.6
- Transport Practice 2.1
- Transport Practice 3.1.

The ICMI’s Auditor Guidance for Use of Cyanide Transportation Verification Protocol (December 2016) was used to conduct the due diligence assessment. It was not possible during this due diligence to physically inspect the port, as such the review was based on information obtained from previous due diligence reviews, ICMI audit reports and publicly available online information.

Golder’s assessment of the port of Shanghai found no issues of concern in regards to the port’s management of solid sodium cyanide product.

This assessment should not be a final acceptance of the port of Shanghai for future work; rather it is recommended that Orica continue to review and monitor the port’s performance annually and implement an adaptive management process.
1.0 INTRODUCTION

This letter provides the results of a due diligence assessment against the port of Shanghai, China, in accordance with the International Cyanide Management Code for the Manufacture, Transport and Use of Cyanide in the Production of Gold (ICMC or the Code).

Golder conducted a desktop due diligence assessment of the port of Shanghai, China during May 2017. The assessment was conducted by Ed Clerk who meets the International Cyanide Management Institute’s (ICMI) requirements for a Transport Technical Specialist.

The following items, as detailed in the ICMI’s Auditor Guidance for Use of Cyanide Transportation Verification Protocol (December 2016), were addressed within the due diligence:

- Introduction
- ICMC Transport Verification Protocol Assessment
  - Transport Practice 1.1 (Questions 1-4 and 6)
  - Transport Practice 1.5 (Question 1, Items g-i)
  - Transport Practice 1.6
  - Transport Practice 2.1
  - Transport Practice 3.1.
- Conclusion
- References.

The ICMI’s Auditor Guidance for Use of Cyanide Transportation Verification Protocol (December 2016) was used to conduct the due diligence assessment. Due to access restrictions, it was not possible during this due diligence to physically inspect the port of Shanghai. The due diligence assessment was completed based on information obtained from previous due diligences, ICMI audit reports and publicly available online information.

1.1 Overview of Port of Shanghai, China

The port of Shanghai is situated in the middle of the Chinese coastline, where the Yangtze River flows into the sea. It is the meeting point in the T-shaped waterway network composed by the east-west Yangtze River and the north-south coastline, and is also China’s largest multi-purpose port and one of the country’s most important gateways for foreign trade.

The port of Shanghai is composed of multiple port areas which are designated as follows:

- The shore of Huangpu River: such as Zhanghuabang, Jungong Road, Gongqing, and Longwu port areas etc.
- The south shore of Yangtze River: such as Baoshan, Luojing, and Waigaoqiao port areas etc.
- Hangzhou Bay: Yangshan port Area.

The container terminals are located at Yangshan, Waigaoqiao, and Wusong with a total of 46 berths. Yangshan, Waigaoqiao, and Wusong port areas are inter-connected via fast waterway and road transportation. Yangshan and Waigaoqiao are the primary terminals of the Shanghai port. The main cargos handled by the port include food, coal, timber, metal ore, petroleum and its products, steel, mining materials, machinery and equipment and bulk groceries.

Shanghai International Port (Group) Co Ltd (SIPG) is the primary operator of the port of Shanghai providing port-related services ranging from stevedoring and storage, to ancillary and extended services such as logistics and financing.
The port of Shanghai also serves as a container transhipment hub for ports in the Yangtze River Delta, as well as in Japan and South Korea.

In addition to stevedoring services, the port of Shanghai provides assorted port services for containers, including short-term and specialised storage for non-standard goods, such as frozen perishables or hazardous substances.

China is a Category A member of the International Maritime Organisation (IMO) Council and a signatory to the Tokyo MoU, and as such performs its Port State obligations, supervises foreign ships in Chinese waters, and promotes compliance with international conventions among Flag States through Port State Control (PSC).

2.0 ICMC TRANSPORT VERIFICATION PROTOCOL ASSESSMENT

The ICMI's Auditor Guidance for Use of Cyanide Transportation Verification Protocol, General Guidance states:

*Except as specifically identified in this Guidance document, the Cyanide Transportation Protocol is not to be used to evaluate transport by rail and ship or management of cyanide at rail terminals and port facilities due to security issues, limited access, and the inability of consignors to affect changes in the operating practices of these transport facilities. Rather than conduct Code audits of these facilities, the consignor must conduct and document due diligence investigations of rail carriers, rail terminals, shipping companies and port facilities that are engaged to handle cyanide shipments, as further discussed below under Transport Practice 1.1. The consignor's due diligence investigation must either be conducted or reviewed by an auditor meeting ICMI requirements for a transport expert, and the auditor must conclude that the due diligence investigation has reasonably evaluated these facilities and that the consignor has, to the extent practical, implemented any necessary management measures.*

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

The international sales and exports of sodium cyanide by Orica take into consideration the ports and their extended infrastructure available to service the intended target area. Orica only operates in export markets that are serviced by major international shipping companies with the ability to offer scheduled container services from point of origin to destination.

Orica procedure “Selection of Transport Routes – Transportation of Sodium Cyanide to Customer Sites or Stock Points” (Orica ref: UP-GLO-PRO-001-017) aims to minimise the risk associated with the transportation of sodium cyanide while maintaining a safe, reliable, efficient and cost effective delivery system to customer sites and Orica stock points throughout the world. The procedure applies to the selection of delivery routes for Orica sodium cyanide and states that the “selection of route(s) is to be effected by the overall assessment of the risks associated with the utilisation of such route, taking into particular consideration likelihood of an incident occurring and the consequence of such an incident.” This procedure is applicable to all routes used for the transportation of Orica sodium cyanide as well as to Orica’s contracted transportation agencies.

The port of Shanghai is situated in the middle of the Chinese coastline. Internally, waterways, road, and railway transportation networks are conveniently located to the Shanghai port. The transport networks stretch to the Yangtze River Basin and even the whole country. Externally, the port is close to the global routes. It is serviced by shipping companies that have routes to over 200 countries.

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

Orica’s manufacturing facility and transfer stations are ICMC certified, sodium cyanide is packaged and transported in accordance with international regulatory standards, such as the United Nations Recommendation on the Transport of Dangerous Goods – Model Regulations, (2005) and National Codes of Practice such as the Australian Code for the Transport of Dangerous Goods by Road or Rail, (2015) thereby meeting the requirements of the political jurisdictions through which the loads will pass.
Orica only operates in export markets that are serviced by major international shipping companies with the ability to offer scheduled container services from point of origin to destination. Orica procedure “Carrier Assessment” (Orica ref: SUP-GLO-PRO-016-008) provides the framework for ensuring that carriers and their contractors are assessed at regular intervals to ensure that, amongst others, storage, safety, security, maintenance and emergency response standards are being maintained. Carriers are required to provide manifest documentation, to satisfy local customs regulations and the requirements of the IMDG Code, to the destination port. This documentation contains a list of the cargo types and in the case of sodium cyanide and any other hazardous cargo the quantity, unique packaging numbers, stowage reference and emergency response procedures.

China is both an IMO Member State (1973) and SOLAS Signatory Nation (1980), thereby requiring the port of Shanghai to adhere to the international regulations for the transportation and handling of dangerous goods as set out in the IMDG Code (Parts 4, 5 and 7) and SOLAS Convention ((1974) Chapter 7).

g) Does the ship carrying the cyanide have a list or manifest identifying the presence and location of the cyanide or a detailed stowage plan including this information, as required under Section 5.4.3.1 of the DG Code?

The China Maritime Safety Administration (MSA) develops and implements policies, statutes and regulations governing the carriage of dangerous goods and other goods by ships in accordance with relative national and international requirements. This includes supervising the safety of ships carrying dangerous goods and other goods, processing declarations made by ships carrying dangerous goods, providing accreditation services for personnel involved in the declaration of dangerous goods and inspection of containers, and inspecting containers holding dangerous goods.

As an IMO Member State and to comply with the IMDG Code, vessels are required to declare dangerous cargo before arriving at or leaving the port, to the MSA.

h) Does the ship carrying the cyanide have cyanide emergency response information, as required under Section 5.4.3.2 of the DG Code?

Dangerous goods delivered to or from the port are required to be appropriately manifested, packaged, labelled and placarded. Documentation that accompanies the cyanide throughout transportation by sea and delivery at ports includes emergency response information along with the dangerous goods manifest, packing certificates and Multimodal Dangerous Goods Form.

Emergency response procedures for ships carrying dangerous goods, including the emergency schedules to be followed in case of incidents involving dangerous substances, materials or articles, or harmful substances (marine pollutants), is regulated under the IMDG Code. In accordance with the Code, all ships, and the companies responsible for their operation, are required to maintain a Safety Management System (SMS). Within the SMS, procedures for responding to potential shipboard emergencies are required.

Port operations personnel provide the vessel’s Master with copies of the Emergency Information, Dangerous Goods manifest (including stowage plan) and Packaging Certificates for each hazardous cargo transport units loaded onto the ship at the port of origin.

Dangerous goods are stored in the Yangshan port area. Yangshan port has an established emergency management committee to manage emergency related issues, such as establishing emergency response plans, conducting regular emergency drills, assessing and controlling the risks associated with handling dangerous goods and preparing emergency supplies. The Safety Production Supervision and Administration Bureau of Shanghai Municipality reviews emergency response plans to ensure they are in compliance with statutory requirements.

i) Does the ship comply with the stowage and separation requirements of Part 7 of the DG Code?

As a member of the IMO and to comply with the IMDG Code and National Regulations vessels are required to declare dangerous cargo before arriving at or leaving the port, additionally, all cargo listed on the dangerous cargo manifest must be stowed and handled as prescribed by its UN number and dangerous goods class.
The port of Shanghai has a dedicated dangerous goods transit area for dangerous goods awaiting loading. Appropriate signage is displayed in this area. The port operations for dangerous goods are registered and licensed by the government.

All sodium cyanide remains sealed within its container at all times.

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

The Dispatch Centre organises ship movements, tracks pilotage operations, and supervises terminal operations via real-time CCTV monitoring.

Chain of custody documentation is used by shipping companies to prevent the loss of cargo during shipment. This documentation includes the vessel manifest – which identifies the location and content of each container on the vessel along with packing certificates, Multimodal Dangerous Goods Forms and Safety Data Sheets (SDS).

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

Shipping containers containing composite intermediate bulk containers (IBCs) are placarded in accordance with the IMDG Code labelling requirements displaying relevant warning and safety information including the environmentally hazardous substance label. Signage prohibiting smoking, open flames and eating and drinking are in place, as well as PPE requirements.

The port of Shanghai has a dedicated dangerous goods transit area for dangerous goods awaiting loading to arriving vessels. Appropriate signage, as outline in 1.5, is displayed in this area. The port operations for dangerous goods are registered and licensed by the government. The port has in place minimum requirements for personal protective equipment that includes the requirements for suitable protective footwear, safety helmet where required and readily visible clothing.

The port is listed on the International Ship and Port Facility Security (ISPS) site as accredited. An electronic card access system is in place to enable only authorised access to the port area. Containers departing the port are checked against documentation for matching container numbers and product detail.

All sodium cyanide transited through the port of Shanghai remains contained within its sealed containers at all times and are placed in an area that is well ventilated to prevent the build-up of hydrogen cyanide gas. The area where the containers are placed is considered suitable to contain effectively any spillage that may happen.

The port took several measures to enhance the management of dangerous goods, such as the followings:

- Inspecting the licenses of operators and equipment
- Inspecting and replenishing the emergency supplies
- Inspecting and maintaining the fire protection equipment, CCTV, and fence for dangerous goods
- Training staff involving dangerous goods on emergency equipment using, and
- Conducting emergency drills.

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

China has been a member State of the IMO Council since 1973, it complies with the requirements of the IMDG Code.

The port of Shanghai is certified under the IMO’s International Convention on Oil Pollution Preparedness, Response and Cooperation 1990 (OPRC 90). States which are party to OPRC 90 protocol are required to establish a national system for responding to oil and hazardous/noxious substances pollution incidents, including a designated national authority, a national operational contact point and a national contingency plan. This needs to be supported by a minimum level of response equipment, communications plans, regular training and exercises.
The port of Shanghai has facility specific emergency response plans indicating that the port has an internal emergency response capability that can provide basic response to incidents involving dangerous goods. According to the 2015 Sustainable Development Report of SIPG, the port has arranged emergency drills on emergency equipment usage and dangerous goods leakage for all related operating personnel and administrative staff.

Dangerous goods are stored in the Yangshan port area. Yangshan port has an established emergency management committee to manage emergency related issues, such as establishing emergency response plans, conducting regular emergency drills, assessing and controlling the risks associated with handling dangerous goods and preparing emergency supplies. The Safety Production Supervision and Administration Bureau of Shanghai Municipality reviews emergency response plans to ensure they are in compliance with statutory requirements.

The MSA is responsible for the co-ordination of response to HNS at sea. A National Contingency Plan for Hazardous and Noxious Substance incidents exists as an extension of the National Oil Spill Contingency Plan.

3.0 CONCLUSION

Based on the evidence reviewed, this due diligence did not find significant issues of concern in regards to the port of Shanghai’s management of solid sodium cyanide product. It was not possible during this due diligence to physically inspect the port, as such the review was based on information obtained from previous due diligence reviews, ICMI audit reports and publicly available online information. The Auditor recommends that Orica undertakes annual reviews at the port to monitor the management of dangerous goods.

This assessment should not be a final acceptance of the port of Shanghai for future work; rather it is recommended that Orica continue to review and monitor the port’s performance annually and implement an adaptive management process.

4.0 CLOSING

We trust this due diligence letter meets your requirements. If you have any questions, please do not hesitate to contact the undersigned.

GOLDER ASSOCIATES PTY LTD

Craig Currie
Environmental Scientist

Ed Clerk
ICMI Lead Auditor and Technical Specialist

CC/EWC/hsI
REFERENCES


FSOO.COM. Port of Shanghai. Available at: http://www.ufsoo.com/port/shanghai/ Accessed 16 May 2017

Golder Associates (2017). ICMC Due Diligence Assessment for the Port of Shanghai, China. Reference number 1668932-004-LRev0


ICMC DUE DILIGENCE ASSESSMENT FOR THE PORT OF CALLAO

Dear Owen

EXECUTIVE SUMMARY

Golder Associates Pty Ltd (Golder) conducted a due diligence of the port of Callao, Peru during April 2017 on behalf of Orica Australia Pty Ltd (Orica). The assessment was conducted by Ed Clerk who meets the International Cyanide Management Institute’s (ICMI) requirements for a Transport Technical Specialist.

The following items, as detailed in the ICMI’s Auditor Guidance for Use of Cyanide Transportation Verification Protocol (December 2016), were addressed within the due diligence:

- Transport Practice 1.1 (Questions 1-4 and 6)
- Transport Practice 1.5 (Question 1, Items g-i)
- Transport Practice 1.6
- Transport Practice 2.1
- Transport Practice 3.1.

The ICMI’s Auditor Guidance for Use of Cyanide Transportation Verification Protocol (December 2016) was used to conduct the due diligence assessment. It was not possible during this due diligence to physically inspect the port, as such the review was based on information obtained from previous due diligence reviews, ICMI audit reports and publicly available online information.

Golder’s assessment of the port of Callao found no issues of concern in regards to the port’s management of solid sodium cyanide product.

This assessment should not be a final acceptance of the port of Callao for future work; rather it is recommended that Orica continue to review and monitor the port of Callao’s performance annually and implement an adaptive management process.

Owen Warren
Senior Manager Global Distribution
Orica
Email: owen.warren@orica.com
1.0 INTRODUCTION

This letter provides the results of a due diligence assessment against the port of Callao, Peru, in accordance with the *International Cyanide Management Code for the Manufacture, Transport and Use of Cyanide in the Production of Gold* (ICMC or the Code). The letter follows Orica’s acceptance of Golder’s proposal (Golder’s reference P1665113-001-R-Rev0).

Golder conducted a desktop due diligence assessment of the port of Callao, Peru during April 2017. The assessment was conducted by Ed Clerk who meets the International Cyanide Management Institute’s (ICMI) requirements for a Transport Technical Specialist.

The following items, as detailed in the ICMI’s *Auditor Guidance for Use of Cyanide Transportation Verification Protocol* (December 2016), were addressed within the due diligence:

- Introduction
- ICMC Transport Verification Protocol Assessment
  - Transport Practice 1.1 (Questions 1-4 and 6)
  - Transport Practice 1.5 (Question 1, Items g-i)
  - Transport Practice 1.6
  - Transport Practice 2.1
  - Transport Practice 3.1.
- Conclusion
- References.

The ICMI’s *Auditor Guidance for Use of Cyanide Transportation Verification Protocol* (December 2016) was used to conduct the due diligence assessment. Due to access restrictions, it was not possible during this due diligence to physically inspect the port of Callao. The due diligence assessment was completed based on information obtained from previous due diligences, ICMI audit reports and publicly available online information.

1.1 Overview of Port of Callao, Peru

The port of Callao is Peru’s main commercial seaport and located 12 kilometres from Lima, the country’s capital. The Port is governed by Peru’s National Port Authority and is maintained and administered by the Empresa Nacional De Puertos S.A. (ENAPU) (a state company). The port is currently a point of entry for solid sodium cyanide chemicals into the Peruvian market place.

The port of Callao is protected by two artificial breakwaters. The northern breakwater is approximately 1300 m in length and the southern breakwater is approximately 400 m in length. The opening between the two breakwaters is about 180 m in width. Pilots board vessels about one mile off the port entrance. The port has a good approach and navigation aids. There is a “traffic separation scheme” which is well marked on navigation charts. The access channel is well marked by sea buoys and lights on each breakwater.

Major international shipping companies such as Hamburg SUD, Maersk and MSC transport their shipments to the port of Callao in Peru.

The "Terminal Portuario Callao" TPC is owned and operated by ENAPU S.A. and operated by two dealers: APM Terminals and DP World. The terminal boasts world class standards for efficiency and productivity (currently averaging more than 30 gross moves per hour per crane), and is ranked as the top container terminal facility in South America. As a result, Callao has positioned itself as the gateway for Peru’s import and export container traffic and regional transhipments.

There are 16 berths for grains, general, bagged and liquid cargoes, lubricating and vegetable oils, mineral concentrates, containerised cargo, discharge of crude oil, clean products, propane gas, chemicals and water and passengers. There are seven open storage zones for the use of imported goods.
The port of Callao Harbour Master oversees all port operations. This includes:

- Management of port protocols for vessel docking
- Entry to port by port Pilots
- Vessel approaches
- Shipping activities to port activities changeover.

Stevedoring operations include:

- Handling of full/empty containers on and off vessels, container storage areas for general cargo, port security, etc.
- Management programmes for container placement and movement including identification of hazardous cargoes.

2.0 ICMC TRANSPORT VERIFICATION PROTOCOL ASSESSMENT

The ICMI’s Auditor Guidance for Use of Cyanide Transportation Verification Protocol, General Guidance states:

*Except as specifically identified in this Guidance document, the Cyanide Transportation Protocol is not to be used to evaluate transport by rail and ship or management of cyanide at rail terminals and port facilities due to security issues, limited access, and the inability of consignors to affect changes in the operating practices of these transport facilities. Rather than conduct Code audits of these facilities, the consignor must conduct and document due diligence investigations of rail carriers, rail terminals, shipping companies and port facilities that are engaged to handle cyanide shipments, as further discussed below under Transport Practice 1.1. The consignor’s due diligence investigation must either be conducted or reviewed by an auditor meeting ICMI requirements for a transport expert, and the auditor must conclude that the due diligence investigation has reasonably evaluated these facilities and that the consignor has, to the extent practical, implemented any necessary management measures.*

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

The international sales and exports of sodium cyanide by Orica take into consideration the ports and their extended infrastructure available to service the intended target area. Orica only operates in export markets that are serviced by major international shipping companies with the ability to offer scheduled container services from point of origin to destination.

Orica procedure “Selection of Transport Routes – Transportation of Sodium Cyanide to Customer Sites or Stock Points” (Orica ref: UP-GLO-PRO-001-017) aims to minimise the risk associated with the transportation of sodium cyanide while maintaining a safe, reliable, efficient and cost effective delivery system to customer sites and Orica stock points throughout the world. The procedure applies to the selection of delivery routes for Orica sodium cyanide and states that the “selection of route(s) is to be effected by the overall assessment of the risks associated with the utilisation of such route, taking into particular consideration likelihood of an incident occurring and the consequence of such an incident.” This procedure is applicable to all routes used for the transportation of Orica sodium cyanide as well as to Orica’s contracted transportation agencies.

The port is selected on the basis that it is the closest port to the customer and that it meets all reasonable industry standards for safety, security and emergency response.

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

Orica’s manufacturing facility and transfer stations are ICMC certified, sodium cyanide is packaged and transported in accordance with international regulatory standards, such as the United Nations Recommendation on the Transport of Dangerous Goods – Model Regulations, (2005) and National Codes of Practice such as the Australian Code for the Transport of Dangerous Goods by Road or Rail, (2015) thereby meeting the requirements of the political jurisdictions through which the loads will pass.
Orica only operates in export markets that are serviced by major international shipping companies with the ability to offer scheduled container services from point of origin to destination. Orica procedure “Carrier Assessment” (Orica ref: SUP-GLO-PRO-016-008) provides the framework for ensuring that carriers and their contractors are assessed at regular intervals to ensure that, amongst others, storage, safety, security, maintenance and emergency response standards are being maintained. Carriers are required to provide manifest documentation, to satisfy local customs regulations and the requirements of the IMDG Code, to the destination port. This documentation contains a list of the cargo types and in the case of sodium cyanide and any other hazardous cargo the quantity, unique packaging numbers, stowage reference and emergency response procedures.

Peru is both an IMO Member State (1968) and SOLAS Signatory Nation (1979), thereby requiring the port of Callao to adhere to the international regulations for the transportation and handling of dangerous goods as set out in the IMDG Code (Parts 4, 5 and 7) and SOLAS Convention ((1974) Chapter 7).

**g) Does the ship carrying the cyanide have a list or manifest identifying the presence and location of the cyanide or a detailed stowage plan including this information, as required under Section 5.4.3.1 of the DG Code?**

The Autoridad Portuaria Nacional (APN) develops and implements policies, statutes and regulations governing the carriage of dangerous goods and other goods by ships in accordance with relative national and international requirements. This includes supervising the safety of ships carrying dangerous goods and other goods, processing declarations made by ships carrying dangerous goods, providing accreditation services for personnel involved in the declaration of dangerous goods and inspection of containers, and inspecting containers holding dangerous goods.

As an IMO Member State and to comply with the IMDG Code, vessels are required to declare dangerous cargo before arriving at or leaving the port, to the APN or relevant managing authority.

The port of Callao operates under a suite of National regulations and Standards (e.g. 020-2006-APNDIR Control and monitoring of dangerous goods and 013-2011-MTC Regulations for the reception and dispatch of ships) that ensures its compliance with regards to the transportation, handling and storage of dangerous goods.

**h) Does the ship carrying the cyanide have cyanide emergency response information, as required under Section 5.4.3.2 of the DG Code?**

Dangerous goods delivered to or from the port are required to be appropriately manifested, packaged, labelled and placarded. Documentation that accompanies the cyanide throughout transportation by sea and delivery at ports includes emergency response information along with the dangerous goods manifest, packing certificates and Multimodal Dangerous Goods Form.

Emergency response procedures for ships carrying dangerous goods, including the emergency schedules to be followed in case of incidents involving dangerous substances, materials or articles, or harmful substances (marine pollutants), is regulated under the IMDG Code. In accordance with the Code, all ships, and the companies responsible for their operation, are required to maintain a Safety Management System (SMS). Within the SMS, procedures for responding to potential shipboard emergencies are required.

Port operations personnel provide the vessel's Master with copies of the Emergency Information, Dangerous Goods manifest (including stowage plan) and Packaging Certificates for each hazardous cargo transport units loaded onto the ship at the port of origin.

**i) Does the ship comply with the stowage and separation requirements of Part 7 of the DG Code?**

As a member of the IMO and to comply with the IMDG Code and the requirements of National regulation 020-2006-APNDIR Control and monitoring of dangerous goods, vessels are required to declare dangerous cargo to the APN or relevant regulatory managing authority, before arriving at or leaving the port.

020-2006-APNDIR Control and monitoring of dangerous goods, outlines requirements with respect to pilotage, goods reporting, personnel training, dangerous goods and explosives handling, safety regulations, handling of cargo, storage, and warehousing and general port control.
To comply with requirements of the IMDG Code, the port of Callao has dedicated storage areas for specialised products including dangerous goods; cyanide containers are segregated and stacked separately. All sodium cyanide remains contained within its sealed containers at all times.

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

The port Operators, DP World and APM, are both fully aware when sodium cyanide containers are to arrive at the port. The control centre organises ship movements, tracks pilotage operations, and supervises terminal operations.

As an IMO Member State and to comply with the IMDG Code, vessels are required to declare dangerous cargo before arriving at or leaving the port, to the APN or relevant managing authority.

Chain of custody documentation is used by shipping companies to prevent the loss of cargo during shipment. This documentation includes the vessel manifest- which identifies the location and content of each container on the vessel along with packing certificates, Multimodal Dangerous Goods Forms and Safety Data Sheets (SDS).

All transhipping operations are carried out in dedicated dangerous goods areas by suitably trained personnel. The transhipping operations are monitored by the port’s CCTV system and the containers are tracked using GPS to record the positioning of the containers within the dangerous goods storage areas.

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

Both the DP World and APM Terminals have surveillance systems that monitor the security of goods via CCTV coverage. Both terminals operate in a pedestrian free environment and are brightly lit at night. Safety signage and on site security measures are evident. Containers are placarded in accordance with IMDG labelling requirements and storage areas show relevant signage regarding no smoking, no open flames, eating and drinking is not permitted and the PPE requirements.

During transhipping, manifests are handed over from the vessel to the terminal operators which include the weight and any hazards associated with the containers. This information is captured in the terminal operator’s computer systems, which have the ability to identify dangerous goods consignments, determine the class of dangerous goods and establish the segregation requirements for that product as required by the IMO DG Code.

Containers are stored at the port with adequate ventilation to prevent build-up of hydrogen cyanide gas. The product remains sealed in containers at all times and the area of storage is suitable to effectively contain any spillage that may occur. Local specialised responders are on hand to provide assistance in the event of a serious incident.

The Callao port operator procedure calls for confirmation that the United Nations ID numbers, Department of Transport and National Fire Protection Association (NFPA) diamond number placards are present on the three visible sides of cyanide containers before they can be transferred to trucks and dispatched. This is required by Peruvian law when transporting hazardous materials.

Transhipping depots and interim storage sites are associated with the port of Callao. During unloading, containers of cyanide may be stored temporarily in designated transhipping depots within the confines of the port. These depots are managed and administered by the terminal operators DP World and or APM respectively. It is the policy of the port that all containers of sodium cyanide are to be removed from the port within forty eight hours following discharge of the vessel.

Should the containers of cyanide not be cleared through customs within the forty eight hour period, the terminal operators may transfer the containers to an inland clearance depot operated by Licsa under the authority of the Peruvian National Customs and Tax Administration (SUNAT). The Clearance Depot is located a short distance outside of the port confines. The containers remain under customs control until clearance has been arranged and collection from the Clearance Depot can be made by the importers.

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

Peru has been a member State of the IMO Council since 1968, it complies with the requirements of the IMO DG Code.
The port of Callao is equipped with emergency response teams who are trained to respond to emergency situations. Medical facilities are available on site and include access to a doctor, paramedics and an ambulance. Firefighting trucks are present just outside of the port area and are able to mobilise to the port where required. APM (another terminal operator) holds two emergency response exercises per year and DP World Terminal hold three.

The port of Callao is certified under the IMO’s International Convention on Oil Pollution Preparedness, Response and Co-operation 1990 (OPRC 90). States which are party to OPRC 90 protocol are required to establish a national system for responding to oil and hazardous/noxious substances pollution incidents, including a designated national authority, a national operational contact point and a national contingency plan. This needs to be supported by a minimum level of response equipment, communications plans, regular training and exercises.

Previous due diligence assessments indicate that safety and security measures are present throughout the port, including upon entry and exiting of the port. The due diligence ascertained the port has suitable procedures and resources in place for handling emergency situations.

3.0 CONCLUSION
Based on the evidence reviewed, this due diligence did not find significant issues of concern in regards to the port of Callao’s management of solid sodium cyanide product. It was not possible during this due diligence to physically inspect the port, as such the review was based on information obtained from previous due diligence reviews, ICMI audit reports and publicly available online information. The Auditor recommends that Orica undertakes annual reviews at the port to monitor the management of dangerous goods.

This assessment should not be a final acceptance of the port of Callao for future work; rather it is recommended that Orica continue to review and monitor the port of Callao performance annually and implement an adaptive management process.

4.0 CLOSING
We trust this due diligence letter meets your requirements. If you have any questions, please do not hesitate to contact the undersigned.

GOLDER ASSOCIATES PTY LTD

Craig Currie
Environmental Scientist

Ed Clerk
ICMC Lead Auditor and Technical Specialist

CC/EC/hsl
REFERENCES


CUSA SAC (2016). International Cyanide Management Code, Summary Certification Audit Report. Certification Audit of Cyanide Supply Chain including transportation from the Korean cyanide production facility to the Port of Pusan – Korea, ocean transport, unloading at the Port of Callao – Perú, transport to the CUSA SAC warehouse and transport to the mine sites.


Orica Mining (2014). Due Diligence Review – Port of Callao, Peru. Revised Report number 2


ICMC DUE DILIGENCE ASSESSMENT FOR THE PORT OF BUENOS AIRES

Dear Owen

EXECUTIVE SUMMARY

Golder Associates Pty Ltd (Golder) conducted a due diligence of the port of Buenos Aires, Argentina during April 2017 on behalf of Orica Australia Pty Ltd (Orica). The assessment was conducted by Ed Clerk who meets the International Cyanide Management Institute’s (ICMI) requirements for a Transport Technical Specialist.

The following items, as detailed in the ICMI’s Auditor Guidance for Use of Cyanide Transportation Verification Protocol (December 2016), were addressed within the due diligence:

- Transport Practice 1.1 (Questions 1-4 and 6)
- Transport Practice 1.5 (Question 1, Items g-i)
- Transport Practice 1.6
- Transport Practice 2.1
- Transport Practice 3.1.

The ICMI’s Auditor Guidance for Use of Cyanide Transportation Verification Protocol (December 2016) was used to conduct the due diligence assessment. It was not possible during this due diligence to physically inspect the port, as such the review was based on information obtained from previous due diligence reviews, ICMI audit reports and publicly available online information.

Golder’s assessment of the port of Buenos Aires found no issues of concern in regards to the port’s management of solid sodium cyanide product.

This assessment should not be a final acceptance of the port of Buenos Aires for future work; rather it is recommended that Orica continue to review and monitor the port of Buenos Aires’s performance annually and implement an adaptive management process.
1.0 INTRODUCTION

This letter provides the results of a due diligence assessment against the port of Buenos Aires, Argentina, in accordance with the International Cyanide Management Code for the Manufacture, Transport and Use of Cyanide in the Production of Gold (ICMC or the Code).

Golder conducted a desktop due diligence assessment of the port of Buenos Aires, Argentina during April 2017. The assessment was conducted by Ed Clerk who meets the International Cyanide Management Institute’s (ICMI) requirements for a Transport Technical Specialist.

The following items, as detailed in the ICMI’s Auditor Guidance for Use of Cyanide Transportation Verification Protocol (December 2016), were addressed within the due diligence:

- Introduction
- ICMC Transport Verification Protocol Assessment
  - Transport Practice 1.1 (Questions 1-4 and 6)
  - Transport Practice 1.5 (Question 1, Items g-i)
  - Transport Practice 1.6
  - Transport Practice 2.1
  - Transport Practice 3.1.
- Conclusion
- References.

The ICMI’s Auditor Guidance for Use of Cyanide Transportation Verification Protocol (December 2016) was used to conduct the due diligence assessment. Due to access restrictions, it was not possible during this due diligence to physically inspect the port of Buenos Aires. The due diligence assessment was completed based on information obtained from previous due diligences, ICMI audit reports and publicly available online information.

1.1 Overview of Port of Buenos Aires, Argentina

The port of Buenos Aires is located in Puerto Nuevo, Buenos Aires in Argentina. It is operated by the General Ports Administration, a state enterprise, and it is the leading transhipment point for foreign trade in Argentina.

Terminales Río de la Plata (TRP) operates Terminals 1 and 2 in Puerto Nuevo in Buenos Aires. The terminals have been remodelled to provide modern facilities and the latest in container-handling equipment and services. The two facilities make up the largest container terminal in the port, with capacity for handling one million 20-foot equivalents (TEUs) of containerised cargo per year.

TRP’s facility comprises three basins, providing up to five berths for vessel operations. The terminal handles deep-sea vessels from Europe, Asia and North America, as well as feeders to both the East and West Coast of South America and barges upriver to Rosario.

TRP has an integrated management system which is certified against international standards for quality (ISO 9001:2008), environment (ISO 14001:2004) and security for the supply chain (ISO 28000:2007).
Overview of port operations:

A Harbour Master oversees the overall operation of the port of Buenos Aires. A previously conducted due diligence (2015) indicates that:

- Port protocols exist for docking of vessels (e.g. use of Pilots, use of tug boats, management of different weather conditions, tides, currents and safety and general port operations). This sees to the safe docking and turnaround of the vessels in and out of the port.

- Entry into port is controlled by the port’s Pilot who understands the port protocols and any unique issues regarding the approach and docking of a vessel at the port. The Ship’s Captain works in conjunction with the Pilot as he understands his vessel and can implement and assist with the Pilot’s instructions.

- The approach of the vessel to the ports will take into any account any channels, special navigation points and as mentioned above the currents, tides and weather.

- Once a vessel is secure alongside the wharf the shipping activities changeover to port activities. The vessels manifest of what containers are required to be unloaded from the vessel, including the manifest for containers for loading are handed over. This manifest will identify hazardous cargos and their UN number and classification and segregation requirements.

Stevedoring operations include:

The stevedoring company, TRP, manage the onshore (wharf) operations at the dedicated container terminal. This is the terminal currently used by other ICMI accredited transporters to facilitate the unloading of their vessels.

The stevedoring operations include:

- Handling of the containers whether full or empty on and off the vessels; container storage areas for general cargo, port security, control systems for companies and their vehicles collecting and or delivering containers.

- Software programs that control container placement and movement; these software packages identify each individual container placement area in designated stacks. The input information for the placement of containers comes from the vessel’s manifest.

Containers of dangerous goods discharged by vessels at the container terminal are currently being moved by TRP to various areas within the port for storage until customs clearance has been completed and transport is arranged. Containers of cyanide are segregated from other classes of dangerous goods. TRP are currently investigating the possibility of having a dedicated area for storage of all dangerous goods. This area will have minimal traffic flow and be large enough to allow space for appropriate segregation of different classes of dangerous goods.

2.0 ICMC TRANSPORT VERIFICATION PROTOCOL ASSESSMENT

The ICMI’s Auditor Guidance for Use of Cyanide Transportation Verification Protocol, General Guidance states:

Except as specifically identified in this Guidance document, the Cyanide Transportation Protocol is not to be used to evaluate transport by rail and ship or management of cyanide at rail terminals and port facilities due to security issues, limited access, and the inability of consignors to affect changes in the operating practices of these transport facilities. Rather than conduct Code audits of these facilities, the consignor must conduct and document due diligence investigations of rail carriers, rail terminals, shipping companies and port facilities that are engaged to handle cyanide shipments, as further discussed below under Transport Practice 1.1. The consignor’s due diligence investigation must either be conducted or reviewed by an auditor meeting ICMI requirements for a transport expert, and the auditor must conclude that the due diligence investigation has reasonably evaluated these facilities and that the consignor has, to the extent practical, implemented any necessary management measures.
Transport Practice 1.1: Select cyanide transport routes to minimise the potential for accidents and releases

The international sales and exports of sodium cyanide by Orica take into consideration the ports and their extended infrastructure available to service the intended target area. Orica only operates in export markets that are serviced by major international shipping companies with the ability to offer scheduled container services from point of origin to destination.

Orica procedure “Selection of Transport Routes – Transportation of Sodium Cyanide to Customer Sites or Stock Points” (Orica ref: UP-GLO-PRO-001-017) aims to minimise the risk associated with the transportation of sodium cyanide while maintaining a safe, reliable, efficient and cost effective delivery system to customer sites and Orica stock points throughout the world. The procedure applies to the selection of delivery routes for Orica sodium cyanide and states that the “selection of route(s) is to be effected by the overall assessment of the risks associated with the utilisation of such route, taking into particular consideration likelihood of an incident occurring and the consequence of such an incident.” This procedure is applicable to all routes used for the transportation of Orica sodium cyanide as well as to Orica’s contracted transportation agencies.

The Buenos Aires port is the leading transhipment point for foreign trade into Argentina. The terminal handles deep-sea vessels from Europe, Asia and North America, as well as being strategically placed to serve as a freight linkage to and from the East and West Coast of South America.

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

Orica’s manufacturing facility and transfer stations are ICMC certified, sodium cyanide is packaged and transported in accordance with international regulatory standards, such as the United Nations Recommendation on the Transport of Dangerous Goods – Model Regulations, (2005) and National Codes of Practice such as the Australian Code for the Transport of Dangerous Goods by Road or Rail, (2015) thereby meeting the requirements of the political jurisdictions through which the loads will pass.

Orica only operates in export markets that are serviced by major international shipping companies with the ability to offer scheduled container services from point of origin to destination. Orica procedure “Carrier Assessment” (Orica ref: SUP-GLO-PRO-016-008) provides the framework for ensuring that carriers and their contractors are assessed at regular intervals to ensure that, amongst others, storage, safety, security, maintenance and emergency response standards are being maintained. Carriers are required to provide manifest documentation, to satisfy local customs regulations and the requirements of the IMDG Code, to the destination port. This documentation contains a list of the cargo types and in the case of sodium cyanide and any other hazardous cargo the quantity, unique packaging numbers, stowage reference and emergency response procedures.

Argentina is both an IMO Member State (1953) and SOLAS Signatory Nation (1979), thereby requiring the port of Buenos Aires to adhere to the international regulations for the transportation and handling of dangerous goods as set out in the IMDG Code (Parts 4, 5 and 7) and SOLAS Convention ((1974) Chapter 7).

**g) Does the ship carrying the cyanide have a list or manifest identifying the presence and location of the cyanide or a detailed stowage plan including this information, as required under Section 5.4.3.1 of the DG Code?**

The Prefectura Naval Argentina (PNA) develops and implements policies, statutes and regulations governing the carriage of dangerous goods and other goods by ships in accordance with relative national and international requirements. This includes supervising the safety of ships carrying dangerous goods and other goods, processing declarations made by ships carrying dangerous goods, providing accreditation services for personnel involved in the declaration of dangerous goods and inspection of containers, and inspecting containers holding dangerous goods.

As an IMO Member State and to comply with the IMDG Code, vessels are required to declare dangerous cargo before arriving at or leaving the port, to the PNA or relevant port authority.

The port of Buenos Aires operates under a suite of National regulations, e.g. PNA National Regulation No.5/98 Documents to be carried on board ships carrying dangerous goods, No.3/96 Standards for the approval of packaging and packaging containing dangerous goods, which ensures its compliance with regards to the transportation, handling and storage of dangerous goods.
h) Does the ship carrying the cyanide have cyanide emergency response information, as required under Section 5.4.3.2 of the DG Code?

Dangerous goods delivered to or from the port are required to be appropriately manifested, packaged, labelled and placarded. Documentation that accompanies the cyanide throughout transportation by sea and delivery at ports includes emergency response information along with the dangerous goods manifest, packing certificates and Multimodal Dangerous Goods Form.

Emergency response procedures for ships carrying dangerous goods, including the emergency schedules to be followed in case of incidents involving dangerous substances, materials or articles, or harmful substances (marine pollutants), is regulated under the IMDG Code. In accordance with the Code, all ships, and the companies responsible for their operation, are required to maintain a Safety Management System (SMS). Within the SMS, procedures for responding to potential shipboard emergencies are required.

Port operations personnel provide the vessel’s Master with copies of the Emergency Information, Dangerous Goods manifest (including stowage plan) and Packaging Certificates for each hazardous cargo transport units loaded onto the ship at the port of origin.

The PNA National Regulations No.5/98 stating Documents to be carried on board ships carrying dangerous goods, No.3/96 Standards for the approval of packaging and packaging containing dangerous goods and No.2/91 Transport by vessels of dangerous goods, certificates of suitability and transport authorisation for ships carrying dangerous chemicals or liquefied gases in bulk; all apply.

i) Does the ship comply with the stowage and separation requirements of Part 7 of the DG Code?

As a member of the IMO and to comply with the IMDG Code and Argentinian National Regulations vessels are required to declare dangerous cargo before arriving at or leaving the port, additionally, all cargo listed on the dangerous cargo manifest must be stowed and handled as prescribed by its UN number and dangerous goods class.

The port of Buenos Aires has dedicated storage areas for specialised products including dangerous goods; cyanide containers are segregated and stacked separately. All sodium cyanide remains packaged within its sealed container at all times.

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

The Dispatch Centre organises ship movements, tracks pilotage operations, and supervises terminal operations via real-time CCTV monitoring.

Chain of custody documentation is used by shipping companies to prevent the loss of cargo during shipment. This documentation includes the vessel manifest – which identifies the location and content of each container on the vessel along with packing certificates, Multimodal Dangerous Goods Forms and Safety Data Sheets (SDS).

Transport Practice 2.1: Store cyanide in a manner that minimises the potential for accidental releases

In general, port and vessel security are managed through the International Ship and Port Facility Security Code (ISPS Code). The ISPS Code is a comprehensive set of measures to enhance security of ships and port facilities.

The purpose of the ISPS Code is to provide a standardised, consistent framework for evaluating risk, enabling Governments to offset changes in threat with changes in vulnerability for ships and port facilities through determination of appropriate security levels and corresponding security measures. The ISPS Code takes the approach that ensuring the security of ships and port facilities is a risk management activity and that, to determine what security measures are appropriate, an assessment of the risks must be made in each particular case.

The port of Buenos Aires operates under a suite of International and National regulations that ensures its compliance with regards to the handling and storage of dangerous goods. PNA Regulations No.9/97 Transport by vessels of dangerous goods, safety standards for transport by charcoal vessels and No.3/96 Standards for the approval of packaging and packaging containing dangerous goods outline the requirements for ports.
A previous due diligence review (2012) ascertained that the shipping containers containing cyanide product are stored in a designated dangerous goods storage area (segregated according to the international segregation guidelines) and are placed on a concrete surface which has a safe floor loading factor in an open air area environment. The product remains in the containers that were packed at the sodium cyanide factory (the sodium cyanide packaging has a sealed plastic liner which stops the contact of product from moisture or humidity) ready for loading for onward transport to the final destination.

The due diligence review assessed security measures at the port and ascertained that the container storage area at the port has full CCTV coverage and that security measures were evident throughout the port. The terminal adopts a range of strict internal controls and uses state-of-the-art technology to optimise operation and the safety. It is noteworthy that in 2009 the ISO 28000 certification (Supply Chain Security Management) was obtained.

The due diligence review assessed the capacity of the port of Buenos Aires to contain any spilled cyanide materials and minimise the extent of a release and ascertained that the port possessed an Emergency Procedure Guide especially developed for cyanide and a copy of the SDS. The port undertakes regular emergency response exercises, though these are not cyanide specific.

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

Argentina has been a member State of the IMO Council since 1953, it complies with the requirements of the IMDG Code.

The PNA is the competent authority (specifically the Directorate for Environmental Protection) and administers the National Contingency Plan (NCP) for dealing with pollution by oil and other noxious substances in marine and freshwater environments. The PNA consists of two branches; one section deals with policy and implementing the international Conventions; the other has an operational role and is responsible for planning and responding to pollution incidents. This department has 19 Rescue, Firefighting and Environmental Protection stations located in Argentina’s principal ports.

The port of Buenos Aires is certified under the IMO’s International Convention on Oil Pollution Preparedness, Response and Cooperation 1990 (OPRC 90). States which are party to OPRC 90 protocol are required to establish a national system for responding to oil and hazardous/noxious substances pollution incidents, including a designated national authority, a national operational contact point and a national contingency plan. This needs to be supported by a minimum level of response equipment, communications plans, regular training and exercises.

The PNA, with the support of private contractors, manages the response to and monitoring of a Hazardous and Noxious Substances (HNS) incident and some equipment is readily available (such as PPE, respirators, pumps, power packs and air monitoring equipment). The PNA is currently engaged in a programme of training and exercises in preparation for spills of both oil and HNS.

PNA Regulation No.05-11 *Obligatory Training Standards for Land Personnel Linked to Maritime, Fluvial and Hazardous Goods Shipping* ensures minimum standards of preparedness and response are maintained.

### 3.0 CONCLUSION

Based on the evidence reviewed, this due diligence did not find significant issues of concern in regards to the port of Buenos Aires’s management of solid sodium cyanide product. It was not possible during this due diligence to physically inspect the port, as such the review was based on information obtained from previous due diligence reviews, ICMI audit reports and publicly available online information. The Auditor recommends that Orica undertakes annual reviews at the port to monitor the management of dangerous goods.

This assessment should not be a final acceptance of the port of Buenos Aires for future work; rather it is recommended that Orica continue to review and monitor the port’s performance annually and implement an adaptive management process.
4.0 CLOSING

We trust this due diligence letter meets your requirements. If you have any questions, please do not hesitate to contact the undersigned.

GOLDER ASSOCIATES PTY LTD

Craig Currie
Environmental Scientist

Ed Clerk
ICMC Lead Auditor and Technical Specialist

CC/EWC/hsl
REFERENCES


ICMC DUE DILIGENCE ASSESSMENT FOR THE PORT OF PUERTO DESEADO

Dear Owen

EXECUTIVE SUMMARY

Golder Associates Pty Ltd (Golder) conducted a due diligence of the port of Puerto Deseado, Argentina during April 2017 on behalf of Orica Australia Pty Ltd (Orica). The assessment was conducted by Ed Clerk who meets the International Cyanide Management Institute’s (ICMI) requirements for a Transport Technical Specialist.

The following items, as detailed in the ICMI’s Auditor Guidance for Use of Cyanide Transportation Verification Protocol (December 2016), were addressed within the due diligence:

- Transport Practice 1.1 (Questions 1-4 and 6)
- Transport Practice 1.5 (Question 1, Items g-i)
- Transport Practice 1.6
- Transport Practice 2.1
- Transport Practice 3.1.

The ICMI’s Auditor Guidance for Use of Cyanide Transportation Verification Protocol (December 2016) was used to conduct the due diligence assessment. It was not possible during this due diligence to physically inspect the port, as such the review was based on information obtained from previous due diligence reviews, ICMI audit reports and publicly available online information.

Golder’s assessment of the port of Puerto Deseado found no issues of concern in regards to the port’s management of solid sodium cyanide product.

This assessment should not be a final acceptance of the port of Puerto Deseado for future work; rather it is recommended that Orica continue to review and monitor the port of Puerto Deseado’s performance annually and implement an adaptive management process.

31 July 2017

Owen Warren
Senior Manager Global Distribution
Orica

Email: owen.warren@orica.com
1.0 INTRODUCTION

This letter provides the results of a due diligence assessment against the port of Puerto Deseado, Argentina, in accordance with the International Cyanide Management Code for the Manufacture, Transport and Use of Cyanide in the Production of Gold (ICMC or the Code).

Golder conducted a desktop due diligence assessment of the port of Puerto Deseado, Argentina during April 2017. The assessment was conducted by Ed Clerk who meets the International Cyanide Management Institute’s (ICMI) requirements for a Transport Technical Specialist.

The following items, as detailed in the ICMI's Auditor Guidance for Use of Cyanide Transportation Verification Protocol (December 2016), were addressed within the due diligence:

- Introduction
- ICMC Transport Verification Protocol Assessment
  - Transport Practice 1.1 (Questions 1-4 and 6)
  - Transport Practice 1.5 (Question 1, Items g-i)
  - Transport Practice 1.6
  - Transport Practice 2.1
  - Transport Practice 3.1.
- Conclusion
- References.

The ICMI's Auditor Guidance for Use of Cyanide Transportation Verification Protocol (December 2016) was used to conduct the due diligence assessment. Due to access restrictions, it was not possible during this due diligence to physically inspect the port of Puerto Deseado. The due diligence assessment was completed based on information obtained from previous due diligences, ICMI audit reports and publicly available online information.

1.1 Overview of Port of Puerto Deseado, Argentina

Located on the southern Patagonia coast of Argentina, Puerto Deseado is the capital of the Santa Cruz province. Puerto Deseado is situated on the estuary at the mouth of the Deseado River and is a multi-purpose port facility handling fish, container and general cargo.

Overview of port operations:

- Port protocols exist for docking of vessels (e.g. use of Pilots, use of tug boats, management of different weather conditions, tides, currents and safety and general port operations). This sees to the safe docking and turnaround of the vessels in and out of the port.

- Entry into port is controlled by the port’s Pilot who understands the port protocols and any unique issues regarding the approach and docking of a vessel at the port. The Ship’s Captain works in conjunction with the Pilot as he understands his vessel and can implement and assist with the Pilot’s instructions.

- The approach of the vessel to the ports will take into any account any channels, special navigation points and as mentioned above the currents, tides and weather.

- Once a vessel is secure alongside the wharf the shipping activities changeover to port activities. The vessels manifest of what containers are required to be unloaded from the vessel, including the manifest for containers for loading are handed over. This manifest will identify hazardous cargos and their UN number and classification and segregation requirements.
Stevedoring is undertaken by third-party contractors.

Stevedoring operations include:

- Handling of the containers whether full or empty on and off the vessels; container storage areas for general cargo, port security, control systems for companies and their vehicles collecting and or delivering containers.

- Software programs that control container placement and movement; these software packages identify each individual container placement area in designated stacks. The input information for the placement of containers comes from the vessel's manifest.

2.0 ICMC TRANSPORT VERIFICATION PROTOCOL ASSESSMENT

The ICMI's Auditor Guidance for Use of Cyanide Transportation Verification Protocol, General Guidance states:

Except as specifically identified in this Guidance document, the Cyanide Transportation Protocol is not to be used to evaluate transport by rail and ship or management of cyanide at rail terminals and port facilities due to security issues, limited access, and the inability of consignors to affect changes in the operating practices of these transport facilities. Rather than conduct Code audits of these facilities, the consignor must conduct and document due diligence investigations of rail carriers, rail terminals, shipping companies and port facilities that are engaged to handle cyanide shipments, as further discussed below under Transport Practice 1.1. The consignor's due diligence investigation must either be conducted or reviewed by an auditor meeting ICMI requirements for a transport expert, and the auditor must conclude that the due diligence investigation has reasonably evaluated these facilities and that the consignor has, to the extent practical, implemented any necessary management measures.

Transport Practice 1.1: Select cyanide transport routes to minimise the potential for accidents and releases

The international sales and exports of sodium cyanide by Orica take into consideration the ports and their extended infrastructure available to service the intended target area. Orica only operates in export markets that are serviced by major international shipping companies with the ability to offer scheduled container services from point of origin to destination.

Orica procedure “Selection of Transport Routes – Transportation of Sodium Cyanide to Customer Sites or Stock Points” (Orica ref: UP-GLO-PRO-001-017) aims to minimise the risk associated with the transportation of sodium cyanide while maintaining a safe, reliable, efficient and cost effective delivery system to customer sites and Orica stock points throughout the world. The procedure applies to the selection of delivery routes for Orica sodium cyanide and states that the “selection of route(s) is to be effected by the overall assessment of the risks associated with the utilisation of such route, taking into particular consideration likelihood of an incident occurring and the consequence of such an incident.” This procedure is applicable to all routes used for the transportation of Orica sodium cyanide as well as to Orica's contracted transportation agencies.

The port is selected on the basis that it is the closest port to the customer and that it meets all reasonable industry standards for safety, security and emergency response.

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

Orica’s manufacturing facility and transfer stations are ICMC certified, sodium cyanide is packaged and transported in accordance with international regulatory standards, such as the United Nations Recommendation on the Transport of Dangerous Goods – Model Regulations, (2005) and National Codes of Practice such as the Australian Code for the Transport of Dangerous Goods by Road or Rail, (2015) thereby meeting the requirements of the political jurisdictions through which the loads will pass.
Orica only operates in export markets that are serviced by major international shipping companies with the ability to offer scheduled container services from point of origin to destination. Orica procedure “Carrier Assessment” (Orica ref: SUP-GLO-PRO-016-008) provides the framework for ensuring that carriers and their contractors are assessed at regular intervals to ensure that, amongst others, storage, safety, security, maintenance and emergency response standards are being maintained. Carriers are required to provide manifest documentation, to satisfy local customs regulations and the requirements of the IMDG Code, to the destination port. This documentation contains a list of the cargo types and in the case of sodium cyanide and any other hazardous cargo the quantity, unique packaging numbers, stowage reference and emergency response procedures.

Argentina is both an IMO Member State (1953) and SOLAS Signatory Nation (1979), thereby requiring the port of Puerto Deseado to adhere to the international regulations for the transportation and handling of dangerous goods as set out in the IMDG Code (Parts 4, 5 and 7) and SOLAS Convention ((1974) Chapter 7).

**g) Does the ship carrying the cyanide have a list or manifest identifying the presence and location of the cyanide or a detailed stowage plan including this information, as required under Section 5.4.3.1 of the DG Code?**

The Prefectura Naval Argentina (PNA) develops and implements policies, statutes and regulations governing the carriage of dangerous goods and other goods by ships in accordance with relative national and international requirements. This includes supervising the safety of ships carrying dangerous goods and other goods, processing declarations made by ships carrying dangerous goods, providing accreditation services for personnel involved in the declaration of dangerous goods and inspection of containers, and inspecting containers holding dangerous goods.

As an IMO Member State and to comply with the IMDG Code, vessels are required to declare dangerous cargo before arriving at or leaving the port, to the PNA or relevant port authority.

The port of Puerto Deseado operates under a suite of National regulations, e.g. *PNA National Regulation No.5/98 Documents to be carried on board ships carrying dangerous goods*, *No.3/96 Standards for the approval of packaging and packaging containing dangerous goods*, which ensures its compliance with regards to the transportation, handling and storage of dangerous goods.

**h) Does the ship carrying the cyanide have cyanide emergency response information, as required under Section 5.4.3.2 of the DG Code?**

Dangerous goods delivered to or from the port are required to be appropriately manifested, packaged, labelled and placarded. Documentation that accompanies the cyanide throughout transportation by sea and delivery at ports includes emergency response information along with the dangerous goods manifest, packing certificates and Multimodal Dangerous Goods Form.

Emergency response procedures for ships carrying dangerous goods, including the emergency schedules to be followed in case of incidents involving dangerous substances, materials or articles, or harmful substances (marine pollutants), is regulated under the IMDG Code. In accordance with the Code, all ships, and the companies responsible for their operation, are required to maintain a Safety Management System (SMS). Within the SMS, procedures for responding to potential shipboard emergencies are required.

Port operations personnel provide the vessel’s Master with copies of the Emergency Information, Dangerous Goods manifest (including stowage plan) and Packaging Certificates for each hazardous cargo transport units loaded onto the ship at the port of origin.

The *PNA National Regulations No.5/98* states *Documents to be carried on board ships carrying dangerous goods*, *No.3/96 Standards for the approval of packaging and packaging containing dangerous goods* and *No.2/91 Transport by vessels of dangerous goods, certificates of suitability and transport authorisation for ships carrying dangerous chemicals or liquefied gases in bulk*; all apply.
i) Does the ship comply with the stowage and separation requirements of Part 7 of the DG Code?

As a member of the IMO and to comply with the IMDG Code and National Regulations vessels are required to declare dangerous cargo before arriving at or leaving the port, additionally, all cargo listed on the dangerous cargo manifest must be stowed and handled as prescribed by its UN number and dangerous goods class.

The port of Puerto Deseado has dedicated storage areas for specialised products including dangerous goods; cyanide containers are segregated and stacked separately. All sodium cyanide remains packaged within its sealed container at all times.

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

The Dispatch Centre organises ship movements, tracks pilotage operations, and supervises terminal operations via real-time CCTV monitoring.

Chain of custody documentation is used by shipping companies to prevent the loss of cargo during shipment. This documentation includes the vessel manifest – which identifies the location and content of each container on the vessel along with packing certificates, Multimodal Dangerous Goods Forms and Safety Data Sheets (SDS).

Transport Practice 2.1: Store cyanide in a manner that minimises the potential for accidental releases

In general, port and vessel security are managed through the International Ship and Port Facility Security Code (ISPS Code). The ISPS Code is a comprehensive set of measures to enhance security of ships and port facilities.

The purpose of the ISPS Code is to provide a standardised, consistent framework for evaluating risk, enabling Governments to offset changes in threat with changes in vulnerability for ships and port facilities through determination of appropriate security levels and corresponding security measures. The ISPS Code takes the approach that ensuring the security of ships and port facilities is a risk management activity and that, to determine what security measures are appropriate, an assessment of the risks must be made in each particular case.

The port of Puerto Deseado operates under a suite of International and National regulations that ensures its compliance with regards to the handling and storage of dangerous goods. PNA Regulations No.9/97 Transport by vessels of dangerous goods, safety standards for transport by charcoal vessels and No.3/96 Standards for the approval of packaging and packaging containing dangerous goods outline the requirements for ports.

Sodium cyanide transited through the port of Puerto Deseado is temporary and remains on site for less than a day. This is a management measure to minimise potential for accidental releases during storage. All sodium cyanide transited through the port of Puerto Deseado remains contained within its sealed containers at all times preventing contact with water and other incompatible materials.

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

Argentina has been a member State of the IMO Council since 1953, it complies with the requirements of the IMDG Code.

The PNA is the competent authority (specifically the Directorate for Environmental Protection) and administers the National Contingency Plan (NCP) for dealing with pollution by oil and other noxious substances in marine and freshwater environments. The PNA consists of two branches; one section deals with policy and implementing the international Conventions; the other has an operational role and is responsible for planning and responding to pollution incidents. This department has 19 Rescue, Firefighting and Environmental Protection stations located in Argentina’s principal ports.
The port of Puerto Deseado is certified under the IMO’s International Convention on Oil Pollution Preparedness, Response and Cooperation 1990 (OPRC 90). States which are party to OPRC 90 protocol are required to establish a national system for responding to oil and hazardous/noxious substances pollution incidents, including a designated national authority, a national operational contact point and a national contingency plan. This needs to be supported by a minimum level of response equipment, communications plans, regular training and exercises.

The PNA, with the support of private contractors, manages the response to and monitoring of a Hazardous and Noxious Substances (HNS) incident and some equipment is readily available (such as PPE, respirators, pumps, power packs and air monitoring equipment). The PNA is currently engaged in a programme of training and exercises in preparation for spills of both oil and HNS.

PNA Regulation No.05-11 Obligatory Training Standards for Land Personnel Linked to Maritime, Fluvial and Hazardous Goods Shipping ensures minimum standards of preparedness and response are maintained.

### 3.0 CONCLUSION

Based on the evidence reviewed, this due diligence did not find significant issues of concern in regards to the port of Puerto Deseado management of solid sodium cyanide product. It was not possible during this due diligence to physically inspect the port, as such the review was based on information obtained from previous due diligence reviews, ICMI audit reports consignors and publicly available online information. The Auditor recommends that Orica undertakes annual reviews at the port to monitor the management of dangerous goods.

This assessment should not be a final acceptance of the port of Puerto Deseado for future work; rather it is recommended that Orica continue to review and monitor the port’s performance annually and implement an adaptive management process.

### 4.0 CLOSING

We trust this due diligence letter meets your requirements. If you have any questions, please do not hesitate to contact the undersigned.

---

**GOLDER ASSOCIATES PTY LTD**

Craig Currie
Environmental Scientist

Ed Clerk
ICMC Lead Auditor and Technical Specialist

GOLDER ASSOCIATES PTY LTD
REFERENCES


Dear Owen

EXECUTIVE SUMMARY

Golder Associates Pty Ltd (Golder) conducted a due diligence of the port of Santos, Brazil during May 2017 on behalf of Orica Australia Pty Ltd (Orica). The assessment was conducted by Ed Clerk who meets the International Cyanide Management Institute’s (ICMI) requirements for a Transport Technical Specialist.

The following items, as detailed in the ICMI’s Auditor Guidance for Use of Cyanide Transportation Verification Protocol (December 2016), were addressed within the due diligence:

- Transport Practice 1.1 (Questions 1-4 and 6)
- Transport Practice 1.5 (Question 1, Items g-i)
- Transport Practice 1.6
- Transport Practice 2.1
- Transport Practice 3.1.

The ICMI’s Auditor Guidance for Use of Cyanide Transportation Verification Protocol (December 2016) was used to conduct the due diligence assessment. It was not possible during this due diligence to physically inspect the port, as such the review was based on information obtained from previous due diligence reviews, ICMI audit reports and publicly available online information.

Golder’s assessment of the port of Santos found no issues of concern in regards to the port’s management of solid sodium cyanide product.

This assessment should not be a final acceptance of the port of Santos for future work; rather it is recommended that Orica continue to review and monitor the port’s performance annually and implement an adaptive management process.
1.0 INTRODUCTION

This letter provides the results of a due diligence assessment against the port of Santos, Brazil, in accordance with the *International Cyanide Management Code for the Manufacture, Transport and Use of Cyanide in the Production of Gold* (ICMC or the Code).

Golder conducted a desktop due diligence assessment of the port of Santos, Brazil during May 2017. The assessment was conducted by Ed Clerk who meets the International Cyanide Management Institute’s (ICMI) requirements for a Transport Technical Specialist.

The following items, as detailed in the ICMI’s *Auditor Guidance for Use of Cyanide Transportation Verification Protocol* (December 2016), were addressed within the due diligence:

- Introduction
- ICMC Transport Verification Protocol Assessment
  - Transport Practice 1.1 (Questions 1-4 and 6)
  - Transport Practice 1.5 (Question 1, Items g-i)
  - Transport Practice 1.6
  - Transport Practice 2.1
  - Transport Practice 3.1.
- Conclusion
- References.

The ICMI’s *Auditor Guidance for Use of Cyanide Transportation Verification Protocol* (December 2016) was used to conduct the due diligence assessment. Due to access restrictions, it was not possible during this due diligence to physically inspect the port of Santos. The due diligence assessment was completed based on information obtained from previous due diligences, ICMI audit reports and publicly available online information.

1.1 Overview of Port of Santos, Brazil

The port of Santos is located in the city of Santos, state of São Paulo, Brazil. As of 2006, it has been the busiest container port in Latin America

Companhia Docas do Estado de São Paulo (CODESP) is the Port Authority for Brazil's Sao Paulo state, where the Santos port is located. Deemed the largest port in Latin America, the complex handles a wide variety of cargo such as solid and liquid bulk, containers and general cargo. CODESP was founded in 1980.

Overview of port operations:

- Port protocols exist for docking of vessels (e.g. use of Pilots, use of tug boats, management of different weather conditions, tides, currents and safety and general port operations). This sees to the safe docking and turnaround of the vessels in and out of the port.
- Entry into port is controlled by the port’s Pilot who understands the port protocols and any unique issues regarding the approach and docking of a vessel at the port. The Ship’s Captain works in conjunction with the Pilot as he understands his vessel and can implement and assist with the Pilot’s instructions.
- The approach of the vessel to the ports will take into any account any channels, special navigation points and as mentioned above the currents, tides and weather.
- Once a vessel is secure alongside the wharf the shipping activities changeover to port activities. The vessels manifest of what containers are required to be unloaded from the vessel, including the manifest for containers for loading are handed over. This manifest will identify hazardous cargos and their UN number and classification and segregation requirements.
The stevedoring services are provided by private third party companies. They manage the onshore (wharf) operations at the dedicated container terminals.

Stevedoring operations include:

- Handling of the containers whether full or empty on and off the vessels; container storage areas for general cargo, port security, control systems for companies and their vehicles collecting and or delivering containers.

- Software programs that control container placement and movement; these software packages identify each individual container placement area in designated stacks. The input information for the placement of containers comes from the vessel’s manifest.

2.0 ICMC TRANSPORT VERIFICATION PROTOCOL ASSESSMENT

The ICMI’s Auditor Guidance for Use of Cyanide Transportation Verification Protocol, General Guidance states:

Except as specifically identified in this Guidance document, the Cyanide Transportation Protocol is not to be used to evaluate transport by rail and ship or management of cyanide at rail terminals and port facilities due to security issues, limited access, and the inability of consignors to affect changes in the operating practices of these transport facilities. Rather than conduct Code audits of these facilities, the consignor must conduct and document due diligence investigations of rail carriers, rail terminals, shipping companies and port facilities that are engaged to handle cyanide shipments, as further discussed below under Transport Practice 1.1. The consignor’s due diligence investigation must either be conducted or reviewed by an auditor meeting ICMI requirements for a transport expert, and the auditor must conclude that the due diligence investigation has reasonably evaluated these facilities and that the consignor has, to the extent practical, implemented any necessary management measures.

Transport Practice 1.1: Select cyanide transport routes to minimise the potential for accidents and releases

The international sales and exports of sodium cyanide by Orica take into consideration the ports and their extended infrastructure available to service the intended target area. Orica only operates in export markets that are serviced by major international shipping companies with the ability to offer scheduled container services from point of origin to destination.

Orica procedure “Selection of Transport Routes – Transportation of Sodium Cyanide to Customer Sites or Stock Points” (Orica ref: UP-GLO-PRO-001-017) aims to minimise the risk associated with the transportation of sodium cyanide while maintaining a safe, reliable, efficient and cost effective delivery system to customer sites and Orica stock points throughout the world. The procedure applies to the selection of delivery routes for Orica sodium cyanide and states that the “selection of route(s) is to be effected by the overall assessment of the risks associated with the utilisation of such route, taking into particular consideration likelihood of an incident occurring and the consequence of such an incident.” This procedure is applicable to all routes used for the transportation of Orica sodium cyanide as well as to Orica’s contracted transportation agencies.

The port is selected on the basis that it is the closest port to the customer and that it meets all reasonable industry standards for safety, security and emergency response.

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

Orica’s manufacturing facility and transfer stations are ICMC certified, sodium cyanide is packaged and transported in accordance with international regulatory standards, such as the United Nations Recommendation on the Transport of Dangerous Goods – Model Regulations, (2005) and National Codes of Practice such as the Australian Code for the Transport of Dangerous Goods by Road or Rail, (2015) thereby meeting the requirements of the political jurisdictions through which the loads will pass.
Orica only operates in export markets that are serviced by major international shipping companies with the ability to offer scheduled container services from point of origin to destination. Orica procedure “Carrier Assessment” (Orica ref: SUP-GLO-PRO-016-008) provides the framework for ensuring that carriers and their contractors are assessed at regular intervals to ensure that, amongst others, storage, safety, security, maintenance and emergency response standards are being maintained. Carriers are required to provide manifest documentation, to satisfy local customs regulations and the requirements of the IMDG Code, to the destination port. This documentation contains a list of the cargo types and in the case of sodium cyanide and any other hazardous cargo the quantity, unique packaging numbers, stowage reference and emergency response procedures.

Brazil is both an IMO Member State (1963) and SOLAS Signatory Nation (1980), thereby requiring the port of Santos to adhere to the international regulations for the transportation and handling of dangerous goods as set out in the IMDG Code (Parts 4, 5 and 7) and SOLAS Convention ((1974) Chapter 7).

**g) Does the ship carrying the cyanide have a list or manifest identifying the presence and location of the cyanide or a detailed stowage plan including this information, as required under Section 5.4.3.1 of the DG Code?**

The Secretariat of Ports of the Presidency (SEP-PR), of the Ministry of Transport, develops and implements policies, statutes and regulations governing the carriage of dangerous goods and other goods by ships in accordance with relative national and international requirements. This includes supervising the safety of ships carrying dangerous goods and other goods, processing declarations made by ships carrying dangerous goods, providing accreditation services for personnel involved in the declaration of dangerous goods and inspection of containers, and inspecting containers holding dangerous goods.

As an IMO Member State and to comply with the IMDG Code, vessels are required to declare dangerous cargo before arriving at or leaving the port, to the relevant port authority. The port of Santos operates under a range of National Acts, Regulations, Decrees and Codes which ensures its compliance with regards to the transportation, handling and storage of dangerous goods.

**h) Does the ship carrying the cyanide have cyanide emergency response information, as required under Section 5.4.3.2 of the DG Code?**

Dangerous goods delivered to or from the port are required to be appropriately manifested, packaged, labelled and placarded. Documentation that accompanies the cyanide throughout transportation by sea and delivery at ports includes emergency response information along with the dangerous goods manifest, packing certificates and Multimodal Dangerous Goods Form.

Emergency response procedures for ships carrying dangerous goods, including the emergency schedules to be followed in case of incidents involving dangerous substances, materials or articles, or harmful substances (marine pollutants), is regulated under the IMDG Code. In accordance with the Code, all ships, and the companies responsible for their operation, are required to maintain a Safety Management System (SMS). Within the SMS, procedures for responding to potential shipboard emergencies are required.

Port operations personnel provide the vessel’s Master with copies of the Emergency Information, Dangerous Goods manifest (including stowage plan) and Packaging Certificates for each hazardous cargo transport units loaded onto the ship at the port of origin.

The Brazilian Federal Decree 96044/88 (Transport of Dangerous Goods) of May 18, 1988 and Resolution 44/2007 of CODESP (regulates the movement of dangerous goods) also all apply.

**i) Does the ship comply with the stowage and separation requirements of Part 7 of the DG Code?**

Dangerous goods are handled and stored in accordance with current legislation, including the IMDG Code, Brazilian Federal Decree 96044/88 (Transport of Dangerous Goods) of May 18, 1988, Resolution 420/04 Of the National Agency for Land Transport, Resolution 2239 of September 15, 2011 of the National Agency of Waterway Transport – Antaq, Regulatory Norms 20 and 29 of the Ministry of Labor and Employment and Resolution 44/2007 of CODESP (regulates the movement of dangerous goods).

Vessels are required to declare dangerous cargo before arriving at or leaving the port, additionally, all cargo listed on the dangerous cargo manifest must be stowed and handled as prescribed by its UN number and dangerous goods class.
The port of Santos primarily aims to have dangerous cargo placed directly onto an onward form of transportation and removed from the facility under controlled circumstances. However, when this cannot occur, Santos has a dedicated storage area for specialised products including dangerous goods; cyanide containers are segregated and stacked separately according to the class and type of product as recommended by the IMDG Code and the Brazilian National Regulation NR 29 (Health and Safety at Docks-Annex 5 Dangerous Goods, Annex 7 Declaration of Dangerous Goods and Annex 9 Segregation Table for Dangerous Goods). All sodium cyanide remains packaged within its sealed container at all times.

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

The Dispatch Centre organises ship movements, tracks pilotage operations, and supervises terminal operations via real-time CCTV monitoring.

Chain of custody documentation is used by shipping companies to prevent the loss of cargo during shipment. This documentation includes the vessel manifest – which identifies the location and content of each container on the vessel along with packing certificates, Multimodal Dangerous Goods Forms and Material Safety Data Sheets (MSDS).

When cargo is discharged, the stevedores check the security seals against the manifest and discharge paperwork. If the seals do not match, the cargo owner is notified. Clerks match up paperwork with what has been discharged against the vessel manifests.

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

Relevant warning signage is provided at the port of Santos. Containers are placarded in accordance with the requirements of the IMDG Code labelling requirements displaying the relevant warning and safety detail.

Sodium cyanide is not stored at the port of Santos. Containers on arrival, after appropriate customs and country relevant quarantine clearances, are collected by the transport organisation operating on behalf of the end destination user and transported under suitable convoy conditions.

Whilst containers of sodium cyanide are in the port environs, temporary signage is provided warning that smoking, open flames and eating or drinking in the vicinity are prohibited. Containers on arrival and awaiting clearances are held in the open with relevant segregation to prevent the possible build-up of hydrogen cyanide gas. A wind sock is located in the area to provide wind direction information.

Mandatory personal protective equipment requirements are in place at the port of Santos which require the wearing of protective footwear, appropriate clothing with high visibility capability and safety helmet in specific areas. Personal protective equipment requirements are covered under the port’s basic induction processes.

Port management regularly conduct spot checks on ports areas for compliance of personal protective equipment standards.

The port of Santos is ISPS (International Ship and Port Security) certified. The port has its own security procedures in place with a 24-hour, 7-day security presence.

On collection of shipping containers from the port after clearances have been completed, drivers are required to produce their documentation at the port security checkpoint for cross checking by security personnel prior to leaving the port.

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

The port of Santos is certified under the IMO’s International Convention on Oil Pollution Preparedness, Response and Cooperation 1990 (OPRC 90). States which are party to OPRC 90 protocol are required to establish a national system for responding to oil and hazardous/noxious substances pollution incidents, including a designated national authority, a national operational contact point and a national contingency plan. This needs to be supported by a minimum level of response equipment, communications plans, regular training and exercises.

The Federal Environmental Agency is the competent authority and administers the National Contingency Plan (NCP) for dealing with pollution by oil and other noxious substances in marine and freshwater environments.
Environmental Law No. 9966 establishes the national rules regarding oil spills and other harmful substances. This law requires each privately operated terminal to formulate an Individual Emergency Program (Programa de Emergência Individual – PEI) that is fit for the individual demands and cargo requirements. This program seeks to provide a quick response in case of accidents, protecting both the environment and the port facilities.

The Federal Environmental Agency, with the support of private operators, manages the response to and monitoring of a Hazardous and Noxious Substances (HNS) incident and some equipment is readily available (such as PPE, respirators, pumps, power packs and air monitoring equipment).

3.0 CONCLUSION

Based on the evidence reviewed, this due diligence did not find significant issues of concern in regards to the port of Santos’s management of solid sodium cyanide product. It was not possible during this due diligence to physically inspect the port, as such the review was based on information obtained from previous due diligence reviews, ICMI audit reports and publicly available online information. The Auditor recommends that Orica undertakes annual reviews at the port to monitor the management of dangerous goods.

This assessment should not be a final acceptance of the port of Santos for future work; rather it is recommended that Orica continue to review and monitor the port’s performance annually and implement an adaptive management process.

4.0 CLOSING

We trust this due diligence letter meets your requirements. If you have any questions, please do not hesitate to contact the undersigned.

GOLDER ASSOCIATES PTY LTD

Craig Currie
Environmental Scientist

Ed Clerk
ICMC Lead Auditor and Technical Specialist

CC/EWC/hsl
REFERENCES


Orica (2013). Due Diligence Review- Port of Santos, Brazil. Reviewed and updated 18 September 2013.


EXECUTIVE SUMMARY

Golder Associates Pty Ltd (Golder) conducted a due diligence of the port of Puerto Angamos, Chile during May 2017 on behalf of Orica Australia Pty Ltd (Orica). The assessment was conducted by Ed Clerk who meets the International Cyanide Management Institute’s (ICMI) requirements for a Transport Technical Specialist.

The following items, as detailed in the ICMI’s Auditor Guidance for Use of Cyanide Transportation Verification Protocol (December 2016), were addressed within the due diligence:

- Transport Practice 1.1 (Questions 1-4 and 6)
- Transport Practice 1.5 (Question 1, Items g-i)
- Transport Practice 1.6
- Transport Practice 2.1
- Transport Practice 3.1.

The ICMI’s Auditor Guidance for Use of Cyanide Transportation Verification Protocol (December 2016) was used to conduct the due diligence assessment. It was not possible during this due diligence to physically inspect the port, as such the review was based on information obtained from previous due diligence reviews, ICMI audit reports and publicly available online information.

Golder’s assessment of the port of Puerto Angamos found no issues of concern in regards to the port’s management of solid sodium cyanide product.

This assessment should not be a final acceptance of the port of Puerto Angamos for future work; rather it is recommended that Orica continue to review and monitor the port’s performance annually and implement an adaptive management process.
1.0 INTRODUCTION

This letter provides the results of a due diligence assessment against the port of Puerto Angamos, Chile, in accordance with the International Cyanide Management Code for the Manufacture, Transport and Use of Cyanide in the Production of Gold (ICMC or the Code).

Golder conducted a desktop due diligence assessment of the port of Puerto Angamos, Chile during May 2017. The assessment was conducted by Ed Clerk who meets the International Cyanide Management Institute’s (ICMI) requirements for a Transport Technical Specialist.

The following items, as detailed in the ICMI's Auditor Guidance for Use of Cyanide Transportation Verification Protocol (December 2016), were addressed within the due diligence:

- Introduction
- ICMC Transport Verification Protocol Assessment
  - Transport Practice 1.1 (Questions 1-4 and 6)
  - Transport Practice 1.5 (Question 1, Items g-i)
  - Transport Practice 1.6
  - Transport Practice 2.1
  - Transport Practice 3.1.
- Conclusion
- References.

The ICMI’s Auditor Guidance for Use of Cyanide Transportation Verification Protocol (December 2016) was used to conduct the due diligence assessment. Due to access restrictions, it was not possible during this due diligence to physically inspect the port of Puerto Angamos. The due diligence assessment was completed based on information obtained from previous due diligences, ICMI audit reports and publicly available online information.

1.1 Overview of Port of Puerto Angamos, Chile

Puerto Angamos is located in the heart of the mining region of Chile, in the commune of Mejillones approximately 1400 km from Santiago and only 65 km from Antofagasta.

The port is situated close to the most important copper district in the world, where there are several world-renown mining operations such as Chuquicamata, Escondida, Spence, Radomiro Tomic, El Abra and El Tesoro, among others. Angamos has fast access by train and truck connecting the main mining operations of Chile, Argentina and Bolivia, with the port without the need to cross through densely populated areas.

The port has a multi-purpose, mono-operated terminal with four berths, maximum draft is 13.7 meters and there is capacity to receive ships of up to 155 thousand tonnes of displacement and 366 meters in length. Extensive storage capacity exists on site for containers, general/special cargo and bulk goods, as well as good interconnectivity options for transhipment via rail or road.

The Bay of Mejillones offers natural protection that provides exceptional conditions for most of the year against the tides coming from the south of the country. Meanwhile, its deep waters ensure availability to larger vessels and the ability to work safely.

In Chile, port governance is influenced by a wide number of stakeholders – more than 30 organisations deal with the regulation of the port system. The main entities likely to generate or influence port policies include five ministries, these being: The Ministry of Transport and Telecommunication, The Ministry of Public Works, The Ministry of Defence, The Ministry of Finance and The Ministry of National Assets.

Overview of port operations:

- Port protocols exist for docking of vessels (e.g. use of Pilots, use of tug boats, management of different weather conditions, tides, currents and safety and general port operations). This sees to the safe docking and turnaround of the vessels in and out of the port.
Entry into port is controlled by the port’s Pilot who understands the port protocols and any unique
issues regarding the approach and docking of a vessel at the port. The Ship’s Captain works in
conjunction with the Pilot as he understands his vessel and can implement and assist with the Pilot’s
instructions.

The approach of the vessel to the ports will take into any account any channels, special navigation
points and as mentioned above the currents, tides and weather.

Once a vessel is secure alongside the wharf the shipping activities changeover to port activities. The
vessels manifest of what containers are required to be unloaded from the vessel, including the manifest
for containers for loading are handed over. This manifest will identify hazardous cargos and their UN
number and classification and segregation requirements.

Third party stevedores manage the onshore (wharf) operations at the dedicated container terminal.

Stevedoring operations include:

- Handling of the containers whether full or empty on and off the vessels; container storage areas for
general cargo, port security, control systems for companies and their vehicles collecting and or
delivering containers.

- Software programs that control container placement and movement; these software packages identify
each individual container placement area in designated stacks. The input information for the placement
of containers comes from the vessel’s manifest.

Containers of dangerous goods discharged by vessels at the terminal are currently placed directly onto
onward forms of ICMC accredited transportation and removed from the port area.

2.0 ICMC TRANSPORT VERIFICATION PROTOCOL ASSESSMENT

The ICMI’s Auditor Guidance for Use of Cyanide Transportation Verification Protocol, General Guidance
states:

*Except as specifically identified in this Guidance document, the Cyanide Transportation Protocol is not to
be used to evaluate transport by rail and ship or management of cyanide at rail terminals and port
facilities due to security issues, limited access, and the inability of consignors to affect changes in the
operating practices of these transport facilities. Rather than conduct Code audits of these facilities, the
consignor must conduct and document due diligence investigations of rail carriers, rail terminals,
shipping companies and port facilities that are engaged to handle cyanide shipments, as further
discussed below under Transport Practice 1.1. The consignor’s due diligence investigation must either
be conducted or reviewed by an auditor meeting ICMI requirements for a transport expert, and the
auditor must conclude that the due diligence investigation has reasonably evaluated these facilities and
that the consignor has, to the extent practical, implemented any necessary management measures.*

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

The international sales and exports of sodium cyanide by Orica take into consideration the ports and their
extended infrastructure available to service the intended target area. Orica only operates in export markets
that are serviced by major international shipping companies with the ability to offer scheduled container
services from point of origin to destination.

Orica procedure “Selection of Transport Routes – Transportation of Sodium Cyanide to Customer Sites or
Stock Points” (Orica ref: UP-GLO-PRO-001-017) aims to minimise the risk associated with the transportation
of sodium cyanide while maintaining a safe, reliable, efficient and cost effective delivery system to customer
sites and Orica stock points throughout the world. The procedure applies to the selection of delivery routes
for Orica sodium cyanide and states that the “selection of route(s) is to be effected by the overall assessment
of the risks associated with the utilisation of such route, taking into particular consideration likelihood of an
incident occurring and the consequence of such an incident.” This procedure is applicable to all routes used
for the transportation of Orica sodium cyanide as well as to Orica’s contracted transportation agencies.
The port is selected on the basis that it is the closest port to the customer and that it meets all reasonable industry standards for safety, security and emergency response.

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

Orica’s manufacturing facility and transfer stations are ICMC certified, sodium cyanide is packaged and transported in accordance with international regulatory standards, such as the United Nations Recommendation on the Transport of Dangerous Goods – Model Regulations, (2005) and National Codes of Practice such as the Australian Code for the Transport of Dangerous Goods by Road or Rail, (2015) thereby meeting the requirements of the political jurisdictions through which the loads will pass.

Orica only operates in export markets that are serviced by major international shipping companies with the ability to offer scheduled container services from point of origin to destination. Orica procedure “Carrier Assessment” (Orica ref: SUP-GLO-PRO-016-008) provides the framework for ensuring that carriers and their contractors are assessed at regular intervals to ensure that, amongst others, storage, safety, security, maintenance and emergency response standards are being maintained. Carriers are required to provide manifest documentation, to satisfy local customs regulations and the requirements of the IMDG Code, to the destination port. This documentation contains a list of the cargo types and in the case of sodium cyanide and any other hazardous cargo the quantity, unique packaging numbers, stowage reference and emergency response procedures.

Chile is both an IMO Member State (1972) and SOLAS Signatory Nation (1980), thereby requiring the port of Punta Arenas to adhere to the international regulations for the transportation and handling of dangerous goods as set out in the IMDG Code (Parts 4, 5 and 7) and SOLAS Convention ((1974) Chapter 7).

**g) Does the ship carrying the cyanide have a list or manifest identifying the presence and location of the cyanide or a detailed stowage plan including this information, as required under Section 5.4.3.1 of the DG Code?**

The Ministry of Transport and Telecommunications (MTT) and develops and implements policies, statutes and regulations governing the carriage of dangerous goods and other goods by ships in accordance with relative national and international requirements. This includes supervising the safety of ships carrying dangerous goods and other goods, processing declarations made by ships carrying dangerous goods, providing accreditation services for personnel involved in the declaration of dangerous goods and inspection of containers, and inspecting containers holding dangerous goods.

*Articles 4 and 5 of the Chilean Regulation Rules of Reception and Ship Dispatch* address the requirements for dangerous goods declarations and stowage information that is to be provided to Port Authorities prior to a vessel’s arrival. They state that information on dangerous goods, including tonnage, packing conditions and locations of those that are to be offloaded or loaded, or those that are to remain on board is to be provided in separate documentation to the main shipping manifest to Port Authorities prior to the vessel’s arrival.

Other Regulations, Codes and Decrees include *Safety Regulation for the Handling of Explosives and Other Hazardous Goods in Ports*, *Supreme Decree (DS) No. 298, of 1994 for the transport of dangerous goods* and (procedures) *Hazardous Goods Control and Approval and Certification of Packaging and Containers for Bulk Goods Carried in the Maritime Transport of Dangerous Goods*.

**h) Does the ship carrying the cyanide have cyanide emergency response information, as required under Section 5.4.3.2 of the DG Code?**

Dangerous goods delivered to or from the port are required to be appropriately manifested, packaged, labelled and placarded. Documentation that accompanies the cyanide throughout transportation by sea and delivery at ports includes emergency response information along with the dangerous goods manifest, packing certificates and Multimodal Dangerous Goods Form.

Emergency response procedures for ships carrying dangerous goods, including the emergency schedules to be followed in case of incidents involving dangerous substances, materials or articles, or harmful substances (marine pollutants), is regulated under the IMDG Code. In accordance with the Code, all ships, and the companies responsible for their operation, are required to maintain a Safety Management System (SMS). Within the SMS, procedures for responding to potential shipboard emergencies are required.
Port operations personnel provide the vessel's Master with copies of the Emergency Information, Dangerous Goods manifest (including stowage plan) and Packaging Certificates for each hazardous cargo transport units loaded onto the ship at the port of origin.

**i) Does the ship comply with the stowage and separation requirements of Part 7 of the DG Code?**

The port of Puerto Angamos operates under Chilean maritime Law, Codes, Regulations and Decrees that govern dangerous goods handling and transportation.


The port of Puerto Angamos aims to have dangerous cargo placed directly onto a trailer and removed from the facility via an ICMI certified transporter, and under escort of the Port Authority. However, when this cannot occur, the port has a dedicated storage area for specialised products including dangerous goods; cyanide containers are segregated and stacked separately according the provisions of the Code and all sodium cyanide remains sealed within its container at all times.

As a member of the IMO and to comply with the IMDG Code and Regulations above, vessels are required to declare dangerous cargo before arriving at or leaving the port, additionally, all cargo listed on the dangerous cargo manifest must be stowed and handled as prescribed by its UN number and dangerous goods class.

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

The Dispatch Centre organises ship movements, tracks pilotage operations, and supervises terminal operations via real-time CCTV monitoring.

Chain of custody documentation is used by shipping companies to prevent the loss of cargo during shipment. This documentation includes the vessel manifest – which identifies the location and content of each container on the vessel along with packing certificates, Multimodal Dangerous Goods Forms and Material Safety Data Sheets (MSDS).

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

In general, port and vessel security are managed through the International Ship and Port Facility Security Code (ISPS Code). The ISPS Code is a comprehensive set of measures to enhance security of ships and port facilities.

The purpose of the ISPS Code is to provide a standardised, consistent framework for evaluating risk, enabling Governments to offset changes in threat with changes in vulnerability for ships and port facilities through determination of appropriate security levels and corresponding security measures. The ISPS Code takes the approach that ensuring the security of ships and port facilities is a risk management activity and that, to determine what security measures are appropriate, an assessment of the risks must be made in each particular case.

The port of Puerto Angamos aims to have dangerous cargo placed directly onto a trailer and removed from the facility via an ICMI certified transporter, and under escort of the Port Authority. However, when this cannot occur, the port has a dedicated storage area for specialised products including dangerous goods; cyanide containers are segregated and stacked separately according the provisions of the Code and all sodium cyanide remains sealed within its container at all times preventing contact with water and other incompatible materials.

In 2013, Puerto Angamos reaffirmed its commitment to safety, security, protection of the Environment and the occupational health of its workers through obtaining the certification of the ISPS code, and international standards ISO 9001, 14001 and OHSAS 18001.
Transport Practice 3.1: Prepare detailed emergency response plans for potential cyanide releases

The port of Puerto Angamos is certified under the IMO’s International Convention on Oil Pollution Preparedness, Response and Cooperation 1990 (OPRC 90). States which are party to OPRC 90 protocol are required to establish a national system for responding to oil and hazardous/noxious substances pollution incidents, including a designated national authority, a national operational contact point and a national contingency plan. This needs to be supported by a minimum level of response equipment, communications plans, regular training and exercises.

Responsibility for marine pollution rests with the Department for Territorial Waters and Merchant Marine (DGTMMM), a branch of the Chilean Navy. Responsibility is delegated to 16 Maritime governing regions and to the 57 Captains of the Port located at the main ports. The Chilean National Contingency Plan embodies five Regional Contingency Plans covering the entire length of the Chilean coastline. Each region has a Coordination Centre.

The responsibility for Hazardous and Noxious Substance (HNS) response would fall to the DGTMMM and would follow the same procedures as oil spill response. A national contingency plan for HNS incidents is currently being drafted by the authorities. Some private port facilities already have approved contingency plans for HNS on a local and regional scale. Available oil spill response equipment would also be used for HNS incidents.

3.0 CONCLUSION

Based on the evidence reviewed, this due diligence did not find significant issues of concern in regards to the port of Puerto Angamos’s management of solid sodium cyanide product. It was not possible during this due diligence to physically inspect the port, as such the review was based on information obtained from previous due diligence reviews, ICMI audit reports and publicly available online information. The Auditor recommends that Orica undertakes annual reviews at the port to monitor the management of dangerous goods.

This assessment should not be a final acceptance of the port of Puerto Angamos for future work; rather it is recommended that Orica continue to review and monitor the port’s performance annually and implement an adaptive management process.

4.0 CLOSING

We trust this due diligence letter meets your requirements. If you have any questions, please do not hesitate to contact the undersigned.

GOLDER ASSOCIATES PTY LTD

Craig Currie
Environmental Scientist

Ed Clerk
ICMC Lead Auditor and Technical Specialist

CC/EWC/hsI
REFERENCES
Puerto Angamos, Mejillones – Chile. Certifications. Available at: https://www.puertoangamos.cl/el-puerto/certificaciones Accessed 31 May 2017
Puerto Angamos, Mejillones – Chile. Infrastructure. Available at: https://www.puertoangamos.cl/el-puerto/caracter%C3%ADsticas Accessed 31 May 2017
EXECUTIVE SUMMARY

Golder Associates Pty Ltd (Golder) conducted a due diligence of the port of Punta Arenas, Chile during May 2017 on behalf of Orica Australia Pty Ltd (Orica). The assessment was conducted by Ed Clerk who meets the International Cyanide Management Institute’s (ICMI) requirements for a Transport Technical Specialist.

The following items, as detailed in the ICMI’s Auditor Guidance for Use of Cyanide Transportation Verification Protocol (December 2016), were addressed within the due diligence:

- Transport Practice 1.1 (Questions 1-4 and 6)
- Transport Practice 1.5 (Question 1, Items g-i)
- Transport Practice 1.6
- Transport Practice 2.1
- Transport Practice 3.1.

The ICMI’s Auditor Guidance for Use of Cyanide Transportation Verification Protocol (December 2016) was used to conduct the due diligence assessment. It was not possible during this due diligence to physically inspect the port, as such the review was based on information obtained from previous due diligence reviews, ICMI audit reports and publicly available online information.

Golder’s assessment of the port of Punta Arenas found no issues of concern in regards to the port’s management of solid sodium cyanide product.

This assessment should not be a final acceptance of the port of Punta Arenas for future work; rather it is recommended that Orica continue to review and monitor the port’s performance annually and implement an adaptive management process.
1.0 INTRODUCTION

This letter provides the results of a due diligence assessment against the port of Punta Arenas, Chile, in accordance with the *International Cyanide Management Code for the Manufacture, Transport and Use of Cyanide in the Production of Gold* (ICMC or the Code).

Golder conducted a desktop due diligence assessment of the port of Punta Arenas, Chile during May 2017. The assessment was conducted by Ed Clerk who meets the International Cyanide Management Institute’s (ICMI) requirements for a Transport Technical Specialist.

The following items, as detailed in the ICMI’s *Auditor Guidance for Use of Cyanide Transportation Verification Protocol* (December 2016), were addressed within the due diligence:

- Introduction
- ICMC Transport Verification Protocol Assessment
  - Transport Practice 1.1 (Questions 1-4 and 6)
  - Transport Practice 1.5 (Question 1, Items g-i)
  - Transport Practice 1.6
  - Transport Practice 2.1
  - Transport Practice 3.1.
- Conclusion
- References.

The ICMI’s *Auditor Guidance for Use of Cyanide Transportation Verification Protocol* (December 2016) was used to conduct the due diligence assessment. Due to access restrictions, it was not possible during this due diligence to physically inspect the port of Puntas Arenas. The due diligence assessment was completed based on information obtained from previous due diligences, ICMI audit reports and publicly available online information.

1.1 Overview of Port of Punta Arenas, Chile

The port of Punta Arenas is located in Southern Chile, in the XII Region on the border of the Magellan Strait. The port of Punta Arenas is operated by Empresa Portuaria Austral which is a Chilean Government Enterprise.

In Chile, port governance is influenced by a wide number of stakeholders – more than 30 organisations deal with the regulation of the port system. The main entities likely to generate or influence port policies include five ministries, these being: The Ministry of Transport and Telecommunication, The Ministry of Public Works, The Ministry of Defence, The Ministry of Finance and The Ministry of National Assets.

Overview of port operations:

- Port protocols exist for docking of vessels (e.g. use of Pilots, use of tug boats, management of different weather conditions, tides, currents and safety and general port operations). This sees to the safe docking and turnaround of the vessels in and out of the port.
- Entry into port is controlled by the port’s Pilot who understands the port protocols and any unique issues regarding the approach and docking of a vessel at the port. The Ship’s Captain works in conjunction with the Pilot as he understands his vessel and can implement and assist with the Pilot’s instructions.
- The approach of the vessel to the ports will take into any account any channels, special navigation points and as mentioned above the currents, tides and weather.
- Once a vessel is secure alongside the wharf the shipping activities changeover to port activities. The vessels manifest of what containers are required to be unloaded from the vessel, including the manifest for containers for loading are handed over. This manifest will identify hazardous cargos and their UN number and classification and segregation requirements.
Third party stevedores manage the onshore (wharf) operations at the dedicated container terminal. This is the terminal currently used by other ICMI accredited transporters to facilitate the unloading of their vessels.

Stevedoring operations include:

- Handling of the containers whether full or empty on and off the vessels; container storage areas for general cargo, port security, control systems for companies and their vehicles collecting and or delivering containers.

- Software programs that control container placement and movement; these software packages identify each individual container placement area in designated stacks. The input information for the placement of containers comes from the vessel’s manifest.

Containers of dangerous goods discharged by vessels at the terminal are currently placed directly onto onward forms of ICMI accredited transportation and removed from the port area.

2.0 ICMC TRANSPORT VERIFICATION PROTOCOL ASSESSMENT

The ICMI's Auditor Guidance for Use of Cyanide Transportation Verification Protocol, General Guidance states:

*Except as specifically identified in this Guidance document, the Cyanide Transportation Protocol is not to be used to evaluate transport by rail and ship or management of cyanide at rail terminals and port facilities due to security issues, limited access, and the inability of consignors to affect changes in the operating practices of these transport facilities. Rather than conduct Code audits of these facilities, the consignor must conduct and document due diligence investigations of rail carriers, rail terminals, shipping companies and port facilities that are engaged to handle cyanide shipments, as further discussed below under Transport Practice 1.1. The consignor’s due diligence investigation must either be conducted or reviewed by an auditor meeting ICMI requirements for a transport expert, and the auditor must conclude that the due diligence investigation has reasonably evaluated these facilities and that the consignor has, to the extent practical, implemented any necessary management measures.*

Transport Practice 1.1: Select cyanide transport routes to minimise the potential for accidents and releases

The international sales and exports of sodium cyanide by Orica take into consideration the ports and their extended infrastructure available to service the intended target area. Orica only operates in export markets that are serviced by major international shipping companies with the ability to offer scheduled container services from point of origin to destination.

Orica procedure “Selection of Transport Routes – Transportation of Sodium Cyanide to Customer Sites or Stock Points” (Orica ref: UP-GLO-PRO-001-017) aims to minimise the risk associated with the transportation of sodium cyanide while maintaining a safe, reliable, efficient and cost effective delivery system to customer sites and Orica stock points throughout the world. The procedure applies to the selection of delivery routes for Orica sodium cyanide and states that the “selection of route(s) is to be effected by the overall assessment of the risks associated with the utilisation of such route, taking into particular consideration likelihood of an incident occurring and the consequence of such an incident.” This procedure is applicable to all routes used for the transportation of Orica sodium cyanide as well as to Orica’s contracted transportation agencies.

The port is selected on the basis that it is the closest port to the customer and that it meets all reasonable industry standards for safety, security and emergency response.

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

Orica’s manufacturing facility and transfer stations are ICMC certified, sodium cyanide is packaged and transported in accordance with international regulatory standards, such as the United Nations Recommendation on the Transport of Dangerous Goods – Model Regulations, (2005) and National Codes of Practice such as the Australian Code for the Transport of Dangerous Goods by Road or Rail, (2015) thereby meeting the requirements of the political jurisdictions through which the loads will pass.
Orica only operates in export markets that are serviced by major international shipping companies with the ability to offer scheduled container services from point of origin to destination. Orica procedure “Carrier Assessment” (Orica ref: SUP-GLO-PRO-016-008) provides the framework for ensuring that carriers and their contractors are assessed at regular intervals to ensure that, amongst others, storage, safety, security, maintenance and emergency response standards are being maintained. Carriers are required to provide manifest documentation, to satisfy local customs regulations and the requirements of the IMDG Code, to the destination port. This documentation contains a list of the cargo types and in the case of sodium cyanide and any other hazardous cargo the quantity, unique packaging numbers, stowage reference and emergency response procedures.

Chile is both an IMO Member State (1972) and SOLAS Signatory Nation (1980), thereby requiring the port of Punta Arenas to adhere to the international regulations for the transportation and handling of dangerous goods as set out in the IMDG Code (Parts 4, 5 and 7) and SOLAS Convention ((1974) Chapter 7).

**g) Does the ship carrying the cyanide have a list or manifest identifying the presence and location of the cyanide or a detailed stowage plan including this information, as required under Section 5.4.3.1 of the DG Code?**

The Ministry of Transport and Telecommunications (MTT) and develops and implements policies, statutes and regulations governing the carriage of dangerous goods and other goods by ships in accordance with relative national and international requirements. This includes supervising the safety of ships carrying dangerous goods and other goods, processing declarations made by ships carrying dangerous goods, providing accreditation services for personnel involved in the declaration of dangerous goods and inspection of containers, and inspecting containers holding dangerous goods.

*Articles 4 and 5 of the Chilean Regulation Rules of Reception and Ship Dispatch address the requirements for dangerous goods declarations and stowage information that is to be provided to Port Authorities prior to a vessel’s arrival. They state that information on dangerous goods, including tonnage, packing conditions and locations of those that are to be offloaded or loaded, or those that are to remain on board is to be provided in separate documentation to the main shipping manifest to Port Authorities prior to the vessel’s arrival.*

Other Regulations, Codes and Decrees include *Safety Regulation for the Handling of Explosives and Other Hazardous Goods in Ports*, *Supreme Decree (DS) No. 298, of 1994 for the transport of dangerous goods* and (procedures) *Hazardous Goods Control and Approval and Certification of Packaging and Containers for Bulk Goods Carried in the Maritime Transport of Dangerous Goods*.

**h) Does the ship carrying the cyanide have cyanide emergency response information, as required under Section 5.4.3.2 of the DG Code?**

Dangerous goods delivered to or from the port are required to be appropriately manifested, packaged, labelled and placarded. Documentation that accompanies the cyanide throughout transportation by sea and delivery at ports includes emergency response information along with the dangerous goods manifest, packing certificates and Multimodal Dangerous Goods Form.

Emergency response procedures for ships carrying dangerous goods, including the emergency schedules to be followed in case of incidents involving dangerous substances, materials or articles, or harmful substances (marine pollutants), is regulated under the IMDG Code. In accordance with the Code, all ships, and the companies responsible for their operation, are required to maintain a Safety Management System (SMS). Within the SMS, procedures for responding to potential shipboard emergencies are required.

Port operations personnel provide the vessel’s Master with copies of the Emergency Information, Dangerous Goods manifest (including stowage plan) and Packaging Certificates for each hazardous cargo transport units loaded onto the ship at the port of origin.

**i) Does the ship comply with the stowage and separation requirements of Part 7 of the DG Code?**

The port of Punta Arenas operates under Chilean maritime Law, Codes, Regulations and Decrees that govern dangerous goods handling and transportation.

The port of Punta Arenas aims to have dangerous cargo placed directly onto a trailer and removed from the facility via an ICMI certified transporter, and under escort of the Port Authority. However, when this cannot occur, the port has a dedicated storage area for specialised products including dangerous goods; cyanide containers are segregated and stacked separately according the provisions of the Code and all sodium cyanide remains sealed within its container at all times.

As a member of the IMO and to comply with the IMDG Code and Regulations above, vessels are required to declare dangerous cargo before arriving at or leaving the port, additionally, all cargo listed on the dangerous cargo manifest must be stowed and handled as prescribed by its UN number and dangerous goods class.

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

The Dispatch Centre organises ship movements, tracks pilotage operations, and supervises terminal operations via real-time CCTV monitoring.

Chain of custody documentation is used by shipping companies to prevent the loss of cargo during shipment. This documentation includes the vessel manifest – which identifies the location and content of each container on the vessel along with packing certificates, Multimodal Dangerous Goods Forms and Material Safety Data Sheets (MSDS).

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

In general, port and vessel security are managed through the International Ship and Port Facility Security Code (ISPS Code). The ISPS Code is a comprehensive set of measures to enhance security of ships and port facilities.

The purpose of the ISPS Code is to provide a standardised, consistent framework for evaluating risk, enabling Governments to offset changes in threat with changes in vulnerability for ships and port facilities through determination of appropriate security levels and corresponding security measures. The ISPS Code takes the approach that ensuring the security of ships and port facilities is a risk management activity and that, to determine what security measures are appropriate, an assessment of the risks must be made in each particular case.

The port of Punta Arenas aims to have dangerous cargo placed directly onto a trailer and removed from the facility via an ICMI certified transporter, and under escort of the Port Authority. However, when this cannot occur, the port has a dedicated storage area for specialised products including dangerous goods; cyanide containers are segregated and stacked separately according the provisions of the Code and all sodium cyanide remains sealed within its container at all times preventing contact with water and other incompatible materials.

The port has full CCTV coverage, is fully lit at night and the whole of the port area has controlled access.

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

The port of Punta Arenas is certified under the IMO’s International Convention on Oil Pollution Preparedness, Response and Cooperation 1990 (OPRC 90). States which are party to OPRC 90 protocol are required to establish a national system for responding to oil and hazardous/noxious substances pollution incidents, including a designated national authority, a national operational contact point and a national contingency plan. This needs to be supported by a minimum level of response equipment, communications plans, regular training and exercises.

Responsibility for marine pollution rests with the Department for Territorial Waters and Merchant Marine (DGTM), a branch of the Chilean Navy. Responsibility is delegated to 16 Maritime governing regions and to the 57 Captains of the Port located at the main ports. The Chilean National Contingency Plan embodies five Regional Contingency Plans covering the entire length of the Chilean coastline. Each region has a Coordination Centre, Punta Arenas is one such centre.
The responsibility for Hazardous and Noxious Substance (HNS) response would fall to the DGTMMM and would follow the same procedures as oil spill response. A national contingency plan for HNS incidents is currently being drafted by the authorities. Some private port facilities already have approved contingency plans for HNS on a local and regional scale. Available oil spill response equipment would also be used for HNS incidents.

3.0 CONCLUSION

Based on the evidence reviewed, this due diligence did not find significant issues of concern in regards to the port of Punta Arenas’ management of solid sodium cyanide product. It was not possible during this due diligence to physically inspect the port, as such the review was based on information obtained from previous due diligence reviews, ICMI audit reports and publicly available online information. The Auditor recommends that Orica undertakes annual reviews at the port to monitor the management of dangerous goods.

This assessment should not be a final acceptance of the port of Punta Arenas for future work; rather it is recommended that Orica continue to review and monitor the port’s performance annually and implement an adaptive management process.

4.0 CLOSING

We trust this due diligence letter meets your requirements. If you have any questions, please do not hesitate to contact the undersigned.

GOLDER ASSOCIATES PTY LTD

Craig Currie
Environmental Scientist

Ed Clerk
ICMC Lead Auditor and Technical Specialist

CC/EWC/hsl
REFERENCES


CSBP (2015). Due Diligence Review of the Port of Punta Arenas, Chile.


ICMC DUE DILIGENCE ASSESSMENT FOR THE PORT OF VERACRUZ

Dear Owen

EXECUTIVE SUMMARY

Golder Associates Pty Ltd (Golder) conducted a due diligence of the port of Veracruz, Mexico during May 2017 on behalf of Orica Australia Pty Ltd (Orica). The assessment was conducted by Ed Clerk who meets the International Cyanide Management Institute’s (ICMI) requirements for a Transport Technical Specialist.

The following items, as detailed in the ICMI’s Auditor Guidance for Use of Cyanide Transportation Verification Protocol (December 2016), were addressed within the due diligence:

- Transport Practice 1.1 (Questions 1-4 and 6)
- Transport Practice 1.5 (Question 1, Items g-i)
- Transport Practice 1.6
- Transport Practice 2.1
- Transport Practice 3.1.

The ICMI’s Auditor Guidance for Use of Cyanide Transportation Verification Protocol (December 2016) was used to conduct the due diligence assessment. It was not possible during this due diligence to physically inspect the port, as such the review was based on information obtained from previous due diligence reviews, ICMI audit reports and publicly available online information.

Golder’s assessment of the port of Veracruz found no issues of concern in regards to the port’s management of solid sodium cyanide product.

This assessment should not be a final acceptance of the port of Veracruz for future work; rather it is recommended that Orica continue to review and monitor the port’s performance annually and implement an adaptive management process.
1.0 INTRODUCTION

This letter provides the results of a due diligence assessment against the port of Veracruz, Mexico, in accordance with the International Cyanide Management Code for the Manufacture, Transport and Use of Cyanide in the Production of Gold (ICMC or the Code).

Golder conducted a desktop due diligence assessment of the port of Veracruz, Mexico during May 2017. The assessment was conducted by Ed Clerk who meets the International Cyanide Management Institute’s (ICMI) requirements for a Transport Technical Specialist.

The following items, as detailed in the ICMI’s Auditor Guidance for Use of Cyanide Transportation Verification Protocol (December 2016), were addressed within the due diligence:

- Introduction
- ICMC Transport Verification Protocol Assessment
  - Transport Practice 1.1 (Questions 1-4 and 6)
  - Transport Practice 1.5 (Question 1, Items g-i)
  - Transport Practice 1.6
  - Transport Practice 2.1
  - Transport Practice 3.1.
- Conclusion
- References.

The ICMI’s Auditor Guidance for Use of Cyanide Transportation Verification Protocol (December 2016) was used to conduct the due diligence assessment. Due to access restrictions, it was not possible during this due diligence to physically inspect the port of Veracruz. The due diligence assessment was completed based on information obtained from previous due diligences, ICMI audit reports and publicly available online information.

1.1 Overview of Port of Veracruz, Mexico

The port of Veracruz is located on the shores of the Gulf of Mexico in south-central Mexico, a little over 300 km east-southeast of Mexico City. The port of Veracruz is the main seaport on Mexico’s east coast and also serves as a communications hub for the State of Veracruz. Located about 240 km southeast of the port of Tuxpan and almost 400 km southeast of the port of Tampico, the port is the backbone of the city's economy.

The Port of Veracruz is Mexico's largest, and considered most vital port, it serves all of central and southern Mexico a through a network of railways and roads. It also serves North, Central, and South America and Europe and Africa via its strategic geographic location.

Overview of port operations:

- Port protocols exist for docking of vessels (e.g. use of Pilots, use of tug boats, management of different weather conditions, tides, currents and safety and general port operations). This sees to the safe docking and turnaround of the vessels in and out of the port.

- Entry into port is controlled by the port’s Pilot who understands the port protocols and any unique issues regarding the approach and docking of a vessel at the port. The Ship’s Captain works in conjunction with the Pilot as he understands his vessel and can implement and assist with the Pilot’s instructions.

- The approach of the vessel to the ports will take into any account any channels, special navigation points and as mentioned above the currents, tides and weather.

- Once a vessel is secure alongside the wharf the shipping activities changeover to port activities. The vessels manifest of what containers are required to be unloaded from the vessel, including the manifest for containers for loading are handed over. This manifest will identify hazardous cargos and their UN number and classification and segregation requirements.
Third party stevedores manage the onshore (wharf) operations at the dedicated container terminal.

Stevedoring operations include:

- Handling of the containers whether full or empty on and off the vessels; container storage areas for general cargo, port security, control systems for companies and their vehicles collecting and or delivering containers.

- Software programs that control container placement and movement; these software packages identify each individual container placement area in designated stacks. The input information for the placement of containers comes from the vessel’s manifest.

Containers of dangerous goods discharged by vessels at the container terminal are moved to various areas within the port for storage until customs clearance has been completed and transport is arranged. Containers of cyanide are segregated from other classes of dangerous goods.

2.0 ICMC TRANSPORT VERIFICATION PROTOCOL ASSESSMENT

The ICMI’s Auditor Guidance for Use of Cyanide Transportation Verification Protocol, General Guidance states:

> Except as specifically identified in this Guidance document, the Cyanide Transportation Protocol is not to be used to evaluate transport by rail and ship or management of cyanide at rail terminals and port facilities due to security issues, limited access, and the inability of consignors to affect changes in the operating practices of these transport facilities. Rather than conduct Code audits of these facilities, the consignor must conduct and document due diligence investigations of rail carriers, rail terminals, shipping companies and port facilities that are engaged to handle cyanide shipments, as further discussed below under Transport Practice 1.1. The consignor’s due diligence investigation must either be conducted or reviewed by an auditor meeting ICMI requirements for a transport expert, and the auditor must conclude that the due diligence investigation has reasonably evaluated these facilities and that the consignor has, to the extent practical, implemented any necessary management measures.

Transport Practice 1.1: Select cyanide transport routes to minimise the potential for accidents and releases

The international sales and exports of sodium cyanide by Orica take into consideration the ports and their extended infrastructure available to service the intended target area. Orica only operates in export markets that are serviced by major international shipping companies with the ability to offer scheduled container services from point of origin to destination.

Orica procedure “Selection of Transport Routes – Transportation of Sodium Cyanide to Customer Sites or Stock Points” (Orica ref: UP-GLO-PRO-001-017) aims to minimise the risk associated with the transportation of sodium cyanide while maintaining a safe, reliable, efficient and cost effective delivery system to customer sites and Orica stock points throughout the world. The procedure applies to the selection of delivery routes for Orica sodium cyanide and states that the “selection of route(s) is to be effected by the overall assessment of the risks associated with the utilisation of such route, taking into particular consideration likelihood of an incident occurring and the consequence of such an incident.” This procedure is applicable to all routes used for the transportation of Orica sodium cyanide as well as to Orica’s contracted transportation agencies.

The port of Veracruz is Mexico's largest, and considered most vital port, it serves all of central and southern Mexico a through a network of railways and roads. It also serves North, Central, and South America and Europe and Africa via its strategic geographic location.
Transport Practice 1.5: Follow international standards for the transportation of cyanide by sea and air

Orica’s manufacturing facility and transfer stations are ICMC certified, sodium cyanide is packaged and transported in accordance with international regulatory standards, such as the United Nations Recommendation on the Transport of Dangerous Goods – Model Regulations, (2005) and National Codes of Practice such as the Australian Code for the Transport of Dangerous Goods by Road or Rail, (2015) thereby meeting the requirements of the political jurisdictions through which the loads will pass.

Orica only operates in export markets that are serviced by major international shipping companies with the ability to offer scheduled container services from point of origin to destination. Orica procedure “Carrier Assessment” (Orica ref: SUP-GLO-PRO-016-008) provides the framework for ensuring that carriers and their contractors are assessed at regular intervals to ensure that, amongst others, storage, safety, security, maintenance and emergency response standards are being maintained. Carriers are required to provide manifest documentation, to satisfy local customs regulations and the requirements of the IMDG Code, to the destination port. This documentation contains a list of the cargo types and in the case of sodium cyanide and any other hazardous cargo the quantity, unique packaging numbers, stowage reference and emergency response procedures.

Mexico is both an IMO Member State (1954) and SOLAS Signatory Nation (1977), thereby requiring the port of Veracruz to adhere to the international regulations for the transportation and handling of dangerous goods as set out in the IMDG Code (Parts 4, 5 and 7) and SOLAS Convention ((1974) Chapter 7).

g) Does the ship carrying the cyanide have a list or manifest identifying the presence and location of the cyanide or a detailed stowage plan including this information, as required under Section 5.4.3.1 of the DG Code?

A combination of Mexican Government and Regulatory bodies develops and implements policies, statutes and regulations governing the carriage of dangerous goods and other goods by ships in accordance with relative national and international requirements. This includes supervising the safety of ships carrying dangerous goods and other goods, processing declarations made by ships carrying dangerous goods, providing accreditation services for personnel involved in the declaration of dangerous goods and inspection of containers, and inspecting containers holding dangerous goods.

As an IMO Member State and to comply with the IMDG Code, vessels are required to declare dangerous cargo before arriving at or leaving the port, to the port authority.

The port of Veracruz operates under a suite of National regulations, e.g. Mexican Standard NOM-033-SCT4-1996 – Guidelines for the entry of dangerous goods to port facilities, NOM-010-SCT2-2009 – Compatibility and Segregation Provisions for the Storage and Transportation of Hazardous Substances, Materials and Residues and NOM-023-SCT4-1995 Conditions for the management and Storage of dangerous goods in ports, terminals and sea units, which ensures its compliance with regards to the transportation, handling and storage of dangerous goods.

h) Does the ship carrying the cyanide have cyanide emergency response information, as required under Section 5.4.3.2 of the DG Code?

Dangerous goods delivered to or from the port are required to be appropriately manifested, packaged, labelled and placarded. Documentation that accompanies the cyanide throughout transportation by sea and delivery at ports includes emergency response information along with the dangerous goods manifest, packing certificates and Multimodal Dangerous Goods Form.

Emergency response procedures for ships carrying dangerous goods, including the emergency schedules to be followed in case of incidents involving dangerous substances, materials or articles, or harmful substances (marine pollutants), is regulated under the IMDG Code. In accordance with the Code, all ships, and the companies responsible for their operation, are required to maintain a Safety Management System (SMS). Within the SMS, procedures for responding to potential shipboard emergencies are required.
Port operations personnel provide the vessel's Master with copies of the Emergency Information, Dangerous Goods manifest (including stowage plan) and Packaging Certificates for each hazardous cargo transport units loaded onto the ship at the port of origin.

*Mexican Standard NOM-033-SCT4-1996 – Guidelines for the entry of dangerous goods to port facilities* details the requirements that must be met in order to bring dangerous goods into/through the port of Veracruz by road or sea. It states that all vessels are required to have copies of emergency procedures and first aid guides with respect to the dangerous cargo being carried.

**i) Does the ship comply with the stowage and separation requirements of Part 7 of the DG Code?**

As a member of the IMO and to comply with the IMDG Code and National Regulations vessels are required to declare dangerous cargo before arriving at or leaving the port, additionally, all cargo listed on the dangerous cargo manifest must be stowed and handled as prescribed by its UN number and dangerous goods class.

The port of Veracruz has dedicated storage areas for specialised products including dangerous goods; cyanide containers are segregated and stacked separately. All sodium cyanide remains packaged within its sealed container at all times.

Additionally, Mexican Standard *NOM-033-SCT4-1996 – Guidelines for the entry of dangerous goods to port facilities* details the requirements for stowage and separation of dangerous goods in accordance with the IMDG Code. Additionally *NOM-010-SCT2-2009 – Compatibility and Segregation Provisions for the Storage and Transportation of Hazardous Substances, Materials and Residues* provides detailed information for the appropriate segregation, labelling and handling standards required by the port of Veracruz.

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

The Dispatch Centre organises ship movements, tracks pilotage operations, and supervises terminal operations via real-time CCTV monitoring.

Port Operators are both fully aware (as per *NOM-033-SCT4-1996*) when sodium cyanide containers are to arrive at the port. The stevedores receive the vessel’s manifest, which includes unloading and handling information for the port and this information is then captured in the company’s container terminal software program.

Chain of custody documentation is used by shipping companies to prevent the loss of cargo during shipment. This documentation includes the vessel manifest – which identifies the location and content of each container on the vessel along with packing certificates, Multimodal Dangerous Goods Forms and Safety Data Sheets (SDS).

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

The port of Veracruz must adhere to the requirements of *Official Mexican Standard NOM-010-SCT2/2009, Compatibility and segregation provisions for the Storage and transportation of hazardous substances, materials and waste* and *NOM-023-SCT4-1995 Conditions for the management and Storage of dangerous goods in ports, terminals and sea units*.

These standards state that ports, terminals and offshore units must establish areas for management, storage and adequate segregation of dangerous goods in bulk or packed form, from other cargo. There is a compatibility and segregation table for dangerous substances, materials and waste. These storage areas must have the appropriate infrastructure, facilities and signage on display in accordance with the inherent risks of the products.
Additionally the port or terminal operator must ensure that the areas where goods are handled and stored be monitored at all times and that personnel involved in such operations have received adequate training. The operator shall keep a permanent record of any dangerous goods encountered in the port area and will ensure that in the areas where the products are handled and stored, personnel have accessible information on emergency procedures.

All sodium cyanide remains contained within its sealed containers at all times preventing contact with water and other incompatible materials.

It will also ensure that in such areas signage is displayed to show smoking is prohibited, sources of ignition are avoided and proper precautions are taken with regards to personal protective equipment for the handling of dangerous goods.

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

The Mexican Government has national standards in place for the transportation, handling and storage of hazardous substances which applies to all ports, terminals and offshore facilities where dangerous goods may be stored.

Mexican Standard NOM-005-SCT2/1994, *Emergency Information for the Transportation of hazardous substances, materials and waste* and NOM-023-SCT4-1995, *Conditions for the management and Storage of dangerous goods in ports, terminals and sea units* both contain provisions for ensuring preparedness in the event of an emergency situation. Essentially these standards require that the port administration form and maintain (via training) an emergency response team, ensure emergency response equipment is available and well maintained and have in place appropriate emergency incident notification and reporting mechanisms.

Additionally the port of Veracruz is certified under the IMO’s International Convention on Oil Pollution Preparedness, Response and Cooperation 1990 (OPRC 90). States which are party to OPRC 90 protocol are required to establish a national system for responding to oil and hazardous/noxious substances (HNS) pollution incidents, including a designated national authority, a national operational contact point and a national contingency plan. This needs to be supported by a minimum level of response equipment, communications plans, regular training and exercises.

The Navy’s Marine Environment Protection Division is the competent authority and administers the National Contingency Plan (NCP) for dealing with pollution by oil and other noxious substances in marine and freshwater environments.

The Navy, with the support of private contractors, manages the response to and monitoring of a Hazardous and Noxious Substances (HNS) incident and some equipment is readily available (such as PPE, respirators, pumps, power packs and air monitoring equipment).

## 3.0 CONCLUSION

Based on the evidence reviewed, this due diligence did not find significant issues of concern in regards to the port of Veracruz’s management of solid sodium cyanide product. It was not possible during this due diligence to physically inspect the port, as such the review was based on information obtained from previous due diligence reviews, ICMI audit reports and publicly available online information. The Auditor recommends that Orica undertakes annual reviews at the port to monitor the management of dangerous goods.

This assessment should not be a final acceptance of the port of Veracruz for future work; rather it is recommended that Orica continue to review and monitor the port’s performance annually and implement an adaptive management process.
4.0 CLOSING
We trust this due diligence letter meets your requirements. If you have any questions, please do not hesitate to contact the undersigned.

GOLDER ASSOCIATES PTY LTD

Craig Currie
Environmental Scientist

Ed Clerk
ICMC Lead Auditor and Technical Specialist

CC/EWC/hsl
REFERENCES


EXECUTIVE SUMMARY

Golder Associates Pty Ltd (Golder) conducted a due diligence of the port of Tema, Ghana during April 2017 on behalf of Orica Australia Pty Ltd (Orica). The assessment was conducted by Ed Clerk who meets the International Cyanide Management Institute’s (ICMI) requirements for a Transport Technical Specialist.

The following items, as detailed in the ICMI’s Auditor Guidance for Use of the Cyanide Transportation Verification Protocol (December 2016), were addressed within the due diligence:

- Transport Practice 1.1 (Questions 1-4 and 6)
- Transport Practice 1.5 (Question 1, Items g-i)
- Transport Practice 1.6
- Transport Practice 2.1
- Transport Practice 3.1.

The ICMI’s Auditor Guidance for Use of Cyanide Transportation Verification Protocol (December 2016) was used to conduct the due diligence assessment. It was not possible during this due diligence to physically inspect the port, as such the review was based on information obtained from previous due diligence reviews, ICMI audit reports and publicly available online information.

Golder’s assessment of the port of Tema found no issues of concern in regards to the port’s management of solid sodium cyanide product.

This assessment should not be a final acceptance of the port of Tema for future work; rather it is recommended that Orica continue to review and monitor the port’s performance annually and implement an adaptive management process.
1.0 INTRODUCTION

This letter provides the results of a due diligence assessment against the port of Tema, Ghana, in accordance with the International Cyanide Management Code for the Manufacture, Transport and Use of Cyanide in the Production of Gold (ICMC or the Code).

Golder conducted a due diligence of the port of Tema, Ghana, during April 2017. The assessment was conducted by Ed Clerk who meets the International Cyanide Management Institute’s (ICMI) requirements for a Transport Technical Specialist.

The following items, as detailed in the ICMI’s Auditor Guidance for Use of Cyanide Transportation Verification Protocol (December 2016), were addressed within the due diligence:

- Introduction
- ICMC Transport Verification Protocol Assessment
  - Transport Practice 1.1 (Questions 1-4 and 6)
  - Transport Practice 1.5 (Question 1, Items g-i)
  - Transport Practice 1.6
  - Transport Practice 2.1
  - Transport Practice 3.1.

- Conclusion
- References.

The ICMI’s Auditor Guidance for Use of Cyanide Transportation Verification Protocol (December 2016) was used to guide the due diligence assessment.

Due to access restrictions, it was not possible during this due diligence to physically inspect the port of Tema. The due diligence assessment was completed based on information obtained from previous due diligences, ICMI audit reports and publicly available online information.

1.1 Overview of Port of Tema, Ghana

The port of Tema is the largest port in Ghana and located 30 km from Accra. The port handles about 12 million tonnes of cargo annually and receives over 1650 vessel calls per year, including container vessels, general cargo vessels, tankers, Roll-on/Roll-off (Ro-Ro) and cruise vessels.

Tema port is the main container port servicing Ghana and its neighbouring landlocked countries. The port area includes a 1 million twenty-foot equivalent units (TEUs) container terminal, a fishing harbour, a shipyard with the largest dry dock in West Africa and a range of deep-water berths. In 2016 Tema port completed expansion projects, including a new dedicated 840 point reefer terminal and a 450 m long by 50 m wide bulk jetty, which increases the port’s berthing capacity from 14 to 16 berths.

Cyanide manufacturers and suppliers have the ability to ship product to the port from different parts of the world. The port allows for the unloading of shipments for final road transportation to the mining operations in Ghana as well as Burkina Faso and Eastern Mali.

The Ghana Ports and Harbour Authority (GPHA) oversees Port operations. This includes:

- Port protocols exist for docking of vessels, e.g. use of Pilots; use of tug boats; different weather conditions, tides, currents; safety; and general Port operations. This sees to the safe docking and turnaround of the vessels in and out of the Port.

- Entry into port is controlled by the port’s harbour master who understands the port protocols and unique issues regarding the approach and docking of a vessel at the port. The harbour master has oversight of nautical operations within the port. This comprises operational tasks related to the safety and efficiency of vessel management within the boundaries of the port. The harbour master’s office allocates berths and coordinates all services necessary to berth and un-berth a vessel. These services include pilotage, towage, mooring and unmooring, and vessel traffic service.
The Ship’s Captain works in conjunction with the harbour master as he understands his vessel and can implement and assist with the harbour master’s instructions.

The approach of the vessel to the port will take into any account any channels, special navigation points and as mentioned above the currents, tides and weather.

The GPHA manages the handling of dangerous goods through the Tema port.

Stevedoring services are provided by the GPHA and ten private stevedoring companies. GPHA controls 25% of all stevedoring. The remaining 75% is performed by private companies.

The dedicated 1 million TEU container terminal is operated by Meridian Port Services (MPS). MPS operations include:

- Handling of the containers whether full or empty on and off the vessels; container storage areas; port security, emergency response, control systems for companies and their vehicles collecting and or delivering containers

- Software programs control container movement through the ports. In the case of the sodium cyanide containers on arrival the ports the containers are stacked separately and segregated from other containers. The software also monitors the restricted time allowed for dangerous goods to be handled through the port and allows the port to charge penalty rates for goods not cleared and taken from the port within a defined time.

Ghana is a member of the International Maritime Organization (IMO) Council and is party to the Abuja Memorandum of Understanding, and as such performs its Port State Obligations, supervises foreign ships that berth at Ghana ports, and promotes compliance with international conventions among Flag States through Port State Control.


2.0 ICMC TRANSPORT VERIFICATION PROTOCOL ASSESSMENT

The ICMI’s Auditor Guidance for Use of Cyanide Transportation Verification Protocol, General Guidance states:

*Except as specifically identified in this Guidance document, the Cyanide Transportation Protocol is not to be used to evaluate transport by rail and ship or management of cyanide at rail terminals and port facilities due to security issues, limited access, and the inability of consignors to affect changes in the operating practices of these transport facilities. Rather than conduct Code audits of these facilities, the consignor must conduct and document due diligence investigations of rail carriers, rail terminals, shipping companies and port facilities that are engaged to handle cyanide shipments, as further discussed below under Transport Practice 1.1. The consignor’s due diligence investigation must either be conducted or reviewed by an auditor meeting ICMI requirements for a transport expert, and the auditor must conclude that the due diligence investigation has reasonably evaluated these facilities and that the consignor has, to the extent practical, implemented any necessary management measures.*

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

The international sales and exports of sodium cyanide by Orica take into consideration the ports and their extended infrastructure available to service the intended target area. Orica only operates in export markets that are serviced by major international shipping companies with the ability to offer scheduled container services from point of origin to destination.
Orica procedure “Selection of Transport Routes – Transportation of Sodium Cyanide to Customer Sites or Stock Points” (Orica ref: UP-GLO-PRO-001-017) aims to minimise the risk associated with the transportation of sodium cyanide while maintaining a safe, reliable, efficient and cost effective delivery system to customer sites and Orica stock points throughout the world. The procedure applies to the selection of delivery routes for Orica sodium cyanide and states that the “selection of route(s) is to be effected by the overall assessment of the risks associated with the utilisation of such route, taking into particular consideration likelihood of an incident occurring and the consequence of such an incident.” This procedure is applicable to all routes used for the transportation of Orica sodium cyanide as well as to Orica’s contracted transportation agencies.

The port of Tema is located in relative close proximity to mining operations in Ghana and landlocked countries within the West Africa region.

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

Orica’s manufacturing facility and transfer stations are ICMC certified, sodium cyanide is packaged and transported in accordance with international regulatory standards, such as the United Nations Recommendation on the Transport of Dangerous Goods – Model Regulations, (2005) and National Codes of Practice such as the Australian Code for the Transport of Dangerous Goods by Road or Rail, (2015) thereby meeting the requirements of the political jurisdictions through which the loads will pass.

Orica only operates in export markets that are serviced by major international shipping companies with the ability to offer scheduled container services from point of origin to destination. Orica procedure “Carrier Assessment” (Orica ref: SUP-GLO-PRO-016-008) provides the framework for ensuring that carriers and their contractors are assessed at regular intervals to ensure that, amongst others, storage, safety, security, maintenance and emergency response standards are being maintained. Carriers are required to provide manifest documentation, to satisfy local customs regulations and the requirements of the IMDG Code, to the destination port. This documentation contains a list of the cargo types and in the case of sodium cyanide and any other hazardous cargo the quantity, unique packaging numbers, stowage reference and emergency response procedures.

Ghana is both an IMO Member State (1959) and SOLAS Signatory Nation (1983), thereby requiring the port of Tema to adhere to the international regulations for the transportation and handling of dangerous goods as set out in the IMDG Code (Parts 4, 5 and 7) and SOLAS Convention ((1974) Chapter 7).

**g) Does the ship carrying the cyanide have a list or manifest identifying the presence and location of the cyanide or a detailed stowage plan including this information, as required under Section 5.4.3.1 of the DG Code?**

The Ghana Maritime Authority (GMA) monitors, regulates and coordinates activities in the maritime industry in Ghana. Functions of the GMA include implementing the provisions of the Ghana Shipping Act 2003 and Ghana Maritime Security Act 2004 (Act 675), ensuring safety and security of ships and port facilities, fulfilling flag state and port state responsibilities and monitoring conformance with standards laid down by international maritime conventions.

As an IMO Member State and to comply with the IMDG Code, vessels are required to declare dangerous cargo before arriving at or leaving the port, to the GMA and or GPHA.

At Tema port the GPHA is responsible for maintenance of safety standards and international maritime codes, including the International Ship and Port Facility Security (ISPS) and IMDG Codes. This includes supervising the safety of ships carrying dangerous goods and other goods, processing declarations made by ships carrying dangerous goods and inspecting containers holding dangerous goods. Vessels are required to declare dangerous cargo to the GPHA by submitting the appropriate form to the GPHA at least 72 hours before arriving at the port of Tema. All dangerous goods delivered to or from the port are required to be appropriately manifested and be packaged, marked, labelled and placarded in accordance with the IMDG Code.

The *Ghana Shipping Act (2003), Part Nine, Section 331 Regulations as to Dangerous Goods* contains the ministerial requirements for the carriage of dangerous goods on ships and is in accordance with the International Convention for the Safety of Life at Sea (1974) Convention and the IMDG Code.
h) Does the ship carrying the cyanide have cyanide emergency response information, as required under Section 5.4.3.2 of the DG Code?

Dangerous goods delivered to or from the port are required to be appropriately manifested, packaged, marked, labelled and placarded. Documentation that accompanies the cyanide throughout transportation by sea and delivery at ports includes a dangerous goods manifest, packing certificates and Multimodal Dangerous Goods Form.

Emergency response procedures for ships carrying dangerous goods, including the emergency schedules to be followed in case of incidents involving dangerous substances, materials or articles, or harmful substances (marine pollutants), is regulated under the IMDG code. In accordance with the code, all ships, and the companies responsible for their operation, are required to maintain a Safety Management System (SMS). Within the SMS, procedures for responding to potential shipboard emergencies are required.

Port operations personnel provide the vessel’s Master with copies of the Emergency Information, Dangerous Goods manifest (including stowage plan) and Packaging Certificates for each hazardous cargo transport units loaded onto the ship at the port.

i) Does the ship comply with the stowage and separation requirements of Part 7 of the DG Code?

Vessels are required to declare dangerous goods to the GPHA at least 72 hours before arriving at the port of Tema. All dangerous goods delivered to or from the port are required to be appropriately manifested and be packaged, marked, labelled and placarded in accordance with the IMDG Code. The port requires all packages to be in sound and safe condition without any risk of leakage or spillage.

To comply with requirements of the IMDG Code, the port of Tema has dedicated storage areas for specialised products including dangerous goods; cyanide containers are segregated and stacked separately. All sodium cyanide remains contained within its sealed containers at all times.

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

The port requires advance notice of 72 hours prior to the estimated arrival of vessels. The harbour master has oversight of nautical operations within the port, including pilotage, towage, mooring and unmooring, and vessel traffic services. Software programs control container movement through the ports.

Chain of custody documentation is used by shipping companies to prevent the loss of cargo during shipment. This documentation includes the vessel manifest – which identifies the location and content of each container on the vessel along with packing certificates, Multimodal Dangerous Goods Forms and Material Safety Data Sheets (MSDS).

Port stevedores receive the vessels manifest on arrival, which includes the containers for unloading and handling by them. This information is then captured in the stevedore’s management systems, which assists with the location where each container from the vessel is to be placed after unloading. Transport from the unloading berth to the interim storage facility is controlled by documentary checks detailing the container details and contents. MPS utilises a terminal operating system to manage container movement, vessel discharges and yard allocations to minimise delays. Containers are tracked using differential global positioning systems.

The clearance process at Tema port comprises:

- Declaration of cargo data
- Customs Document Verification, System Validation, cargo Classification and Valuation, Risk Assessment and quality assurance, payment of duty, cargo verification
- Release by the Shipping Agent
- Delivery by the port and other receipt delivery service providers
- Customs physical examination or scanning of cargo before cargo is allowed to exit the port.
Transport Practice 2.1: Store cyanide in a manner that minimises the potential for accidental releases.

The port of Tema has restricted access and security processes, including optimal character recognition, biometric identify cards and CCTV. The port has perimeter fencing and terminal entry and exit gates are monitored on 24 hour basis. Software programs control container movement through the ports.

The port of Tema has dedicated storage areas for specialised products including dangerous goods; cyanide containers are segregated and stacked separately. The area into which cyanide containers are placed whilst awaiting clearance is well ventilated to prevent the build-up of hydrogen cyanide gas and is suitable to contain any spillage that may occur.

Whilst cyanide is present at the port, temporary signage is provided to warn of its presence and the safety and personal protective equipment requirements. Whilst the product is being stored or handled, signage prohibiting the consumption of food and beverages and open sources of ignition, including smoking, is displayed.

All sodium cyanide transited through the port of Tema remains sealed inside its container at all times. Seals are individually numbered and tamper evident. Admission of solid sodium cyanide through the port of Tema is limited to a specific customer. Solid sodium cyanide is only held at the port of Tema for a short period to enable completion of specific Ghanaian governmental customs and quarantine clearances.

The port of Tema is accredited under the ISPS Code. This is maintained by the GPHA which reports to the appropriate central Ghana government minister. The port has on-site security personnel who are present at all times, this includes a mobile security team and port security personnel stationed at entry points.

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

The GPHA is responsible for the protection of property and emergency preparedness and response.

The port of Tema has emergency response procedures by following the IMDG Code requirements. The port has an internal emergency response and first aid capabilities that is supported by external sources. Training is provided to personnel in dangerous goods awareness and procedures.

The port of Tema is certified under the IMO’s International Convention on Oil Pollution Preparedness, Response and Cooperation 1990 (OPRC 90). States which are party to OPRC 90 protocol are required to establish a national system for responding to oil and hazardous/noxious substances pollution incidents, including a designated national authority, a national operational contact point and a national contingency plan. This needs to be supported by a minimum level of response equipment, communications plans, regular training and exercises.

The lead agency for dealing with major spills is the Environment Protection Agency of the Ministry of Environment, Science and Technology, which works in conjunction with the Ministry of Transport and Communications. Limited emergency response equipment is available through both Government and private sector sources.

3.0 CONCLUSION

Based on the evidence reviewed, this due diligence did not find significant issues of concern in regards to the port of Tema’s management of solid sodium cyanide product. It was not possible during this due diligence to physically inspect the port, as such the review was based on information obtained from previous due diligence reviews, ICMI audit reports and publicly available online information. The Auditor recommends that Orica undertakes annual reviews at the port of Tema to monitor the management of dangerous goods.

This assessment should not be a final acceptance of the port of Tema for future work; rather it is recommended that Orica continue to review and monitor the port’s performance annually and implement an adaptive management process.
4.0 CLOSING

We trust this due diligence letter meets your requirements. If you have any questions, please do not hesitate to contact the undersigned.

GOLDER ASSOCIATES PTY LTD

Craig Currie
Environmental Scientist

Ed Clerk
ICMC Lead Auditor and Technical Specialist

CC/EWC/hsl
REFERENCES


31 July 2017

Owen Warren
Senior Manager Global Distribution
Orica

Email: owen.warren@orica.com

ICMC DUE DILIGENCE ASSESSMENT FOR THE PORT OF TAKORADI

Dear Owen

EXECUTIVE SUMMARY

Golder Associates Pty Ltd (Golder) conducted a due diligence of the port of Takoradi, Ghana during May 2017 on behalf of Orica Australia Pty Ltd (Orica). The assessment was conducted by Ed Clerk who meets the International Cyanide Management Institute’s (ICMI) requirements for a Transport Technical Specialist.

The following items, as detailed in the ICMI’s Auditor Guidance for Use of Cyanide Transportation Verification Protocol (December 2016), were addressed within the due diligence:

- Transport Practice 1.1 (Questions 1-4 and 6)
- Transport Practice 1.5 (Question 1, Items g-i)
- Transport Practice 1.6
- Transport Practice 2.1
- Transport Practice 3.1.

The ICMI’s Auditor Guidance for Use of Cyanide Transportation Verification Protocol (December 2016) was used to conduct the due diligence assessment. It was not possible during this due diligence to physically inspect the port, as such the review was based on information obtained from previous due diligence reviews, ICMI audit reports and publicly available online information.

Golder’s assessment of the port of Takoradi found no issues of concern in regards to the port’s management of solid sodium cyanide product.

This assessment should not be a final acceptance of the port of Takoradi for future work; rather it is recommended that Orica continue to review and monitor the port’s performance annually and implement an adaptive management process.
1.0 INTRODUCTION

This letter provides the results of a due diligence assessment against the port of Takoradi, Ghana, in accordance with the *International Cyanide Management Code for the Manufacture, Transport and Use of Cyanide in the Production of Gold* (ICMC or the Code).

Golder conducted a desktop due diligence assessment of the port of Takoradi, Ghana during May 2017. The assessment was conducted by Ed Clerk who meets the International Cyanide Management Institute’s (ICMI) requirements for a Transport Technical Specialist.

The following items, as detailed in the ICMI’s *Auditor Guidance for Use of Cyanide Transportation Verification Protocol* (December 2016), were addressed within the due diligence:

- Introduction
- ICMC Transport Verification Protocol Assessment
  - Transport Practice 1.1 (Questions 1-4 and 6)
  - Transport Practice 1.5 (Question 1, Items g-i)
  - Transport Practice 1.6
  - Transport Practice 2.1
  - Transport Practice 3.1.
- Conclusion
- References.

The ICMI’s *Auditor Guidance for Use of Cyanide Transportation Verification Protocol* (December 2016) was used to conduct the due diligence assessment. Due to access restrictions, it was not possible during this due diligence to physically inspect the port of Takoradi. The due diligence assessment was completed based on information obtained from previous due diligences, ICMI audit reports and publicly available online information.

1.1 Overview of Port of Takoradi, Ghana

The port of Takoradi is located 230 kilometres east of Accra. Takoradi is strategically positioned to service the northern hinterland of Ghana and serve as an alternative port for economic operators in the landlocked countries of Burkina Faso, Niger and Mali. In 2015, the port handled 27% of Ghana’s seaborne traffic, 68% of Ghana’s seaborne exports and 15% of Ghana’s seaborne imports. Major commodities handled through the port are manganese, bauxite, wheat, bulk and bagged cocoa, quicklime, containerised cargoes, equipment for the mining and oil/gas industry. Traffic through the port is facilitated by leading shipping lines and the port’s wide range of equipment along with stevedoring services provided by the private sector enable it to offer a wide range of services.

Cyanide manufacturers and suppliers have the ability to ship product to the port from different parts of the world. The port allows for the unloading of shipments for final road transportation to the mining operations in Ghana as well as Burkina Faso and Eastern Mali.

The Ghana Ports and Harbour Authority (GPHA) oversees port operations. This includes:

- Port protocols exist for docking of vessels (e.g. use of Pilots, use of tug boats, management of different weather conditions, tides, currents and safety and general port operations). This sees to the safe docking and turnaround of the vessels in and out of the port.
- Entry into port is controlled by the port’s Pilot who understands the port protocols and any unique issues regarding the approach and docking of a vessel at the port. The Ship’s Captain works in conjunction with the Pilot as he understands his vessel and can implement and assist with the Pilot’s instructions.
- The approach of the vessel to the ports will take into any account any channels, special navigation points and as mentioned above the currents, tides and weather.
Once a vessel is secure alongside the wharf the shipping activities changeover to port activities. The vessels manifest of what containers are required to be unloaded from the vessel, including the manifest for containers for loading are handed over. This manifest will identify hazardous cargos and their UN number and classification and segregation requirements.

Stevedoring services are provided by the GPHA and five private stevedoring companies. GPHA controls 25% of all stevedoring. The remaining 75% is performed by private companies.

Stevedoring operations include:

- Handling of the containers whether full or empty on and off the vessels; container storage areas for general cargo, port security, control systems for companies and their vehicles collecting and or delivering containers.
- Software programs that control container placement and movement; these software packages identify each individual container placement area in designated stacks. The input information for the placement of containers comes from the vessel’s manifest.

Ghana is a member of the International Maritime Organization (IMO) Council and is party to the Abuja Memorandum of Understanding, and as such performs its Port State Obligations, supervises foreign ships that berth at Ghana ports, and promotes compliance with international conventions among Flag States through Port State Control.


2.0 ICMC TRANSPORT VERIFICATION PROTOCOL ASSESSMENT

The ICMI’s Auditor Guidance for Use of Cyanide Transportation Verification Protocol, General Guidance states:

Except as specifically identified in this Guidance document, the Cyanide Transportation Protocol is not to be used to evaluate transport by rail and ship or management of cyanide at rail terminals and port facilities due to security issues, limited access, and the inability of consignors to affect changes in the operating practices of these transport facilities. Rather than conduct Code audits of these facilities, the consignor must conduct and document due diligence investigations of rail carriers, rail terminals, shipping companies and port facilities that are engaged to handle cyanide shipments, as further discussed below under Transport Practice 1.1. The consignor’s due diligence investigation must either be conducted or reviewed by an auditor meeting ICMI requirements for a transport expert, and the auditor must conclude that the due diligence investigation has reasonably evaluated these facilities and that the consignor has, to the extent practical, implemented any necessary management measures.

Transport Practice 1.1: Select cyanide transport routes to minimise the potential for accidents and releases

The international sales and exports of sodium cyanide by Orica take into consideration the ports and their extended infrastructure available to service the intended target area. Orica only operates in export markets that are serviced by major international shipping companies with the ability to offer scheduled container services from point of origin to destination.

Orica procedure “Selection of Transport Routes – Transportation of Sodium Cyanide to Customer Sites or Stock Points” (Orica ref: UP-GLO-PRO-001-017) aims to minimise the risk associated with the transportation of sodium cyanide while maintaining a safe, reliable, efficient and cost effective delivery system to customer sites and Orica stock points throughout the world. The procedure applies to the selection of delivery routes for Orica sodium cyanide and states that the “selection of route(s) is to be effected by the overall assessment of the risks associated with the utilisation of such route, taking into particular consideration likelihood of an incident occurring and the consequence of such an incident.” This procedure is applicable to all routes used for the transportation of Orica sodium cyanide as well as to Orica’s contracted transportation agencies.

Takoradi is strategically positioned to service the northern hinterland of Ghana and serve as an alternative port for economic operators in the landlocked countries of Burkina Faso, Niger and Mali. The port allows for the unloading of shipments for final road transportation to the mining operations in Ghana as well as Burkina Faso and Eastern Mali.
Transport Practice 1.5: Follow international standards for the transportation of cyanide by sea and air

Orica's manufacturing facility and transfer stations are ICMC certified, sodium cyanide is packaged and transported in accordance with international regulatory standards, such as the United Nations Recommendation on the Transport of Dangerous Goods – Model Regulations, (2005) and National Codes of Practice such as the Australian Code for the Transport of Dangerous Goods by Road or Rail, (2015) thereby meeting the requirements of the political jurisdictions through which the loads will pass.

Orica only operates in export markets that are serviced by major international shipping companies with the ability to offer scheduled container services from point of origin to destination. Orica procedure “Carrier Assessment” (Orica ref: SUP-GLO-PRO-016-008) provides the framework for ensuring that carriers and their contractors are assessed at regular intervals to ensure that, amongst others, storage, safety, security, maintenance and emergency response standards are being maintained. Carriers are required to provide manifest documentation, to satisfy local customs regulations and the requirements of the IMDG Code, to the destination port. This documentation contains a list of the cargo types and in the case of sodium cyanide and any other hazardous cargo the quantity, unique packaging numbers, stowage reference and emergency response procedures.

Ghana is both an IMO Member State (1959) and SOLAS Signatory Nation (1983), thereby requiring the port of Takoradi to adhere to the international regulations for the transportation and handling of dangerous goods as set out in the IMDG Code (Parts 4, 5 and 7) and SOLAS Convention ((1974) Chapter 7).

**g) Does the ship carrying the cyanide have a list or manifest identifying the presence and location of the cyanide or a detailed stowage plan including this information, as required under Section 5.4.3.1 of the DG Code?**

The Ghana Maritime Authority (GMA) monitors, regulates and coordinates activities in the maritime industry in Ghana. Functions of the GMA include implementing the provisions of the Ghana Shipping Act 2003 and Ghana Maritime Security Act 2004 (Act 675), ensuring safety and security of ships and port facilities, fulfilling flag state and port state responsibilities and monitoring conformance with standards laid down by international maritime conventions.

As an IMO Member State and to comply with the IMDG Code, vessels are required to declare dangerous cargo before arriving at or leaving the port, to the GMA and or GPHA.

At Takoradi port the GPHA is responsible for maintenance of safety standards and international maritime codes, including the International Ship and Port Facility Security (ISPS) and IMDG Codes. This includes supervising the safety of ships carrying dangerous goods and other goods, processing declarations made by ships carrying dangerous goods and inspecting containers holding dangerous goods. Vessels are required to declare dangerous cargo to the GPHA by submitting the appropriate form to the GPHA at least 72 hours before arriving at the port of Takoradi. All dangerous goods delivered to or from the port are required to be appropriately manifested and be packaged, marked, labelled and placarded in accordance with the IMDG Code.

The Ghana Shipping Act (2003), Part Nine, Section 331 Regulations as to Dangerous Goods contains the ministerial requirements for the carriage of dangerous goods on ships and is in accordance with the International Convention for the Safety of Life at Sea (1974) Convention and the IMDG Code.

**h) Does the ship carrying the cyanide have cyanide emergency response information, as required under Section 5.4.3.2 of the DG Code?**

Dangerous goods delivered to or from the port are required to be appropriately manifested, packaged, labelled and placarded. Documentation that accompanies the cyanide throughout transportation by sea and delivery at ports includes emergency response information along with the dangerous goods manifest, packing certificates and Multimodal Dangerous Goods Form.

Emergency response procedures for ships carrying dangerous goods, including the emergency schedules to be followed in case of incidents involving dangerous substances, materials or articles, or harmful substances (marine pollutants), is regulated under the IMDG Code. In accordance with the Code, all ships, and the companies responsible for their operation, are required to maintain a Safety Management System (SMS). Within the SMS, procedures for responding to potential shipboard emergencies are required.
Port operations personnel provide the vessel’s Master with copies of the Emergency Information, Dangerous Goods manifest (including stowage plan) and Packaging Certificates for each hazardous cargo transport units loaded onto the ship at the port of origin.

**i) Does the ship comply with the stowage and separation requirements of Part 7 of the DG Code?**

Vessels are required to declare dangerous goods to the GPHA at least 72 hours before arriving at the port of Takoradi. All dangerous goods delivered to or from the port are required to be appropriately manifested and be packaged, marked, labelled and placarded in accordance with the IMDG Code. The port requires all packages to be in sound and safe condition without any risk of leakage or spillage.

To comply with requirements of the IMDG Code, the port of Takoradi has dedicated storage areas for specialised products including dangerous goods; cyanide containers are segregated and stacked separately. All sodium cyanide remains contained within its sealed containers at all times.

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

The port requires advance notice of 72 hours prior to the estimated arrival of vessels. The harbour master has oversight of nautical operations within the port, including pilotage, towage, mooring and unmooring, and vessel traffic services. Software programs control container movement through the ports.

Chain of custody documentation is used by shipping companies to prevent the loss of cargo during shipment. This documentation includes the vessel manifest – which identifies the location and content of each container on the vessel along with packing certificates, Multimodal Dangerous Goods Forms and Safety Data Sheets (SDS).

Port stevedores receive the vessels manifest on arrival, which includes the containers for unloading and handling by them. This information is then captured in the stevedore’s management systems, which assists with the location where each container from the vessel is to be placed after unloading. Transport from the unloading berth to the interim storage facility is controlled by documentary checks detailing the container details and contents. MPS utilises a terminal operating system to manage container movement, vessel discharges and yard allocations to minimise delays. Containers are tracked using differential global positioning systems.

The clearance process at Takoradi port comprises:

- Declaration of cargo data
- Customs Document Verification, System Validation, cargo Classification and Valuation, Risk Assessment and quality assurance, payment of duty, cargo verification
- Release by the Shipping Agent
- Delivery by the port and other receipt delivery service providers
- Customs physical examination or scanning of cargo before cargo is allowed to exit the port.

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

The port of Takoradi is accredited under the ISPS Code (since 2004). This is maintained by the GPHA which reports to the appropriate central Ghana government minister. The port has an on-site security presence which is present at all times and includes a mobile security team. Port security personnel stationed at the access to the port check the authority of drivers accessing the port area.

The Ghana Maritime Security Act (2004), Section 48 Port Security states that a port facility operator shall develop, implement, and maintain a port facility security plan based on a port facility security assessment of that facility. The design of a port facility security plan must suit the purposes of ship-port interface and protect that facility from unauthorised access or disclosure.

All sodium cyanide transited through the port of Takoradi remains sealed inside its container at all times preventing contact with water and other incompatible materials. Seals are individually numbered and tamper evident.
Admission of solid sodium cyanide through the port of Takoradi is limited to a specific customer. Solid sodium cyanide is only held at the port of Takoradi for a short period to enable completion of specific Ghanaian governmental customs and quarantine clearances.

Importers are penalised substantial charges should any delay in remove of the product occurs.

The port provides a dedicated area for workers to eat and drink which is well away from the area in which the product is located.

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

The GPHA is responsible for the protection of property and emergency preparedness and response.

The port of Takoradi is certified under the IMO’s International Convention on Oil Pollution Preparedness, Response and Cooperation 1990 (OPRC 90). States which are party to OPRC 90 protocol are required to establish a national system for responding to oil and hazardous/noxious substances pollution incidents, including a designated national authority, a national operational contact point and a national contingency plan. This needs to be supported by a minimum level of response equipment, communications plans, regular training and exercises.

The lead agency for dealing with major spills is the Environment Protection Agency of the Ministry of Environment, Science and Technology, which works in conjunction with the Ministry of Transport and Communications. Limited emergency response equipment is available through both Government and private sector sources.

**3.0 CONCLUSION**

Based on the evidence reviewed, this due diligence did not find significant issues of concern in regards to the port of Takoradi’s management of solid sodium cyanide product. It was not possible during this due diligence to physically inspect the port, as such the review was based on information obtained from previous due diligence reviews, ICMI audit reports and publicly available online information. The Auditor recommends that Orica undertakes annual reviews at the port to monitor the management of dangerous goods.

This assessment should not be a final acceptance of the port of Takoradi for future work; rather it is recommended that Orica continue to review and monitor the port’s performance annually and implement an adaptive management process.

**4.0 CLOSING**

We trust this due diligence letter meets your requirements. If you have any questions, please do not hesitate to contact the undersigned.
REFERENCES


ICMC DUE DILIGENCE ASSESSMENT FOR THE PORT OF CONAKRY

Dear Owen

EXECUTIVE SUMMARY

Golder Associates Pty Ltd (Golder) conducted a due diligence of the port of Conakry, Guinea during April 2017 on behalf of Orica Australia Pty Ltd (Orica). The assessment was conducted by Ed Clerk who meets the International Cyanide Management Institute’s (ICMI) requirements for a Transport Technical Specialist.

The following items, as detailed in the ICMI’s Auditor Guidance for Use of Cyanide Transportation Verification Protocol (December 2016), were addressed within the due diligence:

- Transport Practice 1.1 (Questions 1-4 and 6)
- Transport Practice 1.5 (Question 1, Items g-i)
- Transport Practice 1.6
- Transport Practice 2.1
- Transport Practice 3.1.

The ICMI’s Auditor Guidance for Use of Cyanide Transportation Verification Protocol (December 2016) was used to conduct the due diligence assessment.

Golder’s assessment of the port of Conakry found no issues of concern in regards to the port’s management of solid sodium cyanide product. It was not possible during this due diligence to physically inspect the port of Conakry, as such the review was based on information obtained from previous due diligence reviews, ICMI audit reports and publicly available online information. As there was limited information available, it is recommended that Orica minimise the time product spends at the port.

This assessment should not be a final acceptance of the port of Conakry for future work; rather it is recommended that Orica continue to review and monitor the port of Conakry’s performance annually and implement an adaptive management process.
1.0 INTRODUCTION

This letter provides the results of a due diligence assessment against the port of Conakry, Guinea, in accordance with the International Cyanide Management Code for the Manufacture, Transport and Use of Cyanide in the Production of Gold (ICMC or the Code).

Golder conducted a desktop due diligence assessment of the port of Conakry, Guinea during April 2017. The assessment was conducted by Ed Clerk who meets the International Cyanide Management Institute’s (ICMI) requirements for a Transport Technical Specialist.

The following items, as detailed in the ICMI’s Auditor Guidance for Use of Cyanide Transportation Verification Protocol (December 2016), were addressed within the due diligence:

- Introduction
- ICMC Transport Verification Protocol Assessment
  - Transport Practice 1.1 (Questions 1-4 and 6)
  - Transport Practice 1.5 (Question 1, Items g-i)
  - Transport Practice 1.6
  - Transport Practice 2.1
  - Transport Practice 3.1.
- Conclusion
- References.

The ICMI’s Auditor Guidance for Use of Cyanide Transportation Verification Protocol (December 2016) was used to conduct the due diligence assessment. Due to access restrictions, it was not possible during this due diligence to physically inspect the port of Conakry. The due diligence assessment was completed based on information obtained from previous due diligences, ICMI audit reports and publicly available online information.

1.1 Overview of Port of Conakry, Guinea

The port of Conakry is located on the South Coast of Guinea and is the main port of Guinea. The port has a 20 hectare container yard and container storage capacity of 8000 twenty-foot equivalent units (TEUs). The theoretical annual capacity of the port of Conakry is 600 000 TEUs. The container terminal is jointly operated by Bolloré Ports and the Port Authority of Conakry. The port operates a continuous loading and unloading service, and is linked to road and rail systems.

The port of Conakry Harbour Master oversees all port operations, including:

- Management of port protocols for vessel docking
- Entry to port by Pilots
- Vessel approaches
- Shipping activities to port activities changeover.

Stevedoring operations include:

- Handling of full/empty containers on and off vessels, container storage areas for general cargo, port security, etc.
- Management programs for container placement and movement including identification of hazardous cargoes.

Guinea is a member of the International Maritime Organization (IMO) Council and the Abuja Memorandum of Understanding, and as such performs its Port State obligations, supervises foreign ships that berth at Conakry, and promotes compliance with international conventions among Flag States through Port State Control.
2.0 ICMC TRANSPORT VERIFICATION PROTOCOL ASSESSMENT

The ICMI’s Auditor Guidance for Use of Cyanide Transportation Verification Protocol, General Guidance states:

Except as specifically identified in this Guidance document, the Cyanide Transportation Protocol is not to be used to evaluate transport by rail and ship or management of cyanide at rail terminals and port facilities due to security issues, limited access, and the inability of consignors to affect changes in the operating practices of these transport facilities. Rather than conduct Code audits of these facilities, the consignor must conduct and document due diligence investigations of rail carriers, rail terminals, shipping companies and port facilities that are engaged to handle cyanide shipments, as further discussed below under Transport Practice 1.1. The consignor’s due diligence investigation must either be conducted or reviewed by an auditor meeting ICMI requirements for a transport expert, and the auditor must conclude that the due diligence investigation has reasonably evaluated these facilities and that the consignor has, to the extent practical, implemented any necessary management measures.

Transport Practice 1.1: Select cyanide transport routes to minimise the potential for accidents and releases

The international sales and exports of sodium cyanide by Orica take into consideration the ports and their extended infrastructure available to service the intended target area. Orica only operates in export markets that are serviced by major international shipping companies with the ability to offer scheduled container services from point of origin to destination.

Orica procedure “Selection of Transport Routes – Transportation of Sodium Cyanide to Customer Sites or Stock Points” (Orica ref: UP-GLO-PRO-001-017) aims to minimise the risk associated with the transportation of sodium cyanide while maintaining a safe, reliable, efficient and cost effective delivery system to customer sites and Orica stock points throughout the world. The procedure applies to the selection of delivery routes for Orica sodium cyanide and states that the “selection of route(s) is to be effected by the overall assessment of the risks associated with the utilisation of such route, taking into particular consideration likelihood of an incident occurring and the consequence of such an incident.” This procedure is applicable to all routes used for the transportation of Orica sodium cyanide as well as to Orica’s contracted transportation agencies.

The port of Conakry is located in relative close proximity to end use destinations in Guinea and the West Africa region. The port is connected to transportation networks consisting of railways and highways.

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

Orica’s manufacturing facility and transfer stations are ICMC certified, sodium cyanide is packaged and transported in accordance with international regulatory standards, such as the United Nations Recommendation on the Transport of Dangerous Goods – Model Regulations, (2005) and National Codes of Practice such as the Australian Code for the Transport of Dangerous Goods by Road or Rail, (2015) thereby meeting the requirements of the political jurisdictions through which the loads will pass.

Guinea is both an IMO Member State (1975) and SOLAS Signatory Nation (1981), thereby requiring the port of Conakry to adhere to the international regulations for the transportation and handling of dangerous goods as set out in the IMDG Code (Parts 4, 5 and 7) and SOLAS Convention ((1974) Chapter 7).
g) Does the ship carrying the cyanide have a list or manifest identifying the presence and location of the cyanide or a detailed stowage plan including this information, as required under Section 5.4.3.1 of the DG Code?

As an IMO Member State and to comply with the IMDG Code, vessels are required to declare dangerous cargo before arriving at or leaving the port to the Port Authority of Conakry.

Previous due diligence assessments identified that operations personnel on the shipping line vessels on arrival at the loading port provide the Harbour Master with copies of the Dangerous Goods manifest (including stowage plan) and Packing Certificates for each of the hazardous cargo units loaded at that port.

h) Does the ship carrying the cyanide have cyanide emergency response information, as required under Section 5.4.3.2 of the DG Code?

Dangerous goods delivered to or from the port are required to be appropriately manifested, packaged, marked, labelled and placarded. Documentation that accompanies the cyanide throughout transportation by sea and delivery at ports includes a dangerous goods manifest, packing certificates and Multimodal Dangerous Goods Form. The manifests that are provided to the vessel Master contain emergency response information.

Emergency response procedures for ships carrying dangerous goods, including the emergency schedules to be followed in case of incidents involving dangerous substances, materials or articles, or harmful substances (marine pollutants), is regulated under the IMDG code. In accordance with the code, all ships, and the companies responsible for their operation, are required to maintain a Safety Management System (SMS). Within the SMS, procedures for responding to potential shipboard emergencies are required.

Port operations personnel provide the vessel’s Master with copies of the Emergency Information, Dangerous Goods manifest (including stowage plan) and Packaging Certificates for each hazardous cargo transport units loaded onto the ship at the port.

i) Does the ship comply with the stowage and separation requirements of Part 7 of the DG Code?

As a member of the IMO and to comply with the IMDG Code, vessels arriving at the port of Conakry are required to declare dangerous cargo to the Port Authority.

Furthermore, prior to arrival an Entry Certificate must be obtained from the Environment Department for hazardous cargo. All classes of hazardous cargo are permitted except Class 7 (Radioactive Material).

The port of Conakry has dedicated storage areas for specialised products including dangerous goods; cyanide containers are segregated and stacked separately. All sodium cyanide product remains sealed within its container at all times.

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

Guinea requires a pre-shipment inspection for all imports into the country. This is implemented at the point of loading of the container and the inspection agency seals the container with their own specific seal in addition to the manufacturers own seal provisions.

The Dispatch Centre organises ship movements, tracks pilotage operations, and supervises terminal operations via real-time CCTV monitoring.

Chain of custody documentation is used by shipping companies to prevent the loss of cargo during shipment. This documentation includes the vessel manifest – which identifies the location and content of each container on the vessel along with packing certificates, Multimodal Dangerous Goods Forms and Safety Data Sheets (SDS).
Transport Practice 2.1: Store cyanide in a manner that minimises the potential for accidental releases

All solid sodium cyanide that transits the port of Conakry is collected by the relevant carriers as soon as possible after arrival. Express clearances are initiated where possible to minimise the transit period. During periods of transit, containers of solid sodium cyanide are segregated accordingly and stored in a secured and signed area prohibiting smoking, drinking and eating. All personnel, outside those operating top lift forklifts, are warned to keep away from the containers.

All signage is provided in French, the national language of the country.

Guinea requires a pre-shipment inspection for all imports into the country. This is implemented at the point of loading of the container and the inspection agency seals the container with their own specific seal in addition to the manufacturers own seal provisions.

The port of Conakry is a secure area with an on-site security presence. Security watch is compulsory for all ships carrying sodium cyanide. The port’s security are armed and trained to deal with intruders. The port’s security presence is a facet of the port’s ISPS Code protocols.

All cyanide remains within its sealed containers at all times preventing contact with water and other incompatible materials. The area of transit storage is well segregated and in an open area to prevent the build-up of hydrogen cyanide gas.

Only solid sodium cyanide is transited via the port of Conakry. A previous due diligence assessment indicated that the area in which the containers are located whilst transiting the port is suitable to effectively contain any spillage of solid sodium cyanide that may occur.

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

Guinea has been a Member State of the IMO Council since 1975, it complies with the requirements of the IMDG Code. Although not specifically addressed in the due diligence the port of Conakry has a basic emergency response by following the IMDG Code requirements.

The port of Conakry is certified under the IMO’s International Convention on Oil Pollution Preparedness, Response and Cooperation 1990 (OPRC 90). States which are party to OPRC 90 protocol are required to establish a national system for responding to oil and hazardous/noxious substances pollution incidents, including a designated national authority, a national operational contact point and a national contingency plan. This needs to be supported by a minimum level of response equipment, communications plans, regular training and exercises.

Emergency response is effected by external response agencies which are located close by to the port. The port itself has a limited emergency response capability than can assist the external agencies. In an emergency situation, the port’s security presence initiates a lock down of the port to prevent access to the port except for authorised emergency services responding to the emergency situation.

3.0 CONCLUSION

Golder’s assessment of the port of Conakry found no issues of concern in regards to the port’s management of solid sodium cyanide product. It was not possible during this due diligence to physically inspect the port of Conakry, as such the review was based on information obtained from previous due diligence reviews, ICMI audit reports, discussions with consignors and publicly available online information.

As there was limited information available, it is recommended that Orica minimise the time product spends at the port.

The assessment is not a final acceptance of the port of Conakry for future work; rather it is recommended that Orica continue to review and monitor the port of Conakry’s performance annually and implement an adaptive management process.
4.0 CLOSING
We trust this due diligence letter meets your requirements. If you have any questions, please do not hesitate to contact the undersigned.

GOLDER ASSOCIATES PTY LTD

Craig Currie
Environmental Scientist
CC/EWC/hsl

Ed Clerk
ICMC Lead Auditor and Technical Specialist

\l\golder.gds\gap\perth\jobs\env\2016 - environment\1665113 - orica icmc audit ocean freight supply chain\correspondence\out001 - 034 due diligences\1665113-0174-rev0 dd port conakry, guinea.docx
REFERENCES


31 July 2017

Owen Warren
Senior Manager Global Distribution
Orica

Email: owen.warren@orica.com

ICMC DUE DILIGENCE ASSESSMENT FOR THE PORT OF DAKAR

Dear Owen

EXECUTIVE SUMMARY

Golder Associates Pty Ltd (Golder) conducted a due diligence of the port of Dakar, Senegal during April 2017 on behalf of Orica Australia Pty Ltd (Orica). The assessment was conducted by Ed Clerk who meets the International Cyanide Management Institute’s (ICMI) requirements for a Transport Technical Specialist.

The following items, as detailed in the ICMI’s Auditor Guidance for Use of Cyanide Transportation Verification Protocol (December 2016), were addressed within the due diligence:

- Transport Practice 1.1 (Questions 1-4 and 6)
- Transport Practice 1.5 (Question 1, Items g-i)
- Transport Practice 1.6
- Transport Practice 2.1
- Transport Practice 3.1.

The ICMI’s Auditor Guidance for Use of Cyanide Transportation Verification Protocol (December 2016) was used to conduct the due diligence assessment. Due to access restrictions it was not possible during this due diligence to physically inspect the port, as such the review was based on information obtained from previous due diligence reviews, ICMI audit reports and publicly available online information.

Golder’s assessment of the port of Dakar found no new issues of concern in regards to the port’s management of solid sodium cyanide product. It does however acknowledge that a previous due diligence (2010) highlighted concerns around handling of cyanide shipments whilst at the DP World Terminal within the port.

This assessment should not be a final acceptance of the port of Dakar for future work; rather it is recommended that Orica continue to review and monitor the port of Dakar’s performance annually and implement an adaptive management process.
1.0 INTRODUCTION

This letter provides the results of a due diligence assessment against the port of Dakar, Senegal, in accordance with the International Cyanide Management Code for the Manufacture, Transport and Use of Cyanide in the Production of Gold (ICMC or the Code).

Golder conducted a desktop due diligence assessment of the port of Dakar, Senegal during April 2017. The assessment was conducted by Ed Clerk who meets the International Cyanide Management Institute’s (ICMI) requirements for a Transport Technical Specialist.

The following items, as detailed in the ICMI’s Auditor Guidance for Use of Cyanide Transportation Verification Protocol (December 2016), were addressed within the due diligence:

- Introduction
- ICMC Transport Verification Protocol Assessment
  - Transport Practice 1.1 (Questions 1-4 and 6)
  - Transport Practice 1.5 (Question 1, Items g-i)
  - Transport Practice 1.6
  - Transport Practice 2.1
  - Transport Practice 3.1.
- Conclusion
- References.

The ICMI’s Auditor Guidance for Use of Cyanide Transportation Verification Protocol (December 2016) was used to conduct the due diligence assessment. Due to access restrictions, it was not possible during this due diligence to physically inspect the port of Dakar. The due diligence assessment was completed based on information obtained from previous due diligences, ICMI audit reports and publicly available online information.

1.1 Overview of Port of Dakar, Senegal

The port of Dakar is situated in the State of Colima, in the Republic of Senegal. Dakar is a deep sea port and is located at the intersection of the main sea routes serving the West African coast. The port is strategically well placed, located at the most advanced point of the West African coast, and at the intersection of carrier lines linking Europe to South America, and North America to South Africa.

It is an international port of transit and serves as the gateway for Mali thus offering the possibility of additionally serving Niger and Burkina Faso.

The port is divided into two separate trading zones (North and South) separated by a military zone, ship repair shops and a fishing port. The container terminal in the North Zone of the port of Dakar covers a total area of 24 ha. It has a linear quay of 700 metres in length with three berths ranging from 12 to 13 metres in depth. Modern equipment is used for handling, including four docks (including two post-panamax), four Gottwald cranes on 100-tonne tyres, ten gantry cranes, 15 reach stackers and 400 refrigerator outlets.

The operator of the container terminal is DP World and they oversee the annual traffic of approximately 300 000 twenty-foot equivalent units (TEUs). The port also has separate terminals for bulk goods and hydrocarbons.
2.0  ICMC TRANSPORT VERIFICATION PROTOCOL ASSESSMENT

The ICMI's Auditor Guidance for Use of Cyanide Transportation Verification Protocol, General Guidance states:

Except as specifically identified in this Guidance document, the Cyanide Transportation Protocol is not to be used to evaluate transport by rail and ship or management of cyanide at rail terminals and port facilities due to security issues, limited access, and the inability of consignors to affect changes in the operating practices of these transport facilities. Rather than conduct Code audits of these facilities, the consignor must conduct and document due diligence investigations of rail carriers, rail terminals, shipping companies and port facilities that are engaged to handle cyanide shipments, as further discussed below under Transport Practice 1.1. The consignor’s due diligence investigation must either be conducted or reviewed by an auditor meeting ICMI requirements for a transport expert, and the auditor must conclude that the due diligence investigation has reasonably evaluated these facilities and that the consignor has, to the extent practical, implemented any necessary management measures.

Transport Practice 1.1: Select cyanide transport routes to minimise the potential for accidents and releases

The international sales and exports of sodium cyanide by Orica take into consideration the ports and their extended infrastructure available to service the intended target area. Orica only operates in export markets that are serviced by major international shipping companies with the ability to offer scheduled container services from point of origin to destination.

Orica procedure “Selection of Transport Routes – Transportation of Sodium Cyanide to Customer Sites or Stock Points” (Orica ref: UP-GLO-PRO-001-017) aims to minimise the risk associated with the transportation of sodium cyanide while maintaining a safe, reliable, efficient and cost effective delivery system to customer sites and Orica stock points throughout the world. The procedure applies to the selection of delivery routes for Orica sodium cyanide and states that the “selection of route(s) is to be effected by the overall assessment of the risks associated with the utilisation of such route, taking into particular consideration likelihood of an incident occurring and the consequence of such an incident.” This procedure is applicable to all routes used for the transportation of Orica sodium cyanide as well as to Orica’s contracted transportation agencies.

The port is strategically well placed, located at the most advanced point of the West African coast, and at the intersection of carrier lines linking Europe to South America, and North America to South Africa. It is an international port of transit and serves as the gateway for Mali thus offering the possibility of additionally serving Niger and Burkina Faso.

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

Orica’s manufacturing facility and transfer stations are ICMC certified, sodium cyanide is packaged and transported in accordance with international regulatory standards, such as the United Nations Recommendation on the Transport of Dangerous Goods – Model Regulations, (2005) and National Codes of Practice such as the Australian Code for the Transport of Dangerous Goods by Road or Rail, (2015) thereby meeting the requirements of the political jurisdictions through which the loads will pass.

Orica only operates in export markets that are serviced by major international shipping companies with the ability to offer scheduled container services from point of origin to destination. Orica procedure “Carrier Assessment” (Orica ref: SUP-GLO-PRO-016-008) provides the framework for ensuring that carriers and their contractors are assessed at regular intervals to ensure that, amongst others, storage, safety, security, maintenance and emergency response standards are being maintained. Carriers are required to provide manifest documentation, to satisfy local customs regulations and the requirements of the IMDG Code, to the destination port. This documentation contains a list of the cargo types and in the case of sodium cyanide and any other hazardous cargo the quantity, unique packaging numbers, stowage reference and emergency response procedures.

Senegal is both an IMO Member State (1960) and SOLAS Signatory Nation (1997), thereby requiring the port of Dakar to adhere to the international regulations for the transportation and handling of dangerous goods as set out in the IMDG Code (Parts 4, 5 and 7) and SOLAS Convention ((1974) Chapter 7).
g) Does the ship carrying the cyanide have a list or manifest identifying the presence and location of the cyanide or a detailed stowage plan including this information, as required under Section 5.4.3.1 of the DG Code?

The Senegal Port Authority develops and implements policies, statutes and regulations governing the carriage of dangerous goods and other goods by ships in accordance with relative national and international requirements. This includes supervising the safety of ships carrying dangerous goods and other goods, processing declarations made by ships carrying dangerous goods, providing accreditation services for personnel involved in the declaration of dangerous goods and inspection of containers, and inspecting containers holding dangerous goods.

As an IMO Member State and to comply with the IMDG Code, vessels are required to declare dangerous cargo before arriving at or leaving the Port Authority.

The port of Dakar operates under a suite of National regulations that ensures its compliance with regards to the transportation, handling and storage of dangerous goods.

h) Does the ship carrying the cyanide have cyanide emergency response information, as required under Section 5.4.3.2 of the DG Code?

Dangerous goods delivered to or from the port are required to be appropriately manifested, packaged, marked, labelled and placarded. Documentation that accompanies the cyanide throughout transportation by sea and delivery at ports includes a dangerous goods manifest, packing certificates and Multimodal Dangerous Goods Form. The manifests that are provided to the vessel Master contain emergency response information.

Emergency response procedures for ships carrying dangerous goods, including the emergency schedules to be followed in case of incidents involving dangerous substances, materials or articles, or harmful substances (marine pollutants), is regulated under the IMDG code. In accordance with the code, all ships, and the companies responsible for their operation, are required to maintain a Safety Management System (SMS). Within the SMS, procedures for responding to potential shipboard emergencies are required.

Port operations personnel provide the vessel’s Master with copies of the Emergency Information, Dangerous Goods manifest (including stowage plan) and Packaging Certificates for each hazardous cargo transport units loaded onto the ship at the port.

i) Does the ship comply with the stowage and separation requirements of Part 7 of the DG Code?

As a member of the IMO and to comply with the International Maritime Solid Bulk Cargoes Code (IMSBC Code), vessels are required to declare dangerous cargo to the Port Authority before arriving at or leaving the port.

To comply with requirements of the IMDG Code, the port of Dakar has dedicated storage areas for specialised products including dangerous goods; cyanide containers are segregated and stacked separately. All sodium cyanide product remains sealed within its container at all times.

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

The Dispatch Center organises ship movements, tracks pilotage operations, and supervises terminal operations via real-time CCTV monitoring.

Chain of custody documentation is used by shipping companies to prevent the loss of cargo during shipment. This documentation includes the vessel manifest – which identifies the location and content of each container on the vessel along with packing certificates, Multimodal Dangerous Goods Forms and Safety Data Sheets (SDS).
Transport Practice 2.1: Store cyanide in a manner that minimises the potential for accidental releases

The Senegal Port Authority states that the port of Dakar has taken significant steps to align its facilities and operations with the directives of the International Convention for the Safety of Life at Sea (SOLAS) 1974, convention. Therefore, every ship applying for permission to enter, and every port facility operator working in the port of Dakar must ensure compliance with the security and safety requirements for ships and port facilities as issued by the IMO.

With this in mind the port of Dakar has set up:

- A centralised navigation aid at the harbor lookout, equipped with an Automated Identification System (AIS) and functional mark-up structures
- A surveillance system for the harbor and the water plan using radars, remote monitoring systems and nautical patrols
- Security measures for access and the port enclosure with the setting up of a multi-purpose operational centre equipped with high-tech surveillance equipment.

Additionally, 2016 saw the strengthening of security provisions at Dakar with the establishment of a corps of 450 officers trained in ISPS code standards and the reinforcing of perimeter and access point security measures.

Naval assets for maritime and ground surveillance (patrol vehicles and video surveillance) have been put in place. The port of Dakar aims to have ISO 28000 certification by 2023 and has recently contracted a private enterprise to begin putting in place the required equipment, materials and maintenance protocols to achieve certification.

A due diligence conducted in 2010 on the West African supply chain of an established cyanide transporter highlighted concerns relating to the management of cyanide and hazardous substances whilst in storage at the port of Dakar and under the management of DP World.

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

Senegal has been a member State of the IMO Council since 1960, it complies with the requirements of the IMDG Code.

The port of Dakar is certified under the IMO’s International Convention on Oil Pollution Preparedness, Response and Cooperation 1990 (OPRC 90). States which are party to OPRC 90 protocol are required to establish a national system for responding to oil and hazardous/noxious substances pollution incidents, including a designated national authority, a national operational contact point and a national contingency plan. This needs to be supported by a minimum level of response equipment, communications plans, regular training and exercises.

3.0 CONCLUSION

Based on the evidence reviewed, this due diligence did not find any new issues of concern in regards to the port of Dakar’s management of solid sodium cyanide product. It does however acknowledge that a previous due diligence (2010) highlighted concerns around handling of cyanide shipments whilst at the DP World Terminal within the port.

It was not possible during this due diligence to physically inspect the port, as such the review was based on information obtained from previous due diligence reviews, ICMI audit reports and publicly available online information. The Auditor recommends that Orica limits the time product is spent at this port and undertakes annual reviews to monitor the management of dangerous goods.

This assessment should not be a final acceptance of the port of Dakar for future work; rather it is recommended that Orica continue to review and monitor the port’s performance annually and implement an adaptive management process.
4.0 CLOSING
We trust this due diligence letter meets your requirements. If you have any questions, please do not hesitate to contact the undersigned.

GOLDER ASSOCIATES PTY LTD

Craig Currie
Environmental Scientist

Ed Clerk
ICMC Lead Auditor and Technical Specialist

CC/EWC/hsl
REFERENCES


ICMC DUE DILIGENCE ASSESSMENT FOR THE PORT OF ABIDJAN

Dear Owen

EXECUTIVE SUMMARY

Golder Associates Pty Ltd (Golder) conducted a due diligence of the port of Abidjan, Cote d’Ivoire during May 2017 on behalf of Orica Australia Pty Ltd (Orica). The assessment was conducted by Ed Clerk who meets the International Cyanide Management Institute’s (ICMI) requirements for a Transport Technical Specialist.

The following items, as detailed in the ICMI’s Auditor Guidance for Use of Cyanide Transportation Verification Protocol (December 2016), were addressed within the due diligence:

- Transport Practice 1.1 (Questions 1-4 and 6)
- Transport Practice 1.5 (Question 1, Items g-i)
- Transport Practice 1.6
- Transport Practice 2.1
- Transport Practice 3.1.

The ICMI’s Auditor Guidance for Use of Cyanide Transportation Verification Protocol (December 2016) was used to conduct the due diligence assessment. It was not possible during this due diligence to physically inspect the port, as such the review was based on information obtained from previous due diligence reviews, ICMI audit reports and publicly available online information.

Golder’s assessment of the port of Abidjan found no issues of concern in regards to the port’s management of solid sodium cyanide product.

This assessment should not be a final acceptance of the port of Abidjan for future work; rather it is recommended that Orica continue to review and monitor the port’s performance annually and implement an adaptive management process.

31 July 2017

Owen Warren
Senior Manager Global Distribution
Orica

Email: owen.warren@orica.com
1.0 INTRODUCTION
This letter provides the results of a due diligence assessment against the port of Abidjan, Cote d’Ivoire, in accordance with the *International Cyanide Management Code for the Manufacture, Transport and Use of Cyanide in the Production of Gold* (ICMC or the Code).

Golder conducted a desktop due diligence assessment of the port of Abidjan, Cote d’Ivoire during May 2017. The assessment was conducted by Ed Clerk who meets the International Cyanide Management Institute’s (ICMI) requirements for a Transport Technical Specialist.

The following items, as detailed in the ICMI’s *Auditor Guidance for Use of Cyanide Transportation Verification Protocol* (December 2016), were addressed within the due diligence:

- Introduction
- ICMC Transport Verification Protocol Assessment
  - Transport Practice 1.1 (Questions 1-4 and 6)
  - Transport Practice 1.5 (Question 1, Items g-i)
  - Transport Practice 1.6
  - Transport Practice 2.1
  - Transport Practice 3.1.
- Conclusion
- References.

The ICMI’s *Auditor Guidance for Use of Cyanide Transportation Verification Protocol* (December 2016) was used to conduct the due diligence assessment. Due to access restrictions, it was not possible during this due diligence to physically inspect the port of Abidjan. The due diligence assessment was completed based on information obtained from previous due diligences, ICMI audit reports and publicly available online information.

1.1 Overview of Port of Abidjan, Cote d’Ivoire
The port of Abidjan is the main port of the Cote d’Ivoire (Ivory Coast) in Africa. Lying on the Ebré Lagoon, it is linked to the Gulf of Guinea and Atlantic Ocean by the Vridi Plage sandbar.

The port of Abidjan is West Africa’s largest, most modern port. With a central location and a well-developed infrastructure, it is a major point for transhipments into West and Central Africa over the Cote d’Ivoire’s network of rail and road systems. Since the opening of the Vridi Canal, the port of Abidjan has handled nearly all commercial trade for the Cote d’Ivoire.

The port of Abidjan has a total quay length of six kilometres and there are 34 berths dedicated for timber, cereals, fruits, petroleum products and containers. The port of Abidjan can accommodate vessels up to 260 meters long, depth at the harbor’s mouth is 10.5 m, and the depth at quay is 12.5 m. The port provides approximately 408,000 m$^2$ of open storage and 144 m$^2$ of covered warehouses and sheds. Three berths specialize in container-handling, and one berth is devoted to roll-on/roll-off cargoes.


Overview of port operations:
- Port protocols exist for docking of vessels (e.g. use of Pilots, use of tug boats, management of different weather conditions, tides, currents and safety and general port operations). This sees to the safe docking and turnaround of the vessels in and out of the port.
- Entry into port is controlled by the port’s Pilot who understands the port protocols and any unique issues regarding the approach and docking of a vessel at the port. The Ship’s Captain works in conjunction with the Pilot as he understands his vessel and can implement and assist with the Pilot’s instructions.
The approach of the vessel to the ports will take into any account any channels, special navigation points and as mentioned above the currents, tides and weather.

Once a vessel is secure alongside the wharf the shipping activities changeover to port activities. The vessels manifest of what containers are required to be unloaded from the vessel, including the manifest for containers for loading are handed over. This manifest will identify hazardous cargos and their UN number and classification and segregation requirements.

The stevedoring company, Bollore Africa Logistics, manage the onshore (wharf) operations at the dedicated container terminal. This is the terminal currently used by other ICMI accredited transporters to facilitate the unloading of their vessels.

Stevedoring operations include:

- Handling of the containers whether full or empty on and off the vessels; container storage areas for general cargo, port security, control systems for companies and their vehicles collecting and or delivering containers.
- Software programs that control container placement and movement; these software packages identify each individual container placement area in designated stacks. The input information for the placement of containers comes from the vessel’s manifest.

Sodium cyanide containers are loaded directly onto trailers via gantry cranes, owned and maintained by Bollore Africa Logistics Transport Division, for direct delivery out of the port under controlled convoys to the end use destination in Cote d’Ivoire.

2.0 ICMC TRANSPORT VERIFICATION PROTOCOL ASSESSMENT

The ICMI’s Auditor Guidance for Use of Cyanide Transportation Verification Protocol, General Guidance states:

Except as specifically identified in this Guidance document, the Cyanide Transportation Protocol is not to be used to evaluate transport by rail and ship or management of cyanide at rail terminals and port facilities due to security issues, limited access, and the inability of consignors to affect changes in the operating practices of these transport facilities. Rather than conduct Code audits of these facilities, the consignor must conduct and document due diligence investigations of rail carriers, rail terminals, shipping companies and port facilities that are engaged to handle cyanide shipments, as further discussed below under Transport Practice 1.1. The consignor’s due diligence investigation must either be conducted or reviewed by an auditor meeting ICMI requirements for a transport expert, and the auditor must conclude that the due diligence investigation has reasonably evaluated these facilities and that the consignor has, to the extent practical, implemented any necessary management measures.

Transport Practice 1.1: Select cyanide transport routes to minimise the potential for accidents and releases

The international sales and exports of sodium cyanide by Orica take into consideration the ports and their extended infrastructure available to service the intended target area. Orica only operates in export markets that are serviced by major international shipping companies with the ability to offer scheduled container services from point of origin to destination.

Orica procedure “Selection of Transport Routes – Transportation of Sodium Cyanide to Customer Sites or Stock Points” (Orica ref: UP-GLO-PRO-001-017) aims to minimise the risk associated with the transportation of sodium cyanide while maintaining a safe, reliable, efficient and cost effective delivery system to customer sites and Orica stock points throughout the world. The procedure applies to the selection of delivery routes for Orica sodium cyanide and states that the “selection of route(s) is to be effected by the overall assessment of the risks associated with the utilisation of such route, taking into particular consideration likelihood of an incident occurring and the consequence of such an incident.” This procedure is applicable to all routes used for the transportation of Orica sodium cyanide as well as to Orica’s contracted transportation agencies.

The port of Abidjan is West Africa’s largest, most modern port. With a central location and a well-developed infrastructure, it is a major point for transhipments into West and Central Africa over the Cote d’Ivoire’s network of rail and road systems.
Transport Practice 1.5: Follow international standards for the transportation of cyanide by sea and air

Orica's manufacturing facility and transfer stations are ICMC certified, sodium cyanide is packaged and transported in accordance with international regulatory standards, such as the United Nations Recommendation on the Transport of Dangerous Goods – Model Regulations, (2005) and National Codes of Practice such as the Australian Code for the Transport of Dangerous Goods by Road or Rail, (2015) thereby meeting the requirements of the political jurisdictions through which the loads will pass.

Orica only operates in export markets that are serviced by major international shipping companies with the ability to offer scheduled container services from point of origin to destination. Orica procedure “Carrier Assessment” (Orica ref: SUP-GLO-PRO-016-008) provides the framework for ensuring that carriers and their contractors are assessed at regular intervals to ensure that, amongst others, storage, safety, security, maintenance and emergency response standards are being maintained. Carriers are required to provide manifest documentation, to satisfy local customs regulations and the requirements of the IMDG Code, to the destination port. This documentation contains a list of the cargo types and in the case of sodium cyanide and any other hazardous cargo the quantity, unique packaging numbers, stowage reference and emergency response procedures.

Cote d'Ivoire is both an IMO Member State (1960) and SOLAS Signatory Nation (1987), thereby requiring the port of Abidjan to adhere to the international regulations for the transportation and handling of dangerous goods as set out in the IMDG Code (Parts 4, 5 and 7) and SOLAS Convention ((1974) Chapter 7).

**g) Does the ship carrying the cyanide have a list or manifest identifying the presence and location of the cyanide or a detailed stowage plan including this information, as required under Section 5.4.3.1 of the DG Code?**

The Abidjan Port Authority (PAA) develops and implements policies, statutes and regulations governing the carriage of dangerous goods and other goods by ships in accordance with relative national and international requirements. This includes supervising the safety of ships carrying dangerous goods and other goods, processing declarations made by ships carrying dangerous goods, providing accreditation services for personnel involved in the declaration of dangerous goods and inspection of containers, and inspecting containers holding dangerous goods.

As an IMO Member State and to comply with the IMDG Code, vessels are required to declare dangerous cargo 48 hours prior to arriving at the port, to the PAA. The notification information required by the PAA includes the exact nature of the substance, its IMDG Code Class, the quantity and its location aboard the vessel. The required Special Port Entry Permit will not be issued unless the dangerous cargo is properly declared.

The port of Abidjan operates under a number of National regulations, enforced by the PAA, which ensures its compliance with regards to the transportation, handling and storage of dangerous goods.

**h) Does the ship carrying the cyanide have cyanide emergency response information, as required under Section 5.4.3.2 of the DG Code?**

Dangerous goods delivered to or from the port are required to be appropriately manifested, packaged, labelled and placarded. Documentation that accompanies the cyanide throughout transportation by sea and delivery at ports includes emergency response information along with the dangerous goods manifest, packing certificates and Multimodal Dangerous Goods Form.

Emergency response procedures for ships carrying dangerous goods, including the emergency schedules to be followed in case of incidents involving dangerous substances, materials or articles, or harmful substances (marine pollutants), is regulated under the IMDG Code. In accordance with the Code, all ships, and the companies responsible for their operation, are required to maintain a Safety Management System (SMS). Within the SMS, procedures for responding to potential shipboard emergencies are required.

Port operations personnel provide the vessel’s Master with copies of the Emergency Information, Dangerous Goods manifest (including stowage plan) and Packaging Certificates for each hazardous cargo transport units loaded onto the ship at the port of origin.
i) Does the ship comply with the stowage and separation requirements of Part 7 of the DG Code?

As a member of the IMO and to comply with the IMDG Code and port regulations, vessels are required to declare dangerous cargo before arriving at or leaving the port, additionally, all cargo listed on the dangerous cargo manifest must be stowed and handled as prescribed by its UN number and dangerous goods class.

The port of Abidjan primarily aims to have dangerous cargo placed directly onto a trailer and removed from the facility under escort of the PAA. However, when this cannot occur, Abidjan has a dedicated Security Park storage area for specialised products including dangerous goods; cyanide containers are segregated and stacked separately according the provisions of the Code. All sodium cyanide remains packaged within its sealed container at all times.

All handling of dangerous goods, on and off of vessels, must have prior authorisation by the Harbour Master who sets the timeframes that such handling may take place. Port Regulation states that the unloading of hazardous goods takes place at the beginning of the unloading process and the loading of hazardous goods takes place at the end of the loading process.

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

The Harbour Master organises ship movements, tracks pilotage operations, and supervises terminal operations via the Port Control Tower and real-time CCTV monitoring. Container terminal software allows for the controlled tracking and placement of containers when removed from the vessel.

Chain of custody documentation is used by shipping companies to prevent the loss of cargo during shipment. This documentation includes the vessel manifest – which identifies the location and content of each container on the vessel along with packing certificates, Multimodal Dangerous Goods Forms and Safety Data Sheets (SDS).

The port of Abidjan requires documentation such as Request for Removal forms, Original Bill of Lading, cargo manifests and the original handler’s voucher in order to allow the removal from vessel of, and subsequently tranship, dangerous goods containers.

Transport Practice 2.1: Store cyanide in a manner that minimises the potential for accidental releases

In general, port and vessel security are managed through the International Ship and Port Facility Security Code (ISPS Code), awarded to the port of Abidjan in 2004. The ISPS Code is a comprehensive set of measures aimed to enhance security of ships and port facilities.

The port of Abidjan is also certified under OHSAS 18001:2007 (health and security). There are regular security patrols, restricted points of access, video surveillance and the capability to call upon certain specialised State Defence and Security Forces.

When containers of dangerous goods cannot be placed directly onto onwards transportation, they are sent to a secure holding facility under escort of the PAA. All handling of dangerous goods, on and off of vessels, must have prior authorisation by the Harbour Master who sets the timeframes that such handling may take place.

Cyanide product remains in the containers that were packed at the Production Facility. The packaging has a sealed plastic liner which stops the contact of product with moisture or humidity. The Intermediate Bulk Containers (IBCs) holding cyanide are stored within shipping containers which are transferred from vessel to trailer and moved to a designated dangerous goods storage area within the terminal confines. Containers are placed in an open air environment to prevent the build-up of hydrogen cyanide gas.

There are general dangerous goods warning signs throughout the port.

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

Cote d’Ivoire has been a member State of the IMO Council since 1960, it complies with the requirements of the IMDG Code.
The port of Abidjan is certified under the IMO's International Convention on Oil Pollution Preparedness, Response and Cooperation 1990 (OPRC 90). States which are party to OPRC 90 protocol are required to establish a national system for responding to oil and hazardous/noxious substances pollution incidents, including a designated national authority, a national operational contact point and a national contingency plan. This needs to be supported by a minimum level of response equipment, communications plans, regular training and exercises.

The Ivorian Anti-Pollution Centre (CIAPOL) is the responsible authority for marine pollution in the Ivory Coast.

CIAPOL, with the support of private contractors, manages the response to and monitoring of a Hazardous and Noxious Substances (HNS) incident and some equipment is readily available.

The Stevedoring service provider, Bollore Africa Logistics, has developed an emergency procedure guide specific to sodium cyanide. They also possess emergency response capabilities including a mobile bund for containing spillage from a shipping container. In the event of an emergency, the port of Abidjan has a Port response unit (U.I.P.), composed of officers from the fire service or the navy fire department, who are on-hand and ready to respond 24 hours a day.

3.0 CONCLUSION

Based on the evidence reviewed, this due diligence did not find significant issues of concern in regards to the port of Abidjan’s management of solid sodium cyanide product. It was not possible during this due diligence to physically inspect the port, as such the review was based on information obtained from previous due diligence reviews, ICMI audit reports and publicly available online information. The Auditor recommends that Orica undertakes annual reviews at the port to monitor the management of dangerous goods.

This assessment should not be a final acceptance of the port of Abidjan for future work; rather it is recommended that Orica continue to review and monitor the port’s performance annually and implement an adaptive management process.

4.0 CLOSING

We trust this due diligence letter meets your requirements. If you have any questions, please do not hesitate to contact the undersigned.

GOLDER ASSOCIATES PTY LTD

Craig Currie
Environmental Scientist

Ed Clerk
ICMC Lead Auditor and Technical Specialist

CC/EWC/hsl
REFERENCES


EXECUTIVE SUMMARY

Golder Associates Pty Ltd (Golder) conducted a due diligence of the port of Nouakchott, Mauritania during May 2017 on behalf of Orica Australia Pty Ltd (Orica). The assessment was conducted by Ed Clerk who meets the International Cyanide Management Institute’s (ICMI) requirements for a Transport Technical Specialist.

The following items, as detailed in the ICMI’s Auditor Guidance for Use of Cyanide Transportation Verification Protocol (December 2016), were addressed within the due diligence:

- Transport Practice 1.1 (Questions 1-4 and 6)
- Transport Practice 1.5 (Question 1, Items g-i)
- Transport Practice 1.6
- Transport Practice 2.1
- Transport Practice 3.1.

The ICMI’s Auditor Guidance for Use of Cyanide Transportation Verification Protocol (December 2016) was used to conduct the due diligence assessment. It was not possible during this due diligence to physically inspect the port, as such the review was based on information obtained from previous due diligence reviews, ICMI audit reports and publicly available online information.

Golder’s assessment of the port of Nouakchott found no issues of concern in regards to the port’s management of solid sodium cyanide product.

This assessment should not be a final acceptance of the port of Nouakchott for future work; rather it is recommended that Orica continue to review and monitor the port’s performance annually and implement an adaptive management process.
1.0 INTRODUCTION

This letter provides the results of a due diligence assessment against the port of Nouakchott, Mauritania, in accordance with the International Cyanide Management Code for the Manufacture, Transport and Use of Cyanide in the Production of Gold (ICMC or the Code).

Golder conducted a desktop due diligence assessment of the port of Nouakchott, Mauritania during May 2017. The assessment was conducted by Ed Clerk who meets the International Cyanide Management Institute’s (ICMI) requirements for a Transport Technical Specialist.

The following items, as detailed in the ICMI’s Auditor Guidance for Use of Cyanide Transportation Verification Protocol (December 2016), were addressed within the due diligence:

- Introduction
- ICMC Transport Verification Protocol Assessment
  - Transport Practice 1.1 (Questions 1-4 and 6)
  - Transport Practice 1.5 (Question 1, Items g-i)
  - Transport Practice 1.6
  - Transport Practice 2.1
  - Transport Practice 3.1.
- Conclusion
- References.

The ICMI’s Auditor Guidance for Use of Cyanide Transportation Verification Protocol (December 2016) was used to conduct the due diligence assessment. Due to access restrictions, it was not possible during this due diligence to physically inspect the port of Nouakchott. The due diligence assessment was completed based on information obtained from previous due diligences, ICMI audit reports and publicly available online information.

1.1 Overview of Port of Nouakchott, Mauritania

The port of Nouakchott is the main port in Mauritania accounting for approximately 96 % of all annual port traffic. It is located near the West African Atlantic coast and was developed as the capital of Mauritania after it gained independence in 1960. In the past Mauritania lay on one of the most lucrative trade routes in West Africa.

Nouakchott port is an import port representing approximately 90 % of all annual imported goods, approximately 1.5 million tonnes, these goods include wheat, cement, clinker, flour, sugar, semolina, milk and general equipment. Exports include plaster from Samia, Mauritania’s main producer, animal skins and fish.

The port of Nouakchott consists of two quays, one for small vessels (Wharf Quay) with draft less than 5 m and a second quay for larger vessels with a maximum draft of 10.3 m, this quay stretches 585 m and is split into four berths, three of which are used for cargo handling and the fourth for servicing vessels. The main cargo quay is located 4 km south of the Quai Wharf and 15 km south-west of the city of Nouakchott.

Nouakchott uses an integrated AS400 computer system developed in co-operation with the Office d'Exploitation des Ports Marocains (ODEP). This offers management transparency and enhances the quality of service offered to international customers.

The Autonomous Port of Nouakchott, called PANPA for short, manages the port.

Overview of port operations:

- Port protocols exist for docking of vessels (e.g. use of Pilots, use of tug boats, management of different weather conditions, tides, currents and safety and general port operations). This sees to the safe docking and turnaround of the vessels in and out of the port.
Entry into port is controlled by the port’s Pilot who understands the port protocols and any unique issues regarding the approach and docking of a vessel at the port. The Ship’s Captain works in conjunction with the Pilot as he understands his vessel and can implement and assist with the Pilot’s instructions.

The approach of the vessel to the ports will take into any account any channels, special navigation points and as mentioned above the currents, tides and weather.

Once a vessel is secure alongside the wharf the shipping activities changeover to port activities. The vessels manifest of what containers are required to be unloaded from the vessel, including the manifest for containers for loading are handed over. This manifest will identify hazardous cargos and their UN number and classification and segregation requirements.

The stevedoring service providers manage the onshore (wharf) operations at the dedicated container terminal.

Stevedoring operations include:

- Handling of the containers whether full or empty on and off the vessels; container storage areas for general cargo, port security, control systems for companies and their vehicles collecting and or delivering containers.

- Software programs that control container placement and movement; these software packages identify each individual container placement area in designated stacks. The input information for the placement of containers comes from the vessel’s manifest.

2.0   ICMC TRANSPORT VERIFICATION PROTOCOL ASSESSMENT

The ICMI’s Auditor Guidance for Use of Cyanide Transportation Verification Protocol, General Guidance states:

Except as specifically identified in this Guidance document, the Cyanide Transportation Protocol is not to be used to evaluate transport by rail and ship or management of cyanide at rail terminals and port facilities due to security issues, limited access, and the inability of consignors to affect changes in the operating practices of these transport facilities. Rather than conduct Code audits of these facilities, the consignor must conduct and document due diligence investigations of rail carriers, rail terminals, shipping companies and port facilities that are engaged to handle cyanide shipments, as further discussed below under Transport Practice 1.1. The consignor’s due diligence investigation must either be conducted or reviewed by an auditor meeting ICMI requirements for a transport expert, and the auditor must conclude that the due diligence investigation has reasonably evaluated these facilities and that the consignor has, to the extent practical, implemented any necessary management measures.

Transport Practice 1.1: Select cyanide transport routes to minimise the potential for accidents and releases

The international sales and exports of sodium cyanide by Orica take into consideration the ports and their extended infrastructure available to service the intended target area. Orica only operates in export markets that are serviced by major international shipping companies with the ability to offer scheduled container services from point of origin to destination.

Orica procedure “Selection of Transport Routes – Transportation of Sodium Cyanide to Customer Sites or Stock Points” (Orica ref: UP-GLO-PRO-001-017) aims to minimise the risk associated with the transportation of sodium cyanide while maintaining a safe, reliable, efficient and cost effective delivery system to customer sites and Orica stock points throughout the world. The procedure applies to the selection of delivery routes for Orica sodium cyanide and states that the “selection of route(s) is to be effected by the overall assessment of the risks associated with the utilisation of such route, taking into particular consideration likelihood of an incident occurring and the consequence of such an incident.” This procedure is applicable to all routes used for the transportation of Orica sodium cyanide as well as to Orica’s contracted transportation agencies.

The port of Nouakchott is advantageously located at the crossroads of the routes connecting Africa, Europe and America, and is one of the leading public commercial ports in the south Sahara for ships sailing from Europe.
Transport Practice 1.5: Follow international standards for the transportation of cyanide by sea and air

Orica’s manufacturing facility and transfer stations are ICMC certified, sodium cyanide is packaged and transported in accordance with international regulatory standards, such as the United Nations Recommendation on the Transport of Dangerous Goods – Model Regulations, (2005) and National Codes of Practice such as the Australian Code for the Transport of Dangerous Goods by Road or Rail, (2015) thereby meeting the requirements of the political jurisdictions through which the loads will pass.

Orica only operates in export markets that are serviced by major international shipping companies with the ability to offer scheduled container services from point of origin to destination. Orica procedure “Carrier Assessment” (Orica ref: SUP-GLO-PRO-016-008) provides the framework for ensuring that carriers and their contractors are assessed at regular intervals to ensure that, amongst others, storage, safety, security, maintenance and emergency response standards are being maintained. Carriers are required to provide manifest documentation, to satisfy local customs regulations and the requirements of the IMDG Code, to the destination port. This documentation contains a list of the cargo types and in the case of sodium cyanide and any other hazardous cargo the quantity, unique packaging numbers, stowage reference and emergency response procedures.

Mauritania is both an IMO Member State (1961) and SOLAS Signatory Nation (1997), thereby requiring the port of Nouakchott to adhere to the international regulations for the transportation and handling of dangerous goods as set out in the IMDG Code (Parts 4, 5 and 7) and SOLAS Convention ((1974) Chapter 7).

g) Does the ship carrying the cyanide have a list or manifest identifying the presence and location of the cyanide or a detailed stowage plan including this information, as required under Section 5.4.3.1 of the DG Code?

The Nouakchott Port Authority develops and implements regulations governing the carriage of dangerous goods and other goods by ships in accordance with relative national and international requirements. This includes supervising the safety of ships carrying dangerous goods and other goods, processing declarations made by ships carrying dangerous goods, providing accreditation services for personnel involved in the declaration of dangerous goods and inspection of containers, and inspecting containers holding dangerous goods.

As an IMO Member State and to comply with the IMDG Code, vessels are required to declare dangerous cargo before arriving at or leaving the port, to the port authority. Carrier personnel provide the Harbour Master or Port Authority with copies of the Dangerous Goods manifest (including stowage plan) and Packing Certificates for each of the hazardous cargo units loaded at the port of origin.

h) Does the ship carrying the cyanide have cyanide emergency response information, as required under Section 5.4.3.2 of the DG Code?

Dangerous goods delivered to or from the port are required to be appropriately manifested, packaged, labelled and placarded. Documentation that accompanies the cyanide throughout transportation by sea and delivery at ports includes emergency response information along with the dangerous goods manifest, packing certificates and Multimodal Dangerous Goods Form.

Emergency response procedures for ships carrying dangerous goods, including the emergency schedules to be followed in case of incidents involving dangerous substances, materials or articles, or harmful substances (marine pollutants), is regulated under the IMDG Code. In accordance with the Code, all ships, and the companies responsible for their operation, are required to maintain a Safety Management System (SMS). Within the SMS, procedures for responding to potential shipboard emergencies are required.

Port operations personnel provide the vessel’s Master with copies of the Emergency Information, Dangerous Goods manifest (including stowage plan) and Packaging Certificates for each hazardous cargo transport units loaded onto the ship at the port of origin.
**i) Does the ship comply with the stowage and separation requirements of Part 7 of the DG Code?**

As a member of the IMO and to comply with the IMDG Code and National Regulations vessels are required to declare dangerous cargo before arriving at or leaving the port, additionally, all cargo listed on the dangerous cargo manifest must be stowed and handled as prescribed by its UN number and dangerous goods class.

A very limited quantity of cyanide product is transited via the port of Nouakchott for a specific customer. Express clearance is performed by the importer and containers are collected on arrival for transportation to the customer’s site. In the event that a delay occurs the area in which containers are located is secured and well segregated from other cargo types.

All sodium cyanide remains sealed within its container at all times.

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

The Dispatch Centre organises ship movements, tracks pilotage operations, and supervises terminal operations via real-time CCTV monitoring.

Port stevedores receive the vessels manifest on arrival which includes details on the containers for unloading. This information is then captured in the stevedore’s management systems which assists with the location where each container from the vessel is to be placed after unloading, for Nouakchott this is generally onto onward forms of transportation. Where temporary storage is required transport from the unloading berth to the interim storage facility is controlled by documentary checks which use the container’s tracking details and acknowledge its contents.

Chain of custody documentation is used by shipping companies to prevent the loss of cargo during shipment. This documentation includes the vessel manifest – which identifies the location and content of each container on the vessel along with packing certificates, Multimodal Dangerous Goods Forms and Material Safety Data Sheets (MSDS).

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

A very limited quantity of product is transported via the port of Nouakchott and this is always for a specific customer’s needs. Express clearance is performed by the importer and containers are generally collected on arrival for onward transportation to the customer site. In the event that a delay occurs, the containers are transferred to a holding site and a security presence is provided. Security personnel are provided with equipment suitable to meet minimal personnel protective equipment requirements and the provision of warning signage prohibiting unauthorised personnel in the area.

The area in which containers are located, if warranted, is well segregated and ventilated to prevent the build-up of hydrogen cyanide gas.

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

Mauritania has been a member State of the IMO Council since 1961, it complies with the requirements of the IMDG Code.

The port of Nouakchott is certified under the IMO’s International Convention on Oil Pollution Preparedness, Response and Cooperation 1990 (OPRC 90). States which are party to OPRC 90 protocol are required to establish a national system for responding to oil and hazardous/noxious substances pollution incidents, including a designated national authority, a national operational contact point and a national contingency plan. This needs to be supported by a minimum level of response equipment, communications plans, regular training and exercises.

The Ministry of Transport (MOT), Direction of Merchant Navy is the competent authority and administers the National Contingency Plan (NCP) for dealing with pollution by oil and other noxious substances in marine and freshwater environments.

The MOT, with the support of private contractors, manages the response to and monitoring of a Hazardous and Noxious Substances (HNS) Incident and some equipment is readily available at the port.
3.0 CONCLUSION

Based on the evidence reviewed, this due diligence did not find significant issues of concern in regards to the port of Nouakchott management of solid sodium cyanide product. It was not possible during this due diligence to physically inspect the port, as such the review was based on information obtained from previous due diligence reviews, ICMI audit reports and publicly available online information. The Auditor recommends that Orica undertakes annual reviews at the port to monitor the management of dangerous goods.

This assessment should not be a final acceptance of the port of Nouakchott for future work; rather it is recommended that Orica continue to review and monitor the port’s performance annually and implement an adaptive management process.

4.0 CLOSING

We trust this due diligence letter meets your requirements. If you have any questions, please do not hesitate to contact the undersigned.

GOLDER ASSOCIATES PTY LTD

Craig Currie
Environmental Scientist

Ed Clerk
ICMC Lead Auditor and Technical Specialist

CC/EWC/hsl

/golder.gds/gap/perth/jobs/env/2016 - environment1665113 - orica icmc audit ocean freight supply chain/correspondence out001 - 034 due diligences/1665113-0204-rev0 dd port nouakchott, mauritania.docx
REFERENCES


ICMC Due Diligence Review – Port of Nouakchott, Mauritania (2013)


Orica (2013). Due Diligence Review- Port of Nouakchott, Mauritania.


Dear Owen

EXECUTIVE SUMMARY

Golder Associates Pty Ltd (Golder) conducted a due diligence of the port of Mombasa, Kenya during April 2017 on behalf of Orica Australia Pty Ltd (Orica). The assessment was conducted by Ed Clerk who meets the International Cyanide Management Institute’s (ICMI) requirements for a Transport Technical Specialist.

The following items, as detailed in the ICMI’s Auditor Guidance for Use of Cyanide Transportation Verification Protocol (December 2016), were addressed within the due diligence:

- Transport Practice 1.1 (Questions 1-4 and 6)
- Transport Practice 1.5 (Question 1, Items g-i)
- Transport Practice 1.6
- Transport Practice 2.1
- Transport Practice 3.1.

The ICMI’s Auditor Guidance for Use of Cyanide Transportation Verification Protocol (December 2016) was used to conduct the due diligence assessment. It was not possible during this due diligence to physically inspect the port, as such the review was based on information obtained from previous due diligence reviews, ICMI audit reports and publicly available online information.

Golder’s assessment of the port of Mombasa found no issues of concern in regards to the port’s management of solid sodium cyanide product.

This assessment should not be a final acceptance of the port of Mombasa for future work; rather it is recommended that Orica continue to review and monitor the port of Mombasa’s performance annually and implement an adaptive management process.
1.0 INTRODUCTION

This letter provides the results of a due diligence assessment against the port of Mombasa, Kenya, in accordance with the International Cyanide Management Code for the Manufacture, Transport and Use of Cyanide in the Production of Gold (ICMC or the Code).

Golder conducted a desktop due diligence assessment of the port of Mombasa, Kenya during April 2017. The assessment was conducted by Ed Clerk who meets the International Cyanide Management Institute’s (ICMI) requirements for a Transport Technical Specialist.

The following items, as detailed in the ICMI’s Auditor Guidance for Use of Cyanide Transportation Verification Protocol (December 2016), were addressed within the due diligence:

- Introduction
- ICMC Transport Verification Protocol Assessment
  - Transport Practice 1.1 (Questions 1-4 and 6)
  - Transport Practice 1.5 (Question 1, Items g-i)
  - Transport Practice 1.6
  - Transport Practice 2.1
  - Transport Practice 3.1.
- Conclusion
- References.

The ICMI’s Auditor Guidance for Use of Cyanide Transportation Verification Protocol (December 2016) was used to conduct the due diligence assessment. Due to access restrictions, it was not possible during this due diligence to physically inspect the port of Mombasa. The due diligence assessment was completed based on information obtained from previous due diligences, ICMI audit reports and publicly available online information.

1.1 Overview of Port of Mombasa, Kenya

The port of Mombasa is managed by the Kenya Port Authority (KPA). Established in January 1978 under an Act of Parliament, the KPA is authorised to manage and operate the port of Mombasa and all scheduled seaports along Kenya’s coastline. In addition, the Authority manages inland waterways as well as inland container depots at Embakasi, Eldoret and Kisumu.

The port of Mombasa is the gateway to East and Central Africa, and is one of the busiest ports along the East African coastline. The port provides direct connectivity to over 80 ports worldwide and is well connected by road to a vast hinterland comprising Uganda, Rwanda, Burundi, Eastern Democratic Republic of Congo, Northern Kenya, Southern Sudan, Somalia and Ethiopia. A railway line also runs from the port into Uganda and Kenya.

The port of Mombasa has two container terminals namely the Mombasa Container Terminal and the newly built Kipevu Container Terminal with an annual total capacity of 1.65 million TEUs currently (2016 figures). Container operations at the port of Mombasa entail discharging and loading of vessels, stacking and unstacking of containers in the yard and delivery/receipt of import and export containers.

Overview of port operations:

A Harbour Master oversees the operation of the overall port operations. This includes:

- Port protocols exist for docking of vessels, e.g. use of Pilots; use of tug boats; different weather conditions, tides, currents; safety; and general port operations. This sees to the safe docking and turnaround of the vessels in and out of the port.
Entry into port is controlled by the port’s Pilot who understands the port protocols and any unique issues regarding the approach and docking of a vessel at the port. The Ship’s Captain works in conjunction with the Pilot as he understands his vessel and can implement and assist with the Pilot’s instructions.

The approach of the vessel to the port will take into any account any channels, special navigation points and as mentioned above the currents, tides and weather.

Once the vessel is secure alongside the wharf the shipping activities changeover to port activities. The vessels manifest of what containers are required to be unloaded from the vessel, including the manifest for containers for loading are handed over. This manifest will identify hazardous cargos and their UN number and classification and segregation requirements.

Stevedoring operations include:

- Handling of the containers whether full or empty on and off the vessels; container storage areas for general cargo, port security, control systems for companies and their vehicles collecting and or delivering containers.
- Software programs that control container placement and movement; these software packages identify each individual container placement area in designated stacks. The input information for the placement of containers comes from the vessel’s manifest.

Containers of dangerous goods discharged by vessels at the container terminal are moved to a dedicated dangerous goods storage area within the port confines for storage until customs clearance has been completed and transport is arranged. Containers of Cyanide are segregated from other classes of dangerous goods. This area has minimal traffic flow and is large enough to allow space for appropriate segregation of different classes of dangerous goods.

2.0 ICMC TRANSPORT VERIFICATION PROTOCOL ASSESSMENT

The ICMI’s Auditor Guidance for Use of Cyanide Transportation Verification Protocol, General Guidance states:

*Except as specifically identified in this Guidance document, the Cyanide Transportation Protocol is not to be used to evaluate transport by rail and ship or management of cyanide at rail terminals and port facilities due to security issues, limited access, and the inability of consignors to affect changes in the operating practices of these transport facilities. Rather than conduct Code audits of these facilities, the consignor must conduct and document due diligence investigations of rail carriers, rail terminals, shipping companies and port facilities that are engaged to handle cyanide shipments, as further discussed below under Transport Practice 1.1. The consignor’s due diligence investigation must either be conducted or reviewed by an auditor meeting ICMI requirements for a transport expert, and the auditor must conclude that the due diligence investigation has reasonably evaluated these facilities and that the consignor has, to the extent practical, implemented any necessary management measures.*

Transport Practice 1.1: Select cyanide transport routes to minimise the potential for accidents and releases

The international sales and exports of sodium cyanide by Orica take into consideration the ports and their extended infrastructure available to service the intended target area. Orica only operates in export markets that are serviced by major international shipping companies with the ability to offer scheduled container services from point of origin to destination.

Orica procedure “Selection of Transport Routes – Transportation of Sodium Cyanide to Customer Sites or Stock Points” (Orica ref: UP-GLO-PRO-001-017) aims to minimise the risk associated with the transportation of sodium cyanide while maintaining a safe, reliable, efficient and cost effective delivery system to customer sites and Orica stock points throughout the world. The procedure applies to the selection of delivery routes for Orica sodium cyanide and states that the “selection of route(s) is to be effected by the overall assessment of the risks associated with the utilisation of such route, taking into particular consideration likelihood of an incident occurring and the consequence of such an incident.” This procedure is applicable to all routes used for the transportation of Orica sodium cyanide as well as to Orica’s contracted transportation agencies.
The Mombasa port is the principal port of Kenya and serves landlocked countries such as Malawi, Zambia, Democratic Republic of Congo, Burundi, Rwanda and Uganda. The port is strategically placed to serve as a freight linkage to and from East and Central Africa countries.

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

Orica’s manufacturing facility and transfer stations are ICMC certified, sodium cyanide is packaged and transported in accordance with international regulatory standards, such as the United Nations Recommendation on the Transport of Dangerous Goods – Model Regulations, (2005) and National Codes of Practice such as the Australian Code for the Transport of Dangerous Goods by Road or Rail, (2015) thereby meeting the requirements of the political jurisdictions through which the loads will pass.

Orica only operates in export markets that are serviced by major international shipping companies with the ability to offer scheduled container services from point of origin to destination. Orica procedure “Carrier Assessment” (Orica ref: SUP-GLO-PRO-016-008) provides the framework for ensuring that carriers and their contractors are assessed at regular intervals to ensure that, amongst others, storage, safety, security, maintenance and emergency response standards are being maintained. Carriers are required to provide manifest documentation, to satisfy local customs regulations and the requirements of the IMDG Code, to the destination port. This documentation contains a list of the cargo types and in the case of sodium cyanide and any other hazardous cargo the quantity, unique packaging numbers, stowage reference and emergency response procedures.

Kenya is both an IMO Member State (1973) and SOLAS Signatory Nation (1999), thereby requiring the port of Mombasa to adhere to the international regulations for the transportation and handling of dangerous goods as set out in the IMDG Code (Parts 4, 5 and 7) and SOLAS Convention ((1974) Chapter 7).

**g) Does the ship carrying the cyanide have a list or manifest identifying the presence and location of the cyanide or a detailed stowage plan including this information, as required under Section 5.4.3.1 of the DG Code?**

The KPA develops and implements policies, statutes and regulations governing the carriage of dangerous goods and other goods by ships in accordance with relative national and international requirements. This includes supervising the safety of ships carrying dangerous goods and other goods, processing declarations made by ships carrying dangerous goods, providing accreditation services for personnel involved in the declaration of dangerous goods and inspection of containers, and inspecting containers holding dangerous goods.

As an IMO Member State and to comply with the IMDG Code, vessels are required to declare dangerous cargo before arriving at or leaving the port, to the KPA.

As required by the KPA, the status of all containers must be declared in the carrier’s manifest, a copy of which will be submitted to the port Manager’s office for onward transmission to the Container Terminal. If the status of a container is not declared in the manifest, such a container will not be allowed removal from the vessel and may also attract storage charges as per the appropriate tariff.

The port of Mombasa operates under a suite of National regulations (Kenyan Standards [KS] 2324-1 through 2324-8 Identification and Classification of Dangerous Goods for Transport) that ensures its compliance with regards to the transportation, handling and storage of dangerous goods.

**h) Does the ship carrying the cyanide have cyanide emergency response information, as required under Section 5.4.3.2 of the DG Code?**

Dangerous goods delivered to or from the port are required to be appropriately manifested, packaged, labelled and placarded. Documentation that accompanies the cyanide throughout transportation by sea and delivery at ports includes emergency response information along with the dangerous goods manifest, packing certificates and Multimodal Dangerous Goods Form.

Emergency response procedures for ships carrying dangerous goods, including the emergency schedules to be followed in case of incidents involving dangerous substances, materials or articles, or harmful substances (marine pollutants), is regulated under the IMDG code. In accordance with the code, all ships, and the companies responsible for their operation, are required to maintain a Safety Management System (SMS). Within the SMS, procedures for responding to potential shipboard emergencies are required.
Port operations personnel provide the vessel’s Master with copies of the Emergency Information, Dangerous Goods manifest (including stowage plan) and Packaging Certificates for each hazardous cargo transport units loaded onto the ship at the port of origin.

**i) Does the ship comply with the stowage and separation requirements of Part 7 of the DG Code?**

As a member of the IMO and to comply with the IMDG Code and the Kenya Ports Authority Act, 2012 vessels are required to declare dangerous cargo to the KPA before arriving at or leaving the port.

To comply with requirements of the IMDG Code, the port of Mombasa has dedicated Container Freight Station (CFS) areas for specialised products including dangerous goods: cyanide containers are segregated and stacked separately. All sodium cyanide remains contained within its sealed containers at all times.

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

The Dispatch Centre organises ship movements, tracks pilotage operations, and supervises terminal operations via real-time CCTV monitoring.

As a member of the IMO and to comply with the IMDG Code and the Kenya Ports Authority Act, 2012 vessels are required to declare dangerous cargo before arriving at or leaving the port.

Chain of custody documentation is used by shipping companies to prevent the loss of cargo during shipment. This documentation includes the vessel manifest – which identifies the location and content of each container on the vessel along with packing certificates, Multimodal Dangerous Goods Forms and Safety Data Sheets (SDS).

The Container Operations Department at Mombasa operates 24/7 and utilises a Terminal Operations System (TOS) to track both containers and their documentation.

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

The KPA has responded positively to pressure from the international community by taking steps to increase the level of security checks and supervision in all sectors of its port operations. The Authority is determined to ensure that its ports comply with the security rules of the IMO.

Mombasa has introduced a number of measures to make the port a safer and more secure place. They include:

- New electronic surveillance equipment including CCTV
- Coastguard surveillance of waters
- New search and rescue centre, set up jointly with the IMO
- More plain-clothes and uniformed security officers on patrol in port areas
- Strict controls on port entry with all port users and visitors required to display passes at all times
- Restricted entry to container terminal and other key sections
- Continuously manned watch towers in car handling area and container terminal
- New rapid response team to deal with urgent security matters in or near the port area
- New centralised verification areas at the container terminal
- New cargo scanning system to allow containers to be checked without stripping.

Upon arrival, inbound containers are discharged from vessels and taken by truck or tractor to a designated CFS. Each CFS is a self-contained facility with government agencies on site, including Customs, police, the Standards Authority and a sanitary inspection department. Each container awaiting clearance for on-carriage resides securely within a given CFS until cleared.
Cyanide is placed in a segregated area whilst awaiting relevant clearances. This area is clearly signed providing appropriate warning to all port personnel. Collection of the cargo by the approved carrier is direct from this area. Vehicles collecting cargo from the port environs are subject to port checks to ensure that approvals for collection are in place and that documentation and container details match prior to egress from the port. Additionally, signage is displayed prohibiting smoking and the consumption of foodstuffs and liquids in the areas where hazardous goods are being stored.

The port of Mombasa is accredited under the International Ship and Port Security (ISPS) Code and is classed as a secure area. The port has a full time security presence which includes armed patrols. Access to and from the container terminal is well controlled and areas used for cyanide storage are may be subject to an additional security presence. The port security egress checkpoint checks a driver’s documentation to ensure approval has been granted for the removal of the container, that the container number physically matches with the documentation and that the seal is intact on the shipping container.

The port has a minimum standard of personal protective equipment required which includes the wearing of relevant safety footwear, clearly visible clothing and protective headwear in specific areas. This personal protective equipment requirement is suitable for cyanide that remains contained within sealed containers at all times.

Sodium cyanide product remains sealed inside its container at all times. Containers are in a segregated area which is open to the air to prevent the build-up of hydrogen cyanide gas.

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

Kenya has been a Member State of the IMO Council since 1973, it complies with the requirements of the IMDG Code.

The port of Mombasa is certified under the IMO’s International Convention on Oil Pollution Preparedness, Response and Cooperation 1990 (OPRC 90). States which are party to OPRC 90 protocol are required to establish a national system for responding to oil and hazardous/noxious substances pollution incidents, including a designated national authority, a national operational contact point and a national contingency plan. This needs to be supported by a minimum level of response equipment, communications plans, regular training and exercises.

The port of Mombasa maintains permanent onsite fire and emergency response personnel and equipment. The Port Fire Services (PFS) are well equipped and operate three fire engines with a water capacity of 10 000 L each and has a water reserve of 300 000 L. Working with external bodies, the PFS responds to rescues, hazardous materials incidents and possible emergency activities both within the port and across the greater region. They offer fire and rescue services to enhance community safety, quality of life and confidence in port operations by minimising the impact of hazards and emergency incidents on port users, the environment and the economy.

The PFS also offer 24/7 ambulance services and emergency response. Manned by firefighters, the ambulance is used as a first responder in serious medical emergencies.

**3.0 CONCLUSION**

Based on the evidence reviewed, this due diligence did not find significant issues of concern in regards to the port of Mombasa’s management of solid sodium cyanide product. It was not possible during this due diligence to physically inspect the port, as such the review was based on information obtained from previous due diligence reviews, ICMI audit reports and publicly available online information. The Auditor recommends that Orica undertakes annual reviews at the port of Mombasa to monitor the management of dangerous goods.

This assessment should not be a final acceptance of the port of Mombasa for future work; rather it is recommended that Orica continue to review and monitor the port’s performance annually and implement an adaptive management process.
4.0 CLOSING

We trust this due diligence letter meets your requirements. If you have any questions, please do not hesitate to contact the undersigned.

GOLDER ASSOCIATES PTY LTD

Craig Currie
Environmental Scientist

Edward Clerk
ICMC Lead Auditor and Technical Specialist

CC/EC/hsl
REFERENCES


ICMC DUE DILIGENCE ASSESSMENT FOR THE PORT OF DAR ES SALAAM

Dear Owen

EXECUTIVE SUMMARY

Golder Associates Pty Ltd (Golder) conducted a due diligence of the port of Dar es Salaam, Tanzania during April 2017 on behalf of Orica Australia Pty Ltd (Orica). The assessment was conducted by Ed Clerk who meets the International Cyanide Management Institute’s (ICMI) requirements for a Transport Technical Specialist.

The following items, as detailed in the ICMI’s Auditor Guidance for Use of Cyanide Transportation Verification Protocol (December 2016), were addressed within the due diligence:

- Transport Practice 1.1 (Questions 1-4 and 6)
- Transport Practice 1.5 (Question 1, Items g-i)
- Transport Practice 1.6
- Transport Practice 2.1
- Transport Practice 3.1.

The ICMI’s Auditor Guidance for Use of Cyanide Transportation Verification Protocol (December 2016) was used to conduct the due diligence assessment. It was not possible during this due diligence to physically inspect the port, as such the review was based on information obtained from previous due diligence reviews, ICMI audit reports and publicly available online information.

Golder’s assessment of the port of Dar es Salaam found no issues of concern in regards to the port’s management of solid sodium cyanide product.

This assessment should not be a final acceptance of the port of Dar es Salaam for future work; rather it is recommended that Orica continue to review and monitor the port’s performance annually and implement an adaptive management process.
1.0 INTRODUCTION

This letter provides the results of a due diligence assessment against the port of Dar es Salaam, Tanzania, in accordance with the International Cyanide Management Code for the Manufacture, Transport and Use of Cyanide in the Production of Gold (ICMC or the Code).

Golder conducted a desktop due diligence assessment of the port of Dar es Salaam, Tanzania during April 2017. The assessment was conducted by Ed Clerk who meets the International Cyanide Management Institute’s (ICMI) requirements for a Transport Technical Specialist.

The following items, as detailed in the ICMI’s Auditor Guidance for Use of Cyanide Transportation Verification Protocol (December 2016), were addressed within the due diligence:

- Introduction
- ICMC Transport Verification Protocol Assessment
  - Transport Practice 1.1 (Questions 1-4 and 6)
  - Transport Practice 1.5 (Question 1, Items g-i)
  - Transport Practice 1.6
  - Transport Practice 2.1
  - Transport Practice 3.1.
- Conclusion
- References.

The ICMI’s Auditor Guidance for Use of Cyanide Transportation Verification Protocol (December 2016) was used to conduct the due diligence assessment. Due to access restrictions, it was not possible during this due diligence to physically inspect the port of Dar es Salaam. The due diligence assessment was completed based on information obtained from previous due diligences, ICMI audit reports and publicly available online information.

1.1 Overview of Port of Dar es Salaam, Tanzania

The port of Dar es Salaam is located on the East Coast of Africa and is the principle port of Tanzania. Dar es Salaam handles approximately 95% of the Tanzania international trade and serves landlocked countries such as Malawi, Zambia, Democratic Republic of Congo, Burundi, Rwanda and Uganda. The port is strategically placed to serve as a freight linkage to and from East and Central Africa countries.

The port of Dar es Salaam has a rated capacity of 4.1 million (dwt) dry cargo and 6.0 million (dwt) bulk liquid cargo. The port has a total quay length of 2000 metres with eleven deep-water berths.

The Tanzania Ports Authority (TPA) operates the port of Dar es Salaam, however all containerised cargo is handled by the Tanzania International Container Terminal Services Ltd (TICTS), which is located in the port of Dar es Salaam and is the largest container terminal in Tanzania. The terminal has four berths totalling 725 meters in length with a capacity to handle in excess of 500 000 twenty-foot equivalent units (TEUs) per year which includes many classes of Dangerous Goods cargo.
Overview of port operations:

A Harbour Master oversees the operation of the overall port operations. This includes:

- Port protocols exist for docking of vessels, e.g. use of Pilots; use of tug boats; different weather conditions, tides, currents; safety; and general Port operations. This sees to the safe docking and turnaround of the vessels in and out of the port.

- Entry into port is controlled by the port’s Pilot who understands the port protocols and any unique issues regarding the approach and docking of a vessel at the port. The Ship’s Captain works in conjunction with the Pilot as he understands his vessel and can implement and assist with the Pilot’s instructions.

- The approach of the vessel to the port will take into any account any channels, special navigation points and as mentioned above the currents, tides and weather.

- Once the vessel is secure alongside the wharf the shipping activities changeover to port activities. The vessels manifest of what containers are required to be unloaded from the vessel, including the manifest for containers for loading are handed over. This manifest will identify hazardous cargos and their UN number and classification, segregation requirements.

Stevedoring operations include:

The stevedoring company TICTS operate under a long term lease agreement with the port authorities and manage the on-shore (wharf) operations at the dedicated container terminal. This is the terminal currently used by the Mediterranean Shipping Company to facilitate the unloading of their vessels. The stevedoring operations include:

- Handling of the containers whether full or empty on and off the vessels; container storage areas for general cargo, port security, control systems for companies and their vehicles collecting and or delivering containers.

- Software programs that control container placement and movement; these software packages identify each individual container placement area in designated stacks. The input information for the placement of containers comes from the vessel’s manifest.

Containers of dangerous goods discharged by vessels at the container terminal are moved by TICTS to a dedicated dangerous goods storage area within the port confines for storage until customs clearance has been completed and transport is arranged. Containers of Cyanide are segregated from other classes of dangerous goods. This area has minimal traffic flow and is large enough to allow space for appropriate segregation of different classes of dangerous goods.

2.0 ICMC TRANSPORT VERIFICATION PROTOCOL ASSESSMENT

The ICMI’s Auditor Guidance for Use of Cyanide Transportation Verification Protocol, General Guidance states:

Except as specifically identified in this Guidance document, the Cyanide Transportation Protocol is not to be used to evaluate transport by rail and ship or management of cyanide at rail terminals and port facilities due to security issues, limited access, and the inability of consignors to affect changes in the operating practices of these transport facilities. Rather than conduct Code audits of these facilities, the consignor must conduct and document due diligence investigations of rail carriers, rail terminals, shipping companies and port facilities that are engaged to handle cyanide shipments, as further discussed below under Transport Practice 1.1. The consignor’s due diligence investigation must either be conducted or reviewed by an auditor meeting ICMI requirements for a transport expert, and the auditor must conclude that the due diligence investigation has reasonably evaluated these facilities and that the consignor has, to the extent practical, implemented any necessary management measures.
Transport Practice 1.1: Select cyanide transport routes to minimise the potential for accidents and releases

The international sales and exports of sodium cyanide by Orica take into consideration the ports and their extended infrastructure available to service the intended target area. Orica only operates in export markets that are serviced by major international shipping companies with the ability to offer scheduled container services from point of origin to destination.

Orica procedure “Selection of Transport Routes – Transportation of Sodium Cyanide to Customer Sites or Stock Points” (Orica ref: UP-GLO-PRO-001-017) aims to minimise the risk associated with the transportation of sodium cyanide while maintaining a safe, reliable, efficient and cost effective delivery system to customer sites and Orica stock points throughout the world. The procedure applies to the selection of delivery routes for Orica sodium cyanide and states that the “selection of route(s) is to be effected by the overall assessment of the risks associated with the utilisation of such route, taking into particular consideration likelihood of an incident occurring and the consequence of such an incident.” This procedure is applicable to all routes used for the transportation of Orica sodium cyanide as well as to Orica’s contracted transportation agencies.

The Dar es Salaam port is the principal port of Tanzania and serves landlocked countries such as Malawi, Zambia, Democratic Republic of Congo, Burundi, Rwanda and Uganda. The port is strategically placed to serve as a freight linkage to and from East and Central Africa countries.

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

Orica’s manufacturing facility and transfer stations are ICMC certified, sodium cyanide is packaged and transported in accordance with international regulatory standards, such as the United Nations Recommendation on the Transport of Dangerous Goods – Model Regulations, (2005) and National Codes of Practice such as the Australian Code for the Transport of Dangerous Goods by Road or Rail, (2015) thereby meeting the requirements of the political jurisdictions through which the loads will pass.

Orica only operates in export markets that are serviced by major international shipping companies with the ability to offer scheduled container services from point of origin to destination. Orica procedure “Carrier Assessment” (Orica ref: SUP-GLO-PRO-016-008) provides the framework for ensuring that carriers and their contractors are assessed at regular intervals to ensure that, amongst others, storage, safety, security, maintenance and emergency response standards are being maintained. Carriers are required to provide manifest documentation, to satisfy local customs regulations and the requirements of the IMDG Code, to the destination port. This documentation contains a list of the cargo types and in the case of sodium cyanide and any other hazardous cargo the quantity, unique packaging numbers, stowage reference and emergency response procedures.

Tanzania is both an IMO Member State (1974) and SOLAS Signatory Nation (2001), thereby requiring the port of Dar es Salaam to adhere to the international regulations for the transportation and handling of dangerous goods as set out in the IMDG Code (Parts 4, 5 and 7) and SOLAS Convention (1974) Chapter 7.

g) Does the ship carrying the cyanide have a list or manifest identifying the presence and location of the cyanide or a detailed stowage plan including this information, as required under Section 5.4.3.1 of the DG Code?

The TPA develops and implements policies, statutes and regulations governing the carriage of dangerous goods and other goods by ships in accordance with relative national and international requirements. This includes supervising the safety of ships carrying dangerous goods and other goods, processing declarations made by ships carrying dangerous goods, providing accreditation services for personnel involved in the declaration of dangerous goods and inspection of containers, and inspecting containers holding dangerous goods.

As an IMO Member State and to comply with the IMDG Code, vessels are required to declare dangerous cargo before arriving at or leaving the port, to the TPA.
As required by the Tanzania Harbours Authority Act (1977), the status of all containers must be declared in the carrier’s manifest, a copy of which will be submitted to the port authority for onward transmission to the Container Terminal. If the status of a container is not declared in the manifest, such a container will attract storage charges as per the appropriate tariff as soon as the container is landed and until a declaration is received or it is cleared from the port.

Declaration and Disposal Orders (D&DOs) for containers must also show their status, which must align with the details in the manifest. In the case of difference in status between the Declaration and Disposal Order and the manifest, the Declaration and Disposal Order will be rejected until there has been an amendment to the manifest. Customs also require that all cargo manifests be submitted to them 48 hours prior to the ships arrival at outer anchorage.

The port of Dar es Salaam operates under a suite of National regulations (e.g. Harbours Authority Act, 1977 and Tanzania Harbour Regulations TZA-1991-R-31254, Dock Workers) that ensures its compliance with regards to the transportation, handling and storage of dangerous goods.

**h) Does the ship carrying the cyanide have cyanide emergency response information, as required under Section 5.4.3.2 of the DG Code?**

Dangerous goods delivered to or from the port are required to be appropriately manifested, packaged, labelled and placarded. Documentation that accompanies the cyanide throughout transportation by sea and delivery at ports includes emergency response information along with the dangerous goods manifest, packing certificates and Multimodal Dangerous Goods Form.

Emergency response procedures for ships carrying dangerous goods, including the emergency schedules to be followed in case of incidents involving dangerous substances, materials or articles, or harmful substances (marine pollutants), is regulated under the IMDG Code. In accordance with the Code, all ships, and the companies responsible for their operation, are required to maintain a Safety Management System (SMS). Within the SMS, procedures for responding to potential shipboard emergencies are required.

Port operations personnel provide the vessel’s Master with copies of the Emergency Information, Dangerous Goods manifest (including stowage plan) and Packaging Certificates for each hazardous cargo transport units loaded onto the ship at the port of origin.

The port of Dar es Salaam also has an Emergency Response Procedure for the hazardous cargos that pass through the port.

**i) Does the ship comply with the stowage and separation requirements of Part 7 of the DG Code?**

As a member of the IMO and to comply with the IMDG Code and the Tanzania Harbours Authority Act, 1977 vessels are required to declare dangerous cargo to the TPA before arriving at or leaving the port.

Tanzania Harbour Regulation TZA-1991-R-31254, Dock Workers, details standards with respect to pilotage, ships reporting, movement berthing, dangerous goods and explosives, safety regulations, handling of cargo, storage, and warehousing and general harbour control.

To comply with requirements of the IMDG Code, the port of Dar es Salaam has dedicated storage areas for specialised products including dangerous goods; cyanide containers are segregated and stacked separately. All sodium cyanide product remains sealed within its container at all times.

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

The Dispatch Centre organises ship movements, tracks pilotage operations, and supervises terminal operations via real-time CCTV monitoring.

As a member of the IMO and to comply with the IMDG Code and the Tanzania Harbours Authority Act, 1977 vessels are required to declare dangerous cargo before arriving at or leaving the port.

Chain of custody documentation is used by shipping companies to prevent the loss of cargo during shipment. This documentation includes the vessel manifest – which identifies the location and content of each container on the vessel along with packing certificates, Multimodal Dangerous Goods Forms and Safety Data Sheets (SDS).
Transport Practice 2.1: Store cyanide in a manner that minimises the potential for accidental releases

Cyanide on arrival is placed in a segregated area whilst awaiting relevant clearances. This area is clearly signed providing appropriate warning to all port personnel. Collection of the cargo by the approved carrier is direct from this area. Vehicles collecting cargo from the port environs are subject to port checks to ensure that approvals for collection are in place and that documentation and container details match prior to egress from the port. Additionally, signage is displayed prohibiting smoking and the consumption of foodstuffs and liquids in the areas where hazardous goods are being stored.

The port of Dar es Salaam is accredited under the International Ship and Port Security (ISPS) Code and is classed as a secure area. The port has a full time security presence which includes armed patrols. Access to and from the container terminal is well controlled and areas used for cyanide storage are may be subject to an additional security presence. The port security egress checkpoint checks a driver’s documentation to ensure approval has been granted for the removal of the container, that the container number physically matches with the documentation and that the seal is intact on the shipping container.

The port has a minimum standard of personal protective equipment required which includes the wearing of relevant safety footwear, clearly visible clothing and protective headwear in specific areas. This personal protective equipment requirement is suitable for cyanide that remains contained within sealed containers at all times.

Sodium cyanide product remains sealed inside its container at all times. Containers are in a segregated area which is open to the air to prevent the build-up of hydrogen cyanide gas.

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

Tanzania has been a Member State of the IMO Council since 1974, it complies with the requirements of the IMDG Code.

Previously conducted due diligence assessments (Orica and CSBP, 2013) have shown that the port of Dar es Salaam has both fire and ambulance stations on site and that the port was well run and efficient in its emergency operations. Safety and security measures were evident throughout the port.

The port of Dar es Salaam is certified under the IMO’s International Convention on Oil Pollution Preparedness, Response and Cooperation 1990 (OPRC 90). States which are party to OPRC 90 protocol are required to establish a national system for responding to oil and hazardous/noxious substances pollution incidents, including a designated national authority, a national operational contact point and a national contingency plan. This needs to be supported by a minimum level of response equipment, communications plans, regular training and exercises.

The Tanzanian Guidelines for Management of Environmental Emergencies (Section 4.0 Anthropogenic activities and natural sources contributing to environmental emergencies) also provides guidelines and procedures for the preparedness and response to emergency situations involving hazardous materials.

3.0 CONCLUSION

Based on the evidence reviewed, this due diligence did not find significant issues of concern in regards to the port of Dar es Salaam’s management of solid sodium cyanide product. It was not possible during this due diligence to physically inspect the port, as such the review was based on information obtained from previous due diligence reviews, ICMI audit reports and publicly available online information. The Auditor recommends that Orica undertakes annual reviews at the port of Dar es Salaam to monitor the management of dangerous goods.

This assessment should not be a final acceptance of the port of Dar es Salaam for future work; rather it is recommended that Orica continue to review and monitor the port’s performance annually and implement an adaptive management process.
4.0 CLOSING

We trust this due diligence letter meets your requirements. If you have any questions, please do not hesitate to contact the undersigned.

GOLDER ASSOCIATES PTY LTD

Craig Currie  
Environmental Scientist

Edward Clerk  
ICMC Lead Auditor and Technical Specialist

CC/EC/hsl
REFERENCES

CSBP (2013). Due Diligence Review Dar es Salaam Port, Tanzania, June 2013


Accessed 25 April 2017


Orica (2013). Due Diligence Review Dar es Salaam Port, Tanzania, August 2013


Tanzania Harbours Authority (2004). The Tanzania Harbours Authority Act, 1977


31 July 2017

Owen Warren
Senior Manager Global Distribution
Orica

Email: owen.warren@orica.com

ICMC DUE DILIGENCE ASSESSMENT FOR THE PORT OF LAEM CHABANG

Dear Owen

EXECUTIVE SUMMARY

Golder Associates Pty Ltd (Golder) conducted a due diligence of the port of Laem Chabang, Thailand during May 2017 on behalf of Orica Australia Pty Ltd (Orica). The assessment was conducted by Ed Clerk who meets the International Cyanide Management Institute’s (ICMI) requirements for a Transport Technical Specialist.

The following items, as detailed in the ICMI’s Auditor Guidance for Use of Cyanide Transportation Verification Protocol (December 2016), were addressed within the due diligence:

- Transport Practice 1.1 (Questions 1-4 and 6)
- Transport Practice 1.5 (Question 1, Items g-i)
- Transport Practice 1.6
- Transport Practice 2.1
- Transport Practice 3.1.

The ICMI’s Auditor Guidance for Use of Cyanide Transportation Verification Protocol (December 2016) was used to conduct the due diligence assessment. It was not possible during this due diligence to physically inspect the port, as such the review was based on information obtained from previous due diligence reviews, ICMI audit reports and publicly available online information.

Golder’s assessment of the port of Laem Chabang found no issues of concern in regards to the port’s management of solid sodium cyanide product.

This assessment should not be a final acceptance of the port of Laem Chabang for future work; rather it is recommended that Orica continue to review and monitor the port’s performance annually and implement an adaptive management process.
1.0 INTRODUCTION

This letter provides the results of a due diligence assessment against the port of Laem Chabang, Thailand, in accordance with the *International Cyanide Management Code for the Manufacture, Transport and Use of Cyanide in the Production of Gold* (ICMC or the Code).

Golder conducted a desktop due diligence assessment of the port of Laem Chabang, Thailand during May 2017. The assessment was conducted by Ed Clerk who meets the International Cyanide Management Institute’s (ICMI) requirements for a Transport Technical Specialist.

The following items, as detailed in the ICMI’s *Auditor Guidance for Use of Cyanide Transportation Verification Protocol* (December 2016), were addressed within the due diligence:

- Introduction
- ICMC Transport Verification Protocol Assessment
  - Transport Practice 1.1 (Questions 1-4 and 6)
  - Transport Practice 1.5 (Question 1, Items g-i)
  - Transport Practice 1.6
  - Transport Practice 2.1
  - Transport Practice 3.1.
- Conclusion
- References.

The ICMI’s *Auditor Guidance for Use of Cyanide Transportation Verification Protocol* (December 2016) was used to conduct the due diligence assessment. Due to access restrictions, it was not possible during this due diligence to physically inspect the port of Laem Chabang. The due diligence assessment was completed based on information obtained from previous due diligences, ICMI audit reports and publicly available online information.

1.1 Overview of Port of Laem Chabang, Thailand

The port of Laem Chabang is situated on the eastern side of the Gulf of Thailand, south east of Bangkok and north of Pattaya. Laem Chabang is Thailand’s main deep sea port and currently handles over 1 million Twenty-foot Equivalent Units (TEUs) annually.

Thailand’s strategic geographical location and close proximity to neighbouring countries such as Myanmar, Laos, Cambodia and Malaysia enables Laem Chabang to act as a gateway port for South East Asia for international trade and goods import. Furthermore, Laem Chabang is well connected to its neighbouring hinterland via a sophisticated network of highways, railways and waterways.

Overview of port operations:

- Port protocols exist for docking of vessels (e.g. use of Pilots, use of tug boats, management of different weather conditions, tides, currents and safety and general port operations). This sees to the safe docking and turnaround of the vessels in and out of the port.

- Entry into port is controlled by the port’s Pilot who understands the port protocols and any unique issues regarding the approach and docking of a vessel at the port. The Ship’s Captain works in conjunction with the Pilot as he understands his vessel and can implement and assist with the Pilot’s instructions.

- The approach of the vessel to the ports will take into any account any channels, special navigation points and as mentioned above the currents, tides and weather.

- Once a vessel is secure alongside the wharf the shipping activities changeover to port activities. The vessels manifest of what containers are required to be unloaded from the vessel, including the manifest for containers for loading are handed over. This manifest will identify hazardous cargos and their UN number and classification and segregation requirements.
Multiple third party stevedoring companies manage the onshore (wharf) operations at the container terminals.

Stevedoring operations include:

- Handling of the containers whether full or empty on and off the vessels; container storage areas for general cargo, port security, control systems for companies and their vehicles collecting and or delivering containers.

- Software programs that control container placement and movement; these software packages identify each individual container placement area in designated stacks. The input information for the placement of containers comes from the vessel’s manifest.

Containers of sodium cyanide discharged from vessels at Laem Chabang are considered Class 3 Dangerous Goods and allowed to be discharged so long as they are immediately taken to the Dangerous Goods Warehouse. Laem Chabang port does not allow the temporary laydown of Class 3 Dangerous Goods at the terminal under any circumstances.

2.0  ICMC TRANSPORT VERIFICATION PROTOCOL ASSESSMENT

The ICMI’s Auditor Guidance for Use of Cyanide Transportation Verification Protocol, General Guidance states:

*Except as specifically identified in this Guidance document, the Cyanide Transportation Protocol is not to be used to evaluate transport by rail and ship or management of cyanide at rail terminals and port facilities due to security issues, limited access, and the inability of consignors to affect changes in the operating practices of these transport facilities. Rather than conduct Code audits of these facilities, the consignor must conduct and document due diligence investigations of rail carriers, rail terminals, shipping companies and port facilities that are engaged to handle cyanide shipments, as further discussed below under Transport Practice 1.1. The consignor’s due diligence investigation must either be conducted or reviewed by an auditor meeting ICMI requirements for a transport expert, and the auditor must conclude that the due diligence investigation has reasonably evaluated these facilities and that the consignor has, to the extent practical, implemented any necessary management measures.*

Transport Practice 1.1: Select cyanide transport routes to minimise the potential for accidents and releases

The international sales and exports of sodium cyanide by Orica take into consideration the ports and their extended infrastructure available to service the intended target area. Orica only operates in export markets that are serviced by major international shipping companies with the ability to offer scheduled container services from point of origin to destination.

Orica procedure “Selection of Transport Routes – Transportation of Sodium Cyanide to Customer Sites or Stock Points” (Orica ref: UP-GLO-PRO-001-017) aims to minimise the risk associated with the transportation of sodium cyanide while maintaining a safe, reliable, efficient and cost effective delivery system to customer sites and Orica stock points throughout the world. The procedure applies to the selection of delivery routes for Orica sodium cyanide and states that the “selection of route(s) is to be effected by the overall assessment of the risks associated with the utilisation of such route, taking into particular consideration likelihood of an incident occurring and the consequence of such an incident.” This procedure is applicable to all routes used for the transportation of Orica sodium cyanide as well as to Orica’s contracted transportation agencies.

Thailand’s strategic geographical location and close proximity to neighbouring countries such as Myanmar, Laos, Cambodia and Malaysia enables Laem Chabang to act as a gateway port for South East Asia for international trade and goods import. Furthermore, Laem Chabang is well connected to its neighbouring hinterland via a sophisticated network of highways, railways and waterways.
Transport Practice 1.5: Follow international standards for the transportation of cyanide by sea and air

Orica’s manufacturing facility and transfer stations are ICMC certified, sodium cyanide is packaged and transported in accordance with international regulatory standards, such as the United Nations Recommendation on the Transport of Dangerous Goods – Model Regulations, (2005) and National Codes of Practice such as the Australian Code for the Transport of Dangerous Goods by Road or Rail, (2015) thereby meeting the requirements of the political jurisdictions through which the loads will pass.

Orica only operates in export markets that are serviced by major international shipping companies with the ability to offer scheduled container services from point of origin to destination. Orica procedure “Carrier Assessment” (Orica ref: SUP-GLO-PRO-016-008) provides the framework for ensuring that carriers and their contractors are assessed at regular intervals to ensure that, amongst others, storage, safety, security, maintenance and emergency response standards are being maintained. Carriers are required to provide manifest documentation, to satisfy local customs regulations and the requirements of the IMDG Code, to the destination port. This documentation contains a list of the cargo types and in the case of sodium cyanide and any other hazardous cargo the quantity, unique packaging numbers, stowage reference and emergency response procedures.

Thailand is both an IMO Member State (1973) and SOLAS Signatory Nation (1984), thereby requiring the port of Laem Chabang to adhere to the international regulations for the transportation and handling of dangerous goods as set out in the IMDG Code (Parts 4, 5 and 7) and SOLAS Convention ((1974) Chapter 7).

**g) Does the ship carrying the cyanide have a list or manifest identifying the presence and location of the cyanide or a detailed stowage plan including this information, as required under Section 5.4.3.1 of the DG Code?**

The Port Authority of Thailand (PAT) and the Ministry of Transport (Marine Department) develop and implements policies, statutes and regulations governing the carriage of dangerous goods and other goods by ships in accordance with relative national and international requirements. This includes supervising the safety of ships carrying dangerous goods and other goods, processing declarations made by ships carrying dangerous goods, providing accreditation services for personnel involved in the declaration of dangerous goods and inspection of containers, and inspecting containers holding dangerous goods.

As an IMO Member State and to comply with the IMDG Code, vessels are required to declare dangerous cargo before arriving at or leaving the port, to the PAT.

The port of Laem Chabang operates under the Hazardous Substances Act (1992), Ministerial Regulation B.E. 2537 ((1994) Produce, Import, Export or have in Possession Hazardous Substances) and the PAT’s Procedure for Handling Dangerous Goods at Laem Chabang Port, all of which are designed to meet the requirements of the IMDG Code and other international dangerous goods handling standards.

**Section 3.0 of the Procedure for Handling Dangerous Goods at Laem Chabang Port** states that no less than 24 hours prior to berthing a Dangerous Goods Declaration form must be submitted to the PAT, this form contains the manifest and stowage information.

**h) Does the ship carrying the cyanide have cyanide emergency response information, as required under Section 5.4.3.2 of the DG Code?**

Dangerous goods delivered to or from the port are required to be appropriately manifested, packaged, labelled and placarded. Documentation that accompanies the cyanide throughout transportation by sea and delivery at ports includes emergency response information along with the dangerous goods manifest, packing certificates and Multimodal Dangerous Goods Form.

Emergency response procedures for ships carrying dangerous goods, including the emergency schedules to be followed in case of incidents involving dangerous substances, materials or articles, or harmful substances (marine pollutants), is regulated under the IMDG Code. In accordance with the Code, all ships, and the companies responsible for their operation, are required to maintain a Safety Management System (SMS). Within the SMS, procedures for responding to potential shipboard emergencies are required.
Section 3.2 and 3.3 of the Procedure for Handling Dangerous Goods at Laem Chabang Port requires the names and contacts of emergency response experts in Thailand and Safety Data Sheets (as specified by the IMO) for the dangerous goods being shipped.

**i) Does the ship comply with the stowage and separation requirements of Part 7 of the DG Code?**

As a member of the IMO and to comply with the IMDG Code and national dangerous goods regulations, vessels are required to declare dangerous cargo no later than 24 hours before arriving at or leaving the port, additionally, all cargo listed on the dangerous cargo manifest must be stowed and handled as prescribed by its UN number and dangerous goods class.

As per Clause 9, 10 & 11 of Ministerial Regulation B.E. 2537 ((1994) Produce, Import, Export or have in Possession Hazardous Substances) the port of Laem Chabang has a dedicated dangerous goods warehouse for the storage of specialised products including sodium cyanide. Dangerous goods containers are segregated and stacked according to their Class and sodium cyanide remains sealed within its container at all times.

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

The Control Centre Building organises ship movements, tracks pilotage operations, and supervises terminal operations.

Chain of custody documentation is used by shipping companies to prevent the loss of cargo during shipment. This documentation includes the vessel manifest – which identifies the location and content of each container on the vessel along with packing certificates, Multimodal Dangerous Goods Forms and Safety Data Sheets (SDS).

Dangerous goods containers are taken from the vessel and placed into a secure holding facility. Owners of the cargo, or their customs broker, who wish to export the dangerous goods from the port area must comply with Customs Formalities and submit the required documentation prior to the goods being discharged.

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

In general, port and vessel security are managed through the International Ship and Port Facility Security Code (ISPS Code). The ISPS Code is an internationally recognised, comprehensive set of measures aimed at enhancing the security of ships and port facilities. The purpose of the ISPS Code is to provide a standardised, consistent framework for evaluating risk, enabling Governments to offset changes in threat with changes in vulnerability for ships and port facilities through a determination of appropriate security levels and corresponding security measures.

As per Clause 9, 10 & 11 of Ministerial Regulation B.E. 2537 ((1994) Produce, Import, Export or have in Possession Hazardous Substances) the port of Laem Chabang has a dedicated dangerous goods warehouse for the storage of specialised products including sodium cyanide.

Sodium cyanide transited through the port of Laem Chabang is temporary and remains on site for less than a day. This is a management measure to minimise potential for accidental releases during storage. Sodium cyanide is considered a Class 3 Dangerous Goods item and when discharged from a vessel is taken immediately to the Dangerous Goods Warehouse.

All sodium cyanide transited through the port of Laem Chabang remains contained within its sealed containers at all times preventing contact with water and other incompatible materials.

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

Thailand has been a member State of the IMO Council since 1973, it complies with the requirements of the IMDG Code.
The port of Laem Chabang is certified under the IMO’s International Convention on Oil Pollution Preparedness, Response and Cooperation 1990 (OPRC 90). States which are party to OPRC 90 protocol are required to establish a national system for responding to oil and hazardous/noxious substances pollution incidents, including a designated national authority, a national operational contact point and a national contingency plan. This needs to be supported by a minimum level of response equipment, communications plans, regular training and exercises.

The Marine Department, as part of the Ministry of Transport, is the competent authority and lead agency for dealing with pollution by oil and other noxious substances in marine and freshwater environments. The Pollution Control Department of the Ministry of Natural Resources and Environment is responsible for land based pollution. Although established primarily to set and enforce discharge standards, this department would advise on shoreline clean-up.

Oil companies have developed Tier 1 contingency plans to respond to spills at their facilities and have formed the Industry Environmental Safety Association, an industry cooperative designed to facilitate the movement of resources between companies and locations in the event of an emergency incident.

At Laem Chabang, terminal operators, dangerous goods warehouse operators and other stevedoring service providers must submit emergency response plans to the Laem Chabang Port Authority that provide emergency response procedures for events such as: a dangerous goods leak or an accident occurring during handling (Section 28 of the Procedure for Handling Dangerous Goods at Laem Chabang Port).

3.0 CONCLUSION

Based on the evidence reviewed, this due diligence did not find significant issues of concern in regards to the port of Laem Chabang’s management of solid sodium cyanide product. It was not possible during this due diligence to physically inspect the port, as such the review was based on information obtained from previous due diligence reviews, ICMI audit reports and publicly available online information. The Auditor recommends that Orica undertakes annual reviews at the port to monitor the management of dangerous goods.

This assessment should not be a final acceptance of the port of Laem Chabang for future work; rather it is recommended that Orica continue to review and monitor the port’s performance annually and implement an adaptive management process.

4.0 CLOSING

We trust this due diligence letter meets your requirements. If you have any questions, please do not hesitate to contact the undersigned.

GOLDER ASSOCIATES PTY LTD

Craig Currie
Environmental Scientist

Ed Clerk
ICMC Lead Auditor and Technical Specialist

CC/EWC/hsl
REFERENCES


Port Authority of Thailand (PAT). Procedure to Handle Dangerous Goods at Laem Chabang Port


Dear Owen

ICMC DUE DILIGENCE ASSESSMENT FOR THE PORT OF SURABAYA

EXECUTIVE SUMMARY

Golder Associates Pty Ltd (Golder) conducted a due diligence of the port of Surabaya, Indonesia during May 2017 on behalf of Orica Australia Pty Ltd (Orica). The assessment was conducted by Ed Clerk who meets the International Cyanide Management Institute’s (ICMI) requirements for a Transport Technical Specialist.

The following items, as detailed in the ICMI’s Auditor Guidance for Use of Cyanide Transportation Verification Protocol (December 2016), were addressed within the due diligence:

- Transport Practice 1.1 (Questions 1-4 and 6)
- Transport Practice 1.5 (Question 1, Items g-i)
- Transport Practice 1.6
- Transport Practice 2.1
- Transport Practice 3.1.

The ICMI’s Auditor Guidance for Use of Cyanide Transportation Verification Protocol (December 2016) was used to conduct the due diligence assessment. It was not possible during this due diligence to physically inspect the port, as such the review was based on information obtained from previous due diligence reviews, ICMI audit reports and publicly available online information.

Golder’s assessment of the port of Surabaya found no issues of concern in regards to the port’s management of solid sodium cyanide product.

This assessment should not be a final acceptance of the port of Surabaya for future work; rather it is recommended that Orica continue to review and monitor the port’s performance annually and implement an adaptive management process.
1.0 INTRODUCTION

This letter provides the results of a due diligence assessment against the port of Surabaya, Indonesia, in accordance with the International Cyanide Management Code for the Manufacture, Transport and Use of Cyanide in the Production of Gold (ICMC or the Code).

Golder conducted a desktop due diligence assessment of the port of Surabaya, Indonesia during May 2017. The assessment was conducted by Ed Clerk who meets the International Cyanide Management Institute’s (ICMI) requirements for a Transport Technical Specialist.

The following items, as detailed in the ICMI’s Auditor Guidance for Use of Cyanide Transportation Verification Protocol (December 2016), were addressed within the due diligence:

- Introduction
- ICMC Transport Verification Protocol Assessment
  - Transport Practice 1.1 (Questions 1-4 and 6)
  - Transport Practice 1.5 (Question 1, Items g-i)
  - Transport Practice 1.6
  - Transport Practice 2.1
  - Transport Practice 3.1.
- Conclusion
- References.

The ICMI’s Auditor Guidance for Use of Cyanide Transportation Verification Protocol (December 2016) was used to conduct the due diligence assessment. Due to access restrictions, it was not possible during this due diligence to physically inspect the port of Surabaya. The due diligence assessment was completed based on information obtained from previous due diligences, ICMI audit reports and publicly available online information.

1.1 Overview of Port of Surabaya, Indonesia

The port of Tanjung Perak Surabaya (TPS) in the Java province is the second largest port in Indonesia and the centre of cargo distribution for East Java and a gateway to Eastern Indonesia. The port is accessed from the North through the Madura strait, a 25 mile long, 100 m wide and 9.5 m deep channel between East Java and Madura Island.

The location of TPS is very strategic as it connects directly to the Surabaya toll way and the railway network into East Java and Eastern Indonesia.

The port has 6 main terminals, consisting of multi-purpose terminals for conventional cargo handling, a passenger terminal, RoRo and an international container terminal. Tugging, pilotage, bunker, storage and shipyard services are also provided.

The port of TPS is managed by the PT Pelabuhan Indonesia (Pelindo) III. Whilst the TPS container terminal is managed by DP World Surabaya. Other terminal services are provided by PT. Berlian Jasa Terminal Indonesia and PT Pelindo Marine Service provides pilotage, tug, towage and maintenance and logistics services.

Overview of port operations:

- Port protocols exist for docking of vessels (e.g. use of Pilots, use of tug boats, management of different weather conditions, tides, currents and safety and general port operations). This sees to the safe docking and turnaround of the vessels in and out of the port.
- Entry into port is controlled by the port’s Pilot who understands the port protocols and any unique issues regarding the approach and docking of a vessel at the port. The Ship’s Captain works in conjunction with the Pilot as he understands his vessel and can implement and assist with the Pilot’s instructions.
The approach of the vessel to the ports will take into any account any channels, special navigation points and as mentioned above the currents, tides and weather.

Once a vessel is secure alongside the wharf the shipping activities changeover to port activities. The vessels manifest of what containers are required to be unloaded from the vessel, including the manifest for containers for loading are handed over. This manifest will identify hazardous cargos and their UN number and classification and segregation requirements.

The stevedoring company, DP World Surabaya, manage the onshore (wharf) operations at the dedicated container terminal.

Stevedoring operations include:

- Handling of the containers whether full or empty on and off the vessels; container storage areas for general cargo, port security, control systems for companies and their vehicles collecting and or delivering containers.

- Software programs that control container placement and movement; these software packages identify each individual container placement area in designated stacks. The input information for the placement of containers comes from the vessel’s manifest.

2.0 ICMC TRANSPORT VERIFICATION PROTOCOL ASSESSMENT

The ICMI’s Auditor Guidance for Use of Cyanide Transportation Verification Protocol, General Guidance states:

Except as specifically identified in this Guidance document, the Cyanide Transportation Protocol is not to be used to evaluate transport by rail and ship or management of cyanide at rail terminals and port facilities due to security issues, limited access, and the inability of consignors to affect changes in the operating practices of these transport facilities. Rather than conduct Code audits of these facilities, the consignor must conduct and document due diligence investigations of rail carriers, rail terminals, shipping companies and port facilities that are engaged to handle cyanide shipments, as further discussed below under Transport Practice 1.1. The consignor’s due diligence investigation must either be conducted or reviewed by an auditor meeting ICMI requirements for a transport expert, and the auditor must conclude that the due diligence investigation has reasonably evaluated these facilities and that the consignor has, to the extent practical, implemented any necessary management measures.

Transport Practice 1.1: Select cyanide transport routes to minimise the potential for accidents and releases

The international sales and exports of sodium cyanide by Orica take into consideration the ports and their extended infrastructure available to service the intended target area. Orica only operates in export markets that are serviced by major international shipping companies with the ability to offer scheduled container services from point of origin to destination.

Orica procedure “Selection of Transport Routes – Transportation of Sodium Cyanide to Customer Sites or Stock Points” (Orica ref: UP-GLO-PRO-001-017) aims to minimise the risk associated with the transportation of sodium cyanide while maintaining a safe, reliable, efficient and cost effective delivery system to customer sites and Orica stock points throughout the world. The procedure applies to the selection of delivery routes for Orica sodium cyanide and states that the “selection of route(s) is to be effected by the overall assessment of the risks associated with the utilisation of such route, taking into particular consideration likelihood of an incident occurring and the consequence of such an incident.” This procedure is applicable to all routes used for the transportation of Orica sodium cyanide as well as to Orica’s contracted transportation agencies.

The location of TPS is very strategic as it connects directly to the Surabaya toll way and the railway network into East Java and Eastern Indonesia.
Transport Practice 1.5: Follow international standards for the transportation of cyanide by sea and air

Orica’s manufacturing facility and transfer stations are ICMC certified, sodium cyanide is packaged and transported in accordance with international regulatory standards, such as the United Nations Recommendation on the Transport of Dangerous Goods – Model Regulations, (2005) and National Codes of Practice such as the Australian Code for the Transport of Dangerous Goods by Road or Rail, (2015) thereby meeting the requirements of the political jurisdictions through which the loads will pass.

Orica only operates in export markets that are serviced by major international shipping companies with the ability to offer scheduled container services from point of origin to destination. Orica procedure “Carrier Assessment” (Orica ref: SUP-GLO-PRO-016-008) provides the framework for ensuring that carriers and their contractors are assessed at regular intervals to ensure that, amongst others, storage, safety, security, maintenance and emergency response standards are being maintained. Carriers are required to provide manifest documentation, to satisfy local customs regulations and the requirements of the IMDG Code, to the destination port. This documentation contains a list of the cargo types and in the case of sodium cyanide and any other hazardous cargo the quantity, unique packaging numbers, stowage reference and emergency response procedures.

Indonesia is both an IMO Member State (1961) and SOLAS Signatory Nation (1981), thereby requiring the port of TPS to adhere to the international regulations for the transportation and handling of dangerous goods as set out in the IMDG Code (Parts 4, 5 and 7) and SOLAS Convention ((1974) Chapter 7).

g) Does the ship carrying the cyanide have a list or manifest identifying the presence and location of the cyanide or a detailed stowage plan including this information, as required under Section 5.4.3.1 of the DG Code?

The Director General of Sea Transportation (DGST) develops and implements policies, statutes and regulations governing the carriage of dangerous goods and other goods by ships in accordance with relative national and international requirements. PT. Pelabuhan Indonesia III is responsible for supervising the safety of ships carrying dangerous goods and other goods, processing declarations made by ships carrying dangerous goods, providing accreditation services for personnel involved in the declaration of dangerous goods and inspection of containers, and inspecting containers holding dangerous goods.

As an IMO Member State and to comply with the IMDG Code, vessels are required to declare dangerous cargo before arriving at or leaving the port, to the port authority.

If containers requiring handling at the port contain dangerous goods cargoes then the port authority requires that the shipper provide a Shippers Certificate and a Container Packing Certificate. The ship Owner/Agent of foreign and domestic dangerous goods cargo must also notify the authority not less than 24 hours prior to arrival, in order to get approval for the loading/unloading of dangerous cargo in bulk, break bulk or containers at the port. The information required must include a dangerous goods manifest, the correct technical name of the dangerous cargo in accordance with the IMDG Code, the IMO Class, the UN Number, the number and type of packages, the total quantity of dangerous (Gross Weight) and the name and address of the Consignee (Emergency contacted name).

The port of TPS operates under National regulations, standards and codes of practice which ensures its compliance with regards to the transportation, handling and storage of dangerous goods.

h) Does the ship carrying the cyanide have cyanide emergency response information, as required under Section 5.4.3.2 of the DG Code?

Dangerous goods delivered to or from the port are required to be appropriately manifested, packaged, labelled and placarded. Documentation that accompanies the cyanide throughout transportation by sea and delivery at ports includes emergency response information along with the dangerous goods manifest, packing certificates and Multimodal Dangerous Goods Form.

Emergency response procedures for ships carrying dangerous goods, including the emergency schedules to be followed in case of incidents involving dangerous substances, materials or articles, or harmful substances (marine pollutants), is regulated under the IMDG Code. In accordance with the Code, all ships, and the companies responsible for their operation, are required to maintain a Safety Management System (SMS). Within the SMS, procedures for responding to potential shipboard emergencies are required.
Port operations personnel provide the vessel’s Master with copies of the Emergency Information, Dangerous Goods manifest (including stowage plan) and Packaging Certificates for each hazardous cargo transport units loaded onto the ship at the port of origin.

**i) Does the ship comply with the stowage and separation requirements of Part 7 of the DG Code?**

As a member of the IMO and to comply with the IMDG Code and National Regulations vessels are required to declare dangerous cargo before arriving at or leaving the port, additionally, all cargo listed on the dangerous cargo manifest must be stowed and handled as prescribed by its UN number and dangerous goods class.

The port of TPS has dedicated storage areas for specialised products including dangerous goods; cyanide containers are segregated and stacked separately. All sodium cyanide remains packaged within its sealed container at all times.

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

The Dispatch Centre organises ship movements, tracks pilotage operations, and supervises terminal operations via real-time CCTV monitoring.

Chain of custody documentation is used by shipping companies to prevent the loss of cargo during shipment. This documentation includes the vessel manifest – which identifies the location and content of each container on the vessel along with packing certificates, Multimodal Dangerous Goods Forms and Safety Data Sheets (SDS).

An electronic Terminal Operating System (TOPS) has been in use since 1999. Sourced from Sydney Australia, this software is used for operational activity tracking and documentation control. Using TOPS container movement can be monitored in real time by a TPS Officer and the respective container owner.

Since 2006 import and export clearance has been handled via a customs Electronic Data Interchange (EDI) system. Inward and outward manifests are submitted online to the Customs agency and or port authority.

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

In general, port and vessel security are managed through the International Ship and Port Facility Security Code (ISPS Code). The ISPS Code is a comprehensive set of measures to enhance security of ships and port facilities.

The purpose of the ISPS Code is to provide a standardised, consistent framework for evaluating risk, enabling Governments to offset changes in threat with changes in vulnerability for ships and port facilities through determination of appropriate security levels and corresponding security measures. The ISPS Code takes the approach that ensuring the security of ships and port facilities is a risk management activity and that, to determine what security measures are appropriate, an assessment of the risks must be made in each particular case.

TPS port security has been ISPS compliant since June 2004. Sea side security is managed by KPLP/Gamat boat patrols and land side security is handled by approximately 188 port security staff employed by PT Pelabuhan Indonesia (Pelindo) III.

The port has a CCTV surveillance system of 32 cameras and also utilises 3 patrol cars, 2 metal detectors and 2 X-ray units.

There is a secure and dedicated dangerous goods storage warehouse, 6 500 m² in size.

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

The Indonesian Government has national standards in place for the transportation, handling and storage of hazardous substances.
Indonesia’s National Oil Spill Contingency Plan (NOSCP) (2006), extends to hazardous and noxious substances (HNS). In the event of an emergency situation, the National Team for Oil Spill Response would provide the technical expertise, with input from other institutions, government departments, the private sector and other non-government organisations. The National Team through its Command and Control Centre would carry out the response, using personnel, equipment and materials belonging to its member organisations in the vicinity of the emergency incident.

The DGST is the competent authority and administers the Plan for dealing with pollution by oil and other noxious substances in marine and freshwater environments. The DGST has equipment which could be utilised for HNS spills and is supported by further equipment from the oil industry.

3.0 CONCLUSION

Based on the evidence reviewed, this due diligence did not find significant issues of concern in regards to the port of TPS’s management of solid sodium cyanide product. It was not possible during this due diligence to physically inspect the port, as such the review was based on information obtained from previous due diligence reviews, ICMI audit reports and publicly available online information. The Auditor recommends that Orica undertakes annual reviews at the port to monitor the management of dangerous goods.

This assessment should not be a final acceptance of the port of TPS for future work; rather it is recommended that Orica continue to review and monitor the port’s performance annually and implement an adaptive management process.

4.0 CLOSING

We trust this due diligence letter meets your requirements. If you have any questions, please do not hesitate to contact the undersigned.

GOLDER ASSOCIATES PTY LTD

Craig Currie
Environmental Scientist
CC/EWC/hsl

Ed Clerk
ICMC Lead Auditor and Technical Specialist

_golder.gds\gap\perth\jobs\env\2016 - environment\1665113 - orica icmc audit ocean freight supply chain\correspondence out\001 - 034 due diligences\1665113-024-l-rev0 dd port surabaya, indonesia.docx_
REFERENCES


Logistics Capacity Assessment. Indonesia Surabaya Port of Tanjung Perak. Available at: http://dlca.logcluster.org/display/public/DLCA/2.1.15+Indonesia+Surabaya+Port+of+Tanjung+Pera;jsessionid=45B55D10CAF7BDB0B6812C014377C6D4 Accessed 31 May 2017


Due Diligence Assessment of the Port of Klang, Malaysia

Orica Australia Pty Ltd

Submitted to:
Orica Australia Pty Ltd
Mr Owen Warren
Orica Australia Pty Ltd
Level 6, 78 Shenton Way (Tower 2, #06-12/16/17)
Singapore 079120

Submitted by:
Golder Associates Pty Ltd
Level 3, 1 Havelock Street West Perth, Western Australia 6005 Australia

+61 8 9213 7600
1665113-039-R-Rev0
October 2018
Distribution List
1 Copy - Orica Australia Pty Ltd
1 Copy - Golder Associates Pty Ltd
Executive Summary

Golder Associates Pty Ltd (Golder) was engaged by Orica Australia Pty Ltd (Orica) to conduct a due diligence of the Port of Klang, Malaysia. This assessment was conducted by Environmental Scientist Sara Pritchard and reviewed by International Cyanide Management Code (ICMC or the Code) Transport Technical Specialist Mike Woods.

The following items, as detailed in the International Cyanide Management Institute’s (ICMI’s) Auditor Guidance for Use of the Cyanide Transportation Verification Protocol (Auditor Guidance; ICMI, 2016a) were addressed within the due diligence:

- Transport Practice 1.1 (Questions 1-4 and 6)
- Transport Practice 1.5 (Question 1, Items g-i)
- Transport Practice 1.6
- Transport Practice 2.1
- Transport Practice 3.1.

The Auditor Guidance (ICMI, 2016a) was used to guide the due diligence assessment. It was not possible during this due diligence to physically inspect the Port of Klang, as such the review was based on information obtained from previous due diligence reviews, ICMI audit reports and publicly available online information.

Based on the evidence reviewed, this due diligence did not find significant issues of concern in regard to the Port’s management of solid sodium cyanide product.

This assessment should not be a final acceptance of the Port of Klang for future work; rather it is recommended that Orica continue to review and monitor the Port’s performance annually and implement an adaptive management process.
Table of Contents

1.0 INTRODUCTION ......................................................................................................................................... 1
  1.1 Terms of Reference .................................................................................................................................. 1
  1.2 Scope and Method .................................................................................................................................. 1

2.0 OVERVIEW OF THE PORT OF KLANG, MALAYSIA ................................................................................. 1

3.0 ICMC TRANSPORT VERIFICATION PROTOCOL ASSESSMENT .......................................................... 2

4.0 CONCLUSION ............................................................................................................................................ 6

5.0 CLOSING .................................................................................................................................................... 6

6.0 REFERENCES ............................................................................................................................................. 6

FIGURES
Figure 1: Port of Klang, Malaysia (The Straits Times, 2018) ........................................................................... 2
1.0 INTRODUCTION

This letter report provides the results of a Desktop Due Diligence Assessment of the Port of Klang (or the Port), Malaysia, in accordance with the International Cyanide Management Code for the Manufacture, Transport and Use of Cyanide in the Production of Gold (ICMC or the Code).

Golder conducted the Desktop Due Diligence Assessment of the Port of Klang, Malaysia, during October 2018. This assessment was conducted by Environmental Scientist Sara Pritchard and reviewed by International Cyanide Management Code (ICMC or the Code) Transport Technical Specialist, Mike Woods.

1.1 Terms of Reference

Orica Australia Pty Ltd (herein after referred to as “Orica”) retained Golder Associates Pty Ltd (herein after referred to as “Golder”) to conduct a Desktop Due Diligence Assessment of the Port of Klang, Malaysia. The Port of Klang is to be included in Orica’s Global Ocean Supply Chain.

1.2 Scope and Method

The scope of this Desktop Due Diligence Assessment includes the management, interim storage and emergency response in relation to cyanide transported through the Port of Klang.

As detailed in the International Cyanide Management Institute’s (ICMI’s) Auditor Guidance for Use of the Cyanide Transportation Verification Protocol (Auditor Guidance; ICMI, 2016a), the following items were addressed within the Desktop Due Diligence Assessment:

- Overview of the Port of Klang
- ICMC Transport Verification Protocol Assessment
  - Transport Practice 1.1 (Questions 1-4 and 6)
  - Transport Practice 1.5 (Question 1, Items g-i)
  - Transport Practice 1.6
  - Transport Practice 2.1
  - Transport Practice 3.1
- Conclusion
- References.

The ICMI’s December 2016 version of the Cyanide Transportation Verification Protocol (CTPV Protocol; ICMI, 2016b), was adopted to guide the Desktop Due Diligence Assessment process. The Auditor Guidance (ICMI, 2016a) was used to interpret the CTPV Protocol questions and aid in evaluating the measures taken to meet the Transportation Practices. The assessment was conducted as a desktop process using information obtained from previous due diligence reviews, ICMId audit reports and publicly available online information.

2.0 OVERVIEW OF THE PORT OF KLANG, MALAYSIA

The Port of Klang is Malaysia’s principal port. It is located at the town, Port Klang, on the west coast of Peninsular Malaysia, about 40 km from the capital city, Kuala Lumpur. Port Klang is served by three major gateways called North Port, South Port (Southpoint) and Westport. There are 19 berths in North Port, eight in South Port and 31 in Westport. In addition, the Kapar Power Station operates 2 berths while Boustead Cruise Centre Terminal operates 3 berths.
Port Klang Authority (PKA) administers the ports. PKA has assumed five core functions over all three port areas:

- Trade facilitation
- Port planning and development
- Regulatory oversight of privatised facilities and services
- Free Zone Authority
- Asset management.

The Port of Klang is reported to be the thirteenth busiest container port in the world and had a container throughput of 13.2 TEUs in 2016. The port has 24 container berths and sufficient equipment to support the movement of cargo with approximately 60 quay cranes, 52 straddle cranes, 163 rubber tyres gantry crane and a large fleet of trucks and forklifts.

An overview of the Port of Klang is shown in Figure 1.

3.0 ICMC TRANSPORT VERIFICATION PROTOCOL ASSESSMENT

The ICMI’s Auditor Guidance for Use of Cyanide Transportation Verification Protocol, General Guidance states:

Except as specifically identified in this Guidance document, the Cyanide Transportation Protocol is not to be used to evaluate transport by rail and ship or management of cyanide at rail terminals and port facilities due to security issues, limited access, and the inability of consignors to affect changes in the
operating practices of these transport facilities. Rather than conduct Code audits of these facilities, the consignor must conduct and document due diligence investigations of rail carriers, rail terminals, shipping companies and port facilities that are engaged to handle cyanide shipments, as further discussed below under Transport Practice 1.1. The consignor’s due diligence investigation must either be conducted or reviewed by an auditor meeting ICMI requirements for a transport expert, and the auditor must conclude that the due diligence investigation has reasonably evaluated these facilities and that the consignor has, to the extent practical, implemented any necessary management measures.

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

The international sales and exports of sodium cyanide by Orica take into consideration the ports and their extended infrastructure available to service the intended target area. Orica only operates in export markets that are serviced by major international shipping companies with the ability to offer scheduled container services from point of origin to destination.

Orica procedure “Selection of Transport Routes – Transportation of Sodium Cyanide to Customer Sites or Stock Points” (Orica ref: UP-GLO-PRO-001-017) aims to minimise the risk associated with the transportation of sodium cyanide while maintaining a safe, reliable, efficient and cost effective delivery system to customer sites and Orica stock points throughout the world. The procedure applies to the selection of delivery routes for Orica sodium cyanide and states that the “selection of route(s) is to be effected by the overall assessment of the risks associated with the utilisation of such route, taking into particular consideration likelihood of an incident occurring and the consequence of such an incident.” This procedure is applicable to all routes used for the transportation of Orica sodium cyanide as well as to Orica’s contracted transportation agencies.

The port is selected on the basis that it is the closest port to the customer and that it meets all reasonable industry standards for safety, security and emergency response.

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

Orica’s manufacturing facility and transfer stations are ICMC certified. Sodium cyanide is packaged and transported in accordance with international regulatory standards, such as the United Nations Recommendation on the Transport of Dangerous Goods – Model Regulations (2005) and National Codes of Practice such as the Australian Code for the Transport of Dangerous Goods by Road or Rail (2015) thereby meeting the requirements of the political jurisdictions through which the loads will pass.

Orica only operates in export markets that are serviced by major international shipping companies with the ability to offer scheduled container services from point of origin to destination. Orica procedure “Carrier Assessment” (Orica ref: SUP-GLO-PRO-016-008) provides the framework for ensuring that carriers and their contractors are assessed at regular intervals to ensure that, amongst others, storage, safety, security, maintenance and emergency response standards are being maintained. Carriers are required to provide manifest documentation, to satisfy local customs regulations and the requirements of the IMDG Code, to the destination port. This documentation contains a list of the cargo types and in the case of sodium cyanide and any other hazardous cargo the quantity, unique packaging numbers, stowage reference and emergency response procedures.

Malaysia is both an International Maritime Organisation (IMO) Member State (1974) and Safety of Life at Sea (SOLAS) Signatory Nation (1981), thereby requiring the Port of Klang to adhere to the international regulations for the transportation and handling of dangerous goods as set out in the International Maritime Dangerous Goods Code (IMDG Code) (Parts 4, 5 and 7) and SOLAS Convention ((1974) Chapter 7).
g) Does the ship carrying the cyanide have a list or manifest identifying the presence and location of the cyanide or a detailed stowage plan including this information, as required under Section 5.4.3.1 of the DG Code?

As an IMO Member State and to comply with the IMDG Code, vessels are required to declare dangerous cargo before arriving at or leaving the Port.

The Port of Klang operates under a suite of national and international regulations that ensures its compliance with regards to the transportation, handling and storage of dangerous goods.

*Kelang Port Authority By-Laws (Amendment) 1989* refers to the handling, storage and transportation of dangerous goods at Port Klang. First Schedule (By-Law 122) contains a list of dangerous goods adopted from the International Maritime Dangerous Goods Code (IMDG Code). All dangerous goods passing through Port Klang must be declared to the Authority 48 hours before the arrival of the vessel. Dangerous Goods declaration is done via electronic submission since 2000.

h) Does the ship carrying the cyanide have cyanide emergency response information, as required under Section 5.4.3.2 of the DG Code?

Dangerous goods delivered to or from the Port of Klang are required to be appropriately manifested, packaged, labelled and placarded. Documentation that accompanies the cyanide throughout transportation by sea and delivery at ports includes emergency response information along with the dangerous cargo manifest, packing certificates and Multimodal Dangerous Goods Form.

Emergency response procedures for ships carrying dangerous goods, including the emergency schedules to be followed in case of incidents involving dangerous substances, materials or articles, or harmful substances (marine pollutants), is regulated under the IMDG Code. In accordance with the Code, all ships, and the companies responsible for their operation, are required to maintain a Safety Management System (SMS). Within the SMS, procedures for responding to potential shipboard emergencies are required.

Port operations personnel provide the vessel’s Master with copies of the Emergency Information, Dangerous Goods manifest (including stowage plan) and Packaging Certificates for each hazardous cargo transport units loaded onto the ship at the port of origin.

i) Does the ship comply with the stowage and separation requirements of Part 7 of the DG Code?

As a member of the IMO and to comply with the International Maritime Solid Bulk Cargoes Code (IMSBC Code), vessels are required to declare dangerous cargo to the KPA before arriving at or leaving the Port.

For each defined dangerous good that is required to enter or exit to/from port must be declared with PKA Dangerous Goods Department by the master or owner or agent or shipper or his agent. Dangerous goods declaration must be submitted 48 hours before arrival of vessel / Estimated Time Arrival (ETA).

As a member of the IMO and to comply with the IMDG Code, all cargo listed on the dangerous cargo manifest must be stowed and handled as prescribed by its UN number and dangerous goods class.

To comply with requirements of the IMDG Code, the Port of Klang has dedicated storage procedures and areas for specialised products including dangerous goods; whereby cyanide containers are segregated and stacked separately.

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

PKA organises ship movements, tracks pilotage operations, and supervises terminal operations via real-time CCTV monitoring.
PKA operates a Vessel Traffic Management System (VTMS) for the pilotage district of Port Klang. The system is linked to the Malacca Straits Surveillance System and is supported by a network of radars, Automatic Identification System (AIS) and communication facilities.

Chain of custody documentation is used by shipping companies to prevent the loss of cargo during shipment. This documentation includes the vessel manifest – which identifies the location and content of each container on the vessel along with packing certificates, Multimodal Dangerous Goods Forms and Safety Data Sheets (SDS).

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

Port Klang Authority operates a Vessel Traffic Management System (VTMS) for the pilotage district of Port Klang. The VTMS is linked to the Malacca Straits Surveillance System and is supported by a network of radars, Automatic Identification System (AIS) and communication facilities. Primarily, the area of jurisdiction of the VTMS is only within the pilotage district including the approaches to the North and South Channel. However, the radar coverage extends up to 15 miles from the entrances of the Port (Port Klang Authority, 2018a).

The Control Centre is located at the 19th Floor of Westport Tower Block. Vessels within the coverage area are tracked by a network of four radars located at Pulau Angsa, One Fathom Bank, Bukit Jugra and VTMS Control Centre. Vessels due to arrive at pilot stations are identified and tracked in advance. ETA information is conveyed to the appropriate pilot control centres. Vessels are notified of pilot boarding and berthing information. Navigational information is also relayed to vessels under pilotage (Port Klang Authority, 2018a).

Port Klang is committed to operating in a safe manner for the benefit of all Port users. The Port has taken significant steps to align its facilities and operations with the directives of the International Convention for the Safety of Life at Sea (SOLAS) 1974 convention (SOLAS Convention), specifically, the International Ship and Port Facility Security (ISPS) Code which is an amendment to the SOLAS Convention (1974/1988) on minimum security arrangements for ships, ports and government agencies. Therefore, every ship applying for permission to enter, and every Port facility operator working in the Port must ensure compliance with the security and safety requirements for ships and port facilities as issued by the IMO.

**Kelang Port Authority By-Laws (Amendment) 1989** refers to the handling, storage and transportation of dangerous goods at Port Klang. First Schedule (By-Law 122) contains a list of dangerous goods adopted from the IMDG Code. All dangerous goods passing through Port Klang must be declared to the Authority 48 hours before the arrival of the vessel. Dangerous Goods declaration is done via electronic submission since 2000.

The Port has a Dangerous Goods Department that conducts supervision and inspections where dangerous goods are handled at the port and oversees that dangerous cargoes stored and handled in the Port comply with the laws in force, therefore minimising the potential for accidental releases.

In addition to ISPS Code compliance, Port Klang has a 24-hour emergency response team, 24 hour surveillance at the entrance and exit points, patrol vehicles and Closed Circuit TV (CCTV) to monitor and record Port operations and activities.

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

Malaysia has been a member State of the IMO Council since 1971, it complies with the requirements of the IMDG Code.
The Port of Klang is certified under the IMO’s International Convention on Oil Pollution Preparedness, Response and Cooperation 1990 (OPRC 90). States which are party to OPRC 90 protocol are required to establish a national system for responding to oil and hazardous/noxious substances pollution incidents, including a designated national authority, a national operational contact point and a national contingency plan. This needs to be supported by a minimum level of response equipment, communications plans, regular training and exercises.

4.0 CONCLUSION

It was not possible during this due diligence to physically inspected the Port of Klang, therefore the review was based on information obtained from previous due diligence reviews, ICMI audit reports, and publicly available online information.

Based on the evidence reviewed, this due diligence did not find significant issues of concern in regard to the Port of Klang’s management of solid sodium cyanide products and additional management measures by the consigner are not considered necessary.

This assessment should not be a final acceptance of the Port of Klang for all future work; rather it is recommended that Orica continue to review and monitor the Port’s performance annually and implement an adaptive management process.

5.0 CLOSING

We trust this due diligence report meets Orica's requirements. If you have any questions, please do not hesitate to contact the undersigned.

6.0 REFERENCES


REPORT

Due Diligence Assessment of the Port of Buenaventura, Colombia

Orica Australia Pty Ltd

Submitted to:

Orica Australia Pty Ltd
Mr Owen Warren
Orica Australia Pty Ltd
Level 6, 78 Shenton Way (Tower 2, #06-12/16/17)
Singapore 079120

Submitted by:

Golder Associates Pty Ltd
Level 3, 1 Havelock Street West Perth, Western Australia 6005 Australia

+61 8 9213 7600
1665113-040-R-Rev0

October 2018
Distribution List

1 Copy - Orica Australia Pty Ltd

1 Copy - Golder Associates Pty Ltd
Executive Summary

Golder Associates Pty Ltd (Golder) was engaged by Orica Australia Pty Ltd (Orica) to conduct a due diligence of the Port of Buenaventura, Colombia. This assessment was conducted by Environmental Scientist Sara Pritchard and reviewed by International Cyanide Management Code (ICMC or the Code) Transport Technical Specialist Mike Woods.

The following items, as detailed in the International Cyanide Management Institute’s (ICMI’s) Auditor Guidance for Use of the Cyanide Transportation Verification Protocol (Auditor Guidance; ICMI, 2016a) were addressed within the due diligence:

- Transport Practice 1.1 (Questions 1-4 and 6)
- Transport Practice 1.5 (Question 1, Items g-i)
- Transport Practice 1.6
- Transport Practice 2.1
- Transport Practice 3.1.

The Auditor Guidance (ICMI, 2016a) was used to guide the due diligence assessment. It was not possible during this due diligence to physically inspect the Port of Buenaventura, as such the review was based on information obtained from previous due diligence reviews, ICMI audit reports and publicly available online information.

Based on the evidence reviewed, this due diligence did not find significant issues of concern in regard to the Port’s management of solid sodium cyanide product.

This assessment should not be a final acceptance of the Port of Buenaventura for future work; rather it is recommended that Orica continue to review and monitor the Port’s performance annually and implement an adaptive management process.
Table of Contents

1.0  INTRODUCTION ............................................................................................................................ 1
1.1  Terms of Reference ....................................................................................................................... 1
1.2  Scope and Method ......................................................................................................................... 1
2.0  OVERVIEW OF THE PORT OF BUENAVENTURA, COLOMBIA ............................................... 1
3.0  ICMC TRANSPORT VERIFICATION PROTOCOL ASSESSMENT ........................................... 3
4.0  CONCLUSION ................................................................................................................................. 6
5.0  CLOSING ........................................................................................................................................ 6
6.0  REFERENCES .................................................................................................................................. 6

FIGURES
Figure 1: Port of Buenaventura, Colombia (China Dialogue, 2018) ......................................................... 2
1.0 INTRODUCTION

This letter report provides the results of a Desktop Due Diligence Assessment of the Port of Buenaventura (or the Port), Colombia, in accordance with the International Cyanide Management Code for the Manufacture, Transport and Use of Cyanide in the Production of Gold (ICMC or the Code).

Golder conducted the Desktop Due Diligence Assessment of the Port of Buenaventura, Colombia, during October 2018. This assessment was conducted by Environmental Scientist Sara Pritchard and reviewed by International Cyanide Management Code (ICMC or the Code) Transport Technical Specialist, Mike Woods.

1.1 Terms of Reference

Orica Australia Pty Ltd (herein after referred to as “Orica”) retained Golder Associates Pty Ltd (herein after referred to as “Golder”) to conduct a Desktop Due Diligence Assessment of the Port of Buenaventura, Colombia. The Port of Buenaventura is to be included in Orica’s Global Ocean Supply Chain.

1.2 Scope and Method

The scope of this Desktop Due Diligence Assessment includes the management, interim storage and emergency response in relation to cyanide transported through the Port of Buenaventura, Colombia.

As detailed in the International Cyanide Management Institute’s (ICMI’s) Auditor Guidance for Use of the Cyanide Transportation Verification Protocol (Auditor Guidance; ICMI, 2016a), the following items were addressed within the Desktop Due Diligence Assessment:

- Overview of the Port of Buenaventura, Colombia
- ICMC Transport Verification Protocol Assessment
  - Transport Practice 1.1 (Questions 1-4 and 6)
  - Transport Practice 1.5 (Question 1, Items g-i)
  - Transport Practice 1.6
  - Transport Practice 2.1
  - Transport Practice 3.1
- Conclusion
- References.

The ICMI’s December 2016 version of the Cyanide Transportation Verification Protocol (CTPV Protocol; ICMI, 2016b), was adopted to guide the Desktop Due Diligence Assessment process. The Auditor Guidance (ICMI, 2016a) was used to interpret the CTPV Protocol questions and aid in evaluating the measures taken to meet the Transportation Practices. The assessment was conducted as a desktop process using information obtained from previous due diligence reviews, ICMI audit reports and publicly available online information.

2.0 OVERVIEW OF THE PORT OF BUENAVENTURA, COLOMBIA

The Port of Buenaventura is the main port of Colombia in the Pacific Ocean, accounting for nearly 60% of all Colombian sea imports and exports. The nearest town city to the Port is Buenaventura, located approximately 5 kilometres (km) to the south east.

The Sociedad Portuaria Regional de Buenaventura S.A. (Regional Port Society of Buenaventura; SPRB) is the port authority (Port Authority) for the Port of Buenaventura.
The Port of Buenaventura is a multimodal transport port with an access channel length of approximately 31.5 km (17 Nautical miles). The outside bay has a depth of approximately 9.1 metres (m) at low tide (Zero Equal) and the inside bay has a depth of approximately 12 m at low tide (equal zero). The cargo pier has a water depth of approximately 9.4 – 10 m. The Port has a dock length of approximately 2001 m (Logcluster, 2018).

The Port of Buenaventura has a specialised container terminal (Buenaventura SA - TECSA). Key handling equipment at the Port includes two 50 million tonne (MT) and two 60 MT dockside cranes, six container gantries (40 to 62 MT) located on Post-Panamax shore rails, three multipurpose mobile cranes (100 and 104 MT), 16 reach stackers (40 and 30 MT), and 10 forklifts with different capacities for handling containers (Logcluster, 2018).

The container facilities at the Port consists of a 40 m long quay, which allows for berthing of 2 large vessels simultaneously or a Panama Vessel, with a draft depth of approximately 14 m during minimal tide. The Port’s container facilities are equipped to attend up to 260,000 twenty-foot equivalent units (TEUs) per year. The container facilities at the Port has approximately 19 hectares (ha) for container storage with a capacity to store up to 8000 TEU simultaneously (Logcluster, 2018).

Stevedoring operations at the Port of Buenaventura are conducted by private companies and are classified and regulated by the national government.

An overview of the Port of Buenaventura is shown in Figure 1.

Figure 1: Port of Buenaventura, Colombia (China Dialogue, 2018)
3.0 ICMC TRANSPORT VERIFICATION PROTOCOL ASSESSMENT

The ICMI’s Auditor Guidance for Use of Cyanide Transportation Verification Protocol, General Guidance states:

*Except as specifically identified in this Guidance document, the Cyanide Transportation Protocol is not to be used to evaluate transport by rail and ship or management of cyanide at rail terminals and port facilities due to security issues, limited access, and the inability of consignors to affect changes in the operating practices of these transport facilities. Rather than conduct Code audits of these facilities, the consignor must conduct and document due diligence investigations of rail carriers, rail terminals, shipping companies and port facilities that are engaged to handle cyanide shipments, as further discussed below under Transport Practice 1.1. The consignor’s due diligence investigation must either be conducted or reviewed by an auditor meeting ICMI requirements for a transport expert, and the auditor must conclude that the due diligence investigation has reasonably evaluated these facilities and that the consignor has, to the extent practical, implemented any necessary management measures.*

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

The international sales and exports of sodium cyanide by Orica take into consideration the ports and their extended infrastructure available to service the intended target area. Orica only operates in export markets that are serviced by major international shipping companies with the ability to offer scheduled container services from point of origin to destination.

Orica procedure “Selection of Transport Routes – Transportation of Sodium Cyanide to Customer Sites or Stock Points” (Orica ref: UP-GLO-PRO-001-017) aims to minimise the risk associated with the transportation of sodium cyanide while maintaining a safe, reliable, efficient and cost effective delivery system to customer sites and Orica stock points throughout the world. The procedure applies to the selection of delivery routes for Orica sodium cyanide and states that the “selection of route(s) is to be effected by the overall assessment of the risks associated with the utilisation of such route, taking into particular consideration likelihood of an incident occurring and the consequence of such an incident.” This procedure is applicable to all routes used for the transportation of Orica sodium cyanide as well as to Orica’s contracted transportation agencies.

The Port of Buenaventura is selected on the basis that it is the closest port to the customer and that it meets all reasonable industry standards for safety, security and emergency response.

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

Orica’s manufacturing facility and transfer stations are ICMC certified. Sodium cyanide is packaged and transported in accordance with international regulatory standards, such as the United Nations Recommendation on the Transport of Dangerous Goods – Model Regulations (2005) and National Codes of Practice such as the Australian Code for the Transport of Dangerous Goods by Road or Rail (2015) thereby meeting the requirements of the political jurisdictions through which the loads will pass.

Orica only operates in export markets that are serviced by major international shipping companies with the ability to offer scheduled container services from point of origin to destination. Orica procedure “Carrier Assessment” (Orica ref: SUP-GLO-PRO-016-008) provides the framework for ensuring that carriers and their contractors are assessed at regular intervals to ensure that, amongst others, storage, safety, security, maintenance and emergency response standards are being maintained. Carriers are required to provide manifest documentation, to satisfy local customs regulations and the requirements of the IMDG Code, to the destination port. This documentation contains a list of the cargo types and in the case of sodium cyanide and
any other hazardous cargo the quantity, unique packaging numbers, stowage reference and emergency response procedures.

Colombia is both an International Maritime Organisation (IMO) Member State (1974) and Safety of Life at Sea (SOLAS) Signatory Nation (1981), thereby requiring the Port of Buenaventura to adhere to the international regulations for the transportation and handling of dangerous goods as set out in the International Maritime Dangerous Goods Code (IMDG Code) (Parts 4, 5 and 7) and SOLAS Convention ((1974) Chapter 7).

g) Does the ship carrying the cyanide have a list or manifest identifying the presence and location of the cyanide or a detailed stowage plan including this information, as required under Section 5.4.3.1 of the DG Code?

Colombia’s Ministry of Transportation develops and implements policies, statutes and regulations governing the carriage of dangerous goods and other goods by ships in accordance with relative national and international requirements. This includes supervising the safety of ships carrying dangerous goods and other goods, processing declarations made by ships carrying dangerous goods, providing accreditation services for personnel involved in the declaration of dangerous goods and inspection of containers, and inspecting containers holding dangerous goods.

As an IMO Member State and to comply with the IMDG Code, vessels are required to declare dangerous cargo before arriving at or leaving the Port.

The Port of Buenaventura operates under a suite of National regulations that ensures its compliance with regards to the transportation, handling and storage of dangerous goods. Colombian Tax and Customs National Authority (DIAN) is the main government customs entity in Colombia. The customs regulations as per decree 2685 and Customs Systems (Muisca) regulations, all cargo on board a vessel, with destination to Colombia must be manifested. The manifest and bills of lading must be registered to Muisca 12 hours prior to the ship’s arrival at the Port (Logcluster, 2018).

h) Does the ship carrying the cyanide have cyanide emergency response information, as required under Section 5.4.3.2 of the DG Code?

Dangerous goods delivered to or from the Port of Buenaventura are required to be appropriately manifested, packaged, labelled and placarded. Documentation that accompanies the cyanide throughout transportation by sea and delivery at ports includes emergency response information along with the dangerous cargo manifest, packing certificates and Multimodal Dangerous Goods Form.

Emergency response procedures for ships carrying dangerous goods, including the emergency schedules to be followed in case of incidents involving dangerous substances, materials or articles, or harmful substances (marine pollutants), is regulated under the IMDG Code. In accordance with the Code, all ships, and the companies responsible for their operation, are required to maintain a Safety Management System (SMS). Within the SMS, procedures for responding to potential shipboard emergencies are required.

Port operations personnel provide the vessel’s Master with copies of the Emergency Information, Dangerous Goods manifest (including stowage plan) and Packaging Certificates for each hazardous cargo transport units loaded onto the ship at the port of origin.

i) Does the ship comply with the stowage and separation requirements of Part 7 of the DG Code?

As a member of the IMO and to comply with the International Maritime Solid Bulk Cargoes Code (IMSBC Code), vessels are required to declare dangerous cargo to the Port Authority before arriving at or leaving the Port.
As a member of the IMO and to comply with the IMDG Code, vessels are required to declare dangerous cargo 24 hours prior to loading/handling of such cargo, additionally, all cargo listed on the dangerous cargo manifest must be stowed and handled as prescribed by its UN number and dangerous goods class.

To comply with requirements of the IMDG Code, the port of Buenaventura has dedicated storage areas for specialised products including dangerous goods; whereby cyanide containers are segregated and stacked separately. All sodium cyanide product remains sealed within its container at all times.

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

The Port Authority organises ship movements, tracks pilotage operations, and supervises terminal operations via real-time CCTV monitoring.

Chain of custody documentation is used by shipping companies to prevent the loss of cargo during shipment. This documentation includes the vessel manifest – which identifies the location and content of each container on the vessel along with packing certificates, Multimodal Dangerous Goods Forms and Safety Data Sheets (SDS).

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

The Port of Buenaventura uses an Access Control System to monitor if the persons entering the Port are appropriately identified and to minimise unauthorised access. The Access Control System uses 62 biometric readers, 18 full body and half-body rotating stands, and 23 security fences at vehicle access points which are controlled by a centralised server.

The Port also implements a Perimeter Control System in order to prevent intruders access through the outside perimeters of the port facilities. The system consists of 4,800 m of sensor cable controlled by 23 processors that interpret the signals received, and then transmit information to the control centre.

The Port of Buenaventura has Closed Circuit TV (CCTV) to monitor and record all Port operations and activities. It has 370 fixed and panning cameras distributed throughout the Port and 21 digital recorders to store security events 24 hours/day. The system also includes special equipment for monitoring the internal navigation channel under varying visibility conditions.

The Port has armed security personnel, consisting of approximately 265 armed security guards and 6 patrol units, by land and sea.

All international maritime regulations (Marpol 73/78, IMDG) in relation to hydrocarbons, segregation and control of dangerous goods must be complied with at the Port of Buenaventura (SPRB, 2018).

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

Colombia has been a member State of the IMO Council since 1974, it complies with the requirements of the IMDG Code.

The Port of Buenaventura is certified under the IMO’s International Convention on Oil Pollution Preparedness, Response and Cooperation 1990 (OPRC 90). States which are party to OPRC 90 protocol are required to establish a national system for responding to oil and hazardous/noxious substances pollution incidents, including a designated national authority, a national operational contact point and a national contingency plan. This needs to be supported by a minimum level of response equipment, communications plans, regular training and exercises.
4.0 CONCLUSION

It was not possible during this due diligence to physically inspected the Port of Buenaventura, therefore the review was based on information obtained from previous due diligence reviews, ICMI audit reports, and publicly available online information.

Based on the evidence reviewed, this Desktop Due Diligence Assessment did not find significant issues of concern with regards to the Port of Buenaventura’s management of solid sodium cyanide products and additional management measures by the consigner are not considered necessary.

This assessment should not be a final acceptance of the Port of Buenaventura for all future work; rather it is recommended that Orica continue to review and monitor the Port’s performance annually and implement an adaptive management process.

5.0 CLOSING

We trust this due diligence report meets Orica’s requirements. If you have any questions, please do not hesitate to contact the undersigned.

6.0 REFERENCES


Signature Page

Golder Associates Pty Ltd

Sara Pritchard
Environmental Scientist

Mike Woods
Transport Technical Specialist

SP/MW/as

Golder and the G logo are trademarks of Golder Associates Corporation
REPORT

Due Diligence Assessment of the Port of Cartagena, Colombia

Orica Australia Pty Ltd

Submitted to:

Orica Australia Pty Ltd
Mr Owen Warren
Orica Australia Pty Ltd
Level 6, 78 Shenton Way (Tower 2, #06-12/16/17)
Singapore 079120

Submitted by:

Golder Associates Pty Ltd
Level 3, 1 Havelock Street West Perth, Western Australia 6005 Australia

+61 8 9213 7600

1665113-041-R-Rev0

October 2018
Distribution List

1 Copy - Orica Australia Pty Ltd

1 Copy - Golder Associates Pty Ltd
Executive Summary

Golder Associates Pty Ltd (Golder) was engaged by Orica Australia Pty Ltd (Orica) to conduct a due diligence of the Port of Cartagena, Colombia. This assessment was conducted by Environmental Scientist Sara Pritchard and reviewed by International Cyanide Management Code (ICMC or the Code) Transport Technical Specialist Mike Woods.

The following items, as detailed in the International Cyanide Management Institute’s (ICMI’s) Auditor Guidance for Use of the Cyanide Transportation Verification Protocol (Auditor Guidance; ICMI, 2016a) were addressed within the due diligence:

- Transport Practice 1.1 (Questions 1-4 and 6)
- Transport Practice 1.5 (Question 1, Items g-i)
- Transport Practice 1.6
- Transport Practice 2.1
- Transport Practice 3.1.

The Auditor Guidance (ICMI, 2016a) was used to guide the due diligence assessment. It was not possible during this due diligence to physically inspect the Port of Cartagena, as such the review was based on information obtained from previous due diligence reviews, ICMI audit reports and publicly available online information.

Based on the evidence reviewed, this due diligence did not find significant issues of concern in regard to the Port’s management of solid sodium cyanide product.

This assessment should not be a final acceptance of the Port of Cartagena for future work; rather it is recommended that Orica continue to review and monitor the Port’s performance annually and implement an adaptive management process.
Table of Contents

1.0 INTRODUCTION ................................................................................................................................. 1
   1.1 Terms of Reference ......................................................................................................................... 1
   1.2 Scope and Method ......................................................................................................................... 1

2.0 OVERVIEW OF THE PORT OF CARTAGENA, COLOMBIA ............................................................. 1

3.0 ICMC TRANSPORT VERIFICATION PROTOCOL ASSESSMENT .................................................. 4

4.0 CONCLUSION ...................................................................................................................................... 7

5.0 CLOSING .......................................................................................................................................... 7

6.0 REFERENCES ..................................................................................................................................... 7

FIGURES

Figure 1: Port of Cartagena, Colombia (SPRC Terminal) (Fairplay, 2018) .................................................. 3
Figure 2: Port of Cartagena, Colombia (Contecar Terminal) (PuertoCTG, 2018) ........................................... 4
1.0 INTRODUCTION

This letter report provides the results of a Desktop Due Diligence Assessment of the Port of Cartagena (or the Port), Colombia, in accordance with the International Cyanide Management Code for the Manufacture, Transport and Use of Cyanide in the Production of Gold (ICMC or the Code).

Golder conducted the Desktop Due Diligence Assessment of the Port of Cartagena, Colombia, during October 2018. This assessment was conducted by Environmental Scientist Sara Pritchard and International Cyanide Management Code (ICMC or the Code) and reviewed by Transport Technical Specialist, Mike Woods.

1.1 Terms of Reference

Orica Australia Pty Ltd (herein after referred to as “Orica”) retained Golder Associates Pty Ltd (herein after referred to as “Golder”) to conduct a DesktopDue Diligence Assessment of the Port of Cartagena, Colombia. The Port of Cartagena is to be included in Orica’s Global Ocean Supply Chain.

1.2 Scope and Method

The scope of this Desktop Due Diligence Assessment includes the management, interim storage and emergency response in relation to cyanide transported through the Port of Cartagena, Colombia.

As detailed in the International Cyanide Management Institute’s (ICMI’s) Auditor Guidance for Use of the Cyanide Transportation Verification Protocol (Auditorguidance; ICMI, 2016a), the following items were addressed within the Desktop Due Diligence Assessment:

- Overview of the Port of Cartagena
- ICMC Transport Verification Protocol Assessment
  - Transport Practice 1.1 (Questions 1-4 and 6)
  - Transport Practice 1.5 (Question 1, Items g-i)
  - Transport Practice 1.6
  - Transport Practice 2.1
  - Transport Practice 3.1
- Conclusion
- References.

The ICMI’s December 2016 version of the Cyanide Transportation Verification Protocol (CTPV Protocol; ICMI, 2016b), was adopted to guide the Desktop Due Diligence Assessment process. The Auditor Guidance (ICMI, 2016a) was used to interpret the CTPV Protocol questions and aid in evaluating the measures taken to meet the Transportation Practices. The assessment was conducted as a desktop process using information obtained from previous due diligence reviews, ICMI audit reports and publicly available online information.

2.0 OVERVIEW OF THE PORT OF CARTAGENA, COLOMBIA

The Sociedad Portuaria Regional de Cartagena S.A. (SPRC; Regional Port Society of Cartagena) is the port authority (Port Authority) for the Port of Cartagena. The Port of Cartagena is Colombia’s main container port. Operating 24 hours a day, 365 days a year, the Port of Cartagena includes three open ports and over 40 private ports.
The Port is located approximately 653 kilometres (km) north north-east of Bogotá in Colombia. It is located close to the major transoceanic routes through the Panama Canal. The Port of Cartagena is the second busiest port in Colombia, behind the Pacific-side port of Buenaventura, and the third busiest port in the Caribbean Sea. The Port is strategically placed to capture sea traffic through the Panama Canal’s transoceanic shipping lanes that connect the Atlantic and Pacific Ocean’s sea traffic and other traffic around the Caribbean Sea. The Port of Cartagena contains two entrances. The Cartagena entrance is 250 meters (820.2 feet) wide with a depth of 11.5 meters (37.7 feet). The Escombreras entrance is 420 meters (1378 feet) wide with a depth of 25 meters (82 feet). The Port of Cartagena has two water areas. Zone I includes basins for commercial traffic, fishing, and other activities. Covering a total of over 225 hectares, the Port of Cartagena’s Zone I contains almost 218 hectares devoted to commercial traffic, 1.4 hectares for fishing, and an additional 6.2 hectares for other activities. Zone II is a 4778-hectare non-basin area of water surface for access, anchorage, and other activities.

The Port of Cartagena offers large scale maritime, cargo (container, refrigerated, automobile, loose and dangerous goods), logistic and cruise ship services. It is currently capable of handling 4 million TEUs per year, with plans to expand to 5.2 million TEU capacity. The Port also provides mooring facilities for ships up to 16,000 twenty-foot equivalent units (TEUs) (Port of Cartagena, 2018).

The Port of Cartagena is the City of Cartagena’s principal container management port, incorporating two container terminals SPRC and Contecar. These container terminals are summarised below (for years 2015-2017) (Port of Cartagena, 2018).

**SPRC Terminal**

The SPRC terminal has an annual capacity of approximately 2 million TEUs and handles ships up to 16 000 TEUs. It has a dock depth of 16.5 metres (m), contains one 700 m longitudinal pier for ships up to 180,000 deadweight tonnes (DWT) and two jetties (186 m and 202 m) for feeder ships. As a strategic connection centre for shipping lines, the SPRC terminal can receive five Super Post Panamax ships simultaneously. The SPRC terminal utilises up to 9 STS gantry cranes with a 22-container span and twinlift capacity for simultaneous unloading of two 20 foot (ft) containers, and two 100 tonne (t) capacity MHC cranes (Port of Cartagena, 2018).

The storage yard area is approximately 25 hectares, with over 30 000 storage cells for containers, stacked up to 6 high.

An overview of the SPRC terminal at the Port of Cartagena is shown in Figure 1.
Contecar Terminal

The Contecar terminal has an annual capacity of approximately 3.2 million TEUs and also handles ships up to 16 000 TEUs. It has a dock depth of 16.5 m, contains one 1 000 m longitudinal pier. The Contecar terminal utilises 13 STS gantry cranes with a 22-container span and twinlift capacity for simultaneous unloading of two 20 ft containers. The storage yard area is approximately 70 hectares (Port of Cartagena, 2018).

An overview of the Contecar terminal at the Port of Cartagena is shown in Figure 2.
3.0 ICMC TRANSPORT VERIFICATION PROTOCOL ASSESSMENT

The ICMI’s Auditor Guidance for Use of Cyanide Transportation Verification Protocol, General Guidance states:

Except as specifically identified in this Guidance document, the Cyanide Transportation Protocol is not to be used to evaluate transport by rail and ship or management of cyanide at rail terminals and port facilities due to security issues, limited access, and the inability of consignors to affect changes in the operating practices of these transport facilities. Rather than conduct Code audits of these facilities, the consignor must conduct and document due diligence investigations of rail carriers, rail terminals, shipping companies and port facilities that are engaged to handle cyanide shipments, as further discussed below under Transport Practice 1.1. The consignor’s due diligence investigation must either be conducted or reviewed by an auditor meeting ICMI requirements for a transport expert, and the auditor must conclude that the due diligence investigation has reasonably evaluated these facilities and that the consignor has, to the extent practical, implemented any necessary management measures.

Transport Practice 1.1: Select cyanide transport routes to minimise the potential for accidents and releases

The international sales and exports of sodium cyanide by Orica take into consideration the ports and their extended infrastructure available to service the intended target area. Orica only operates in export markets that are serviced by major international shipping companies with the ability to offer scheduled container services from point of origin to destination.

Orica procedure “Selection of Transport Routes – Transportation of Sodium Cyanide to Customer Sites or Stock Points” (Orica ref: UP-GLO-PRO-001-017) aims to minimise the risk associated with the transportation of sodium cyanide while maintaining a safe, reliable, efficient and cost effective delivery system to customer sites and Orica stock points throughout the world. The procedure applies to the selection of delivery routes for Orica sodium cyanide and states that the “selection of route(s) is to be effected by the overall assessment of
the risks associated with the utilisation of such route, taking into particular consideration likelihood of an incident occurring and the consequence of such an incident.” This procedure is applicable to all routes used for the transportation of Orica sodium cyanide as well as to Orica’s contracted transportation agencies.

The port is selected on the basis that it is the closest port to the customer and that it meets all reasonable industry standards for safety, security and emergency response.

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

Orica’s manufacturing facility and transfer stations are ICMC certified. Sodium cyanide is packaged and transported in accordance with international regulatory standards, such as the United Nations Recommendation on the Transport of Dangerous Goods – Model Regulations (2005) and National Codes of Practice such as the Australian Code for the Transport of Dangerous Goods by Road or Rail (2015) thereby meeting the requirements of the political jurisdictions through which the loads will pass.

Orica only operates in export markets that are serviced by major international shipping companies with the ability to offer scheduled container services from point of origin to destination. Orica procedure “Carrier Assessment” (Orica ref: SUP-GLO-PRO-016-008) provides the framework for ensuring that carriers and their contractors are assessed at regular intervals to ensure that, amongst others, storage, safety, security, maintenance and emergency response standards are being maintained. Carriers are required to provide manifest documentation, to satisfy local customs regulations and the requirements of the IMDG Code, to the destination port. This documentation contains a list of the cargo types and in the case of sodium cyanide and any other hazardous cargo the quantity, unique packaging numbers, stowage reference and emergency response procedures.

Colombia is both an International Maritime Organisation (IMO) Member State (1974) and Safety of Life at Sea (SOLAS) Signatory Nation (1981), thereby requiring the Port of Cartagena to adhere to the international regulations for the transportation and handling of dangerous goods as set out in the International Maritime Dangerous Goods Code (IMDG Code) (Parts 4, 5 and 7) and SOLAS Convention ((1974) Chapter 7).

g) Does the ship carrying the cyanide have a list or manifest identifying the presence and location of the cyanide or a detailed stowage plan including this information, as required under Section 5.4.3.1 of the DG Code?

Colombia’s Ministry of Transportation develops and implements policies, statutes and regulations governing the carriage of dangerous goods and other goods by ships in accordance with relative national and international requirements. This includes supervising the safety of ships carrying dangerous goods and other goods, processing declarations made by ships carrying dangerous goods, providing accreditation services for personnel involved in the declaration of dangerous goods and inspection of containers, and inspecting containers holding dangerous goods.

As an IMO Member State and to comply with the IMDG Code, vessels are required to declare dangerous cargo before arriving at or leaving the Port.

The Port of Cartagena operates under a suite of National regulations that ensures its compliance with regards to the transportation, handling and storage of dangerous goods.

The Port operates under a suite of National regulations that ensures its compliance with regards to the transportation, handling and storage of dangerous goods. Colombian Tax and Customs National Authority (DIAN) is the main government customs entity in Colombia. The customs regulations as per decree 2685 and Customs Systems (Muisca) regulations, all cargo on board a vessel, with destination to Colombia must be
manifested. The manifest and bills of lading must be registered to Muisca 12 hours prior to the ship's arrival at the Port (Logcluster, 2018).

**h) Does the ship carrying the cyanide have cyanide emergency response information, as required under Section 5.4.3.2 of the DG Code?**

Dangerous goods delivered to or from the Port of Cartagena are required to be appropriately manifested, packaged, labelled and placarded. Documentation that accompanies the cyanide throughout transportation by sea and delivery at ports includes emergency response information along with the dangerous cargo manifest, packing certificates and Multimodal Dangerous Goods Form.

Emergency response procedures for ships carrying dangerous goods, including the emergency schedules to be followed in case of incidents involving dangerous substances, materials or articles, or harmful substances (marine pollutants), is regulated under the IMDG Code. In accordance with the Code, all ships, and the companies responsible for their operation, are required to maintain a Safety Management System (SMS). Within the SMS, procedures for responding to potential shipboard emergencies are required.

Port operations personnel provide the vessel’s Master with copies of the Emergency Information, Dangerous Goods manifest (including stowage plan) and Packaging Certificates for each hazardous cargo transport units loaded onto the ship at the port of origin.

**i) Does the ship comply with the stowage and separation requirements of Part 7 of the DG Code?**

As a member of the IMO and to comply with the International Maritime Solid Bulk Cargoes Code (IMSBC Code), vessels are required to declare dangerous cargo to the Port Authority before arriving at or leaving the Port.

As a member of the IMO and to comply with the IMDG Code, vessels are required to declare dangerous cargo 24 hours prior to loading/handling of such cargo, additionally, all cargo listed on the dangerous cargo manifest must be stowed and handled as prescribed by its UN number and dangerous goods class.

To comply with requirements of the IMDG Code, the port of Cartagena has dedicated storage areas for specialised products including dangerous goods; whereby cyanide containers are segregated and stacked separately. All sodium cyanide product remains sealed within its container at all times.

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

The Port Authority organises ship movements, tracks pilotage operations, and supervises terminal operations via real-time CCTV monitoring.

Chain of custody documentation is used by shipping companies to prevent the loss of cargo during shipment. This documentation includes the vessel manifest – which identifies the location and content of each container on the vessel along with packing certificates, Multimodal Dangerous Goods Forms and Safety Data Sheets (SDS).

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

The entire Port area has a closed perimeter with restricted access that is controlled by the security service and Port Police. CCTV is installed, with permanent recording on digital media, connected through fiber optics and centralized at a Control Centre.

The Control Centre for the Port is equipped with computer management systems for alarms, dangerous goods, emergencies, communications, accesses, video surveillance, recording, etc. and is operational 24 hours a day, 365 days a year, with the service being provided by appropriately qualified staff.
The Port of Cartagena has in place an Internal Emergency Plan (IEP) (RD 145/1989 of 20 January), which approves the National Regulation for the Admission, Handling and Storage of Dangerous Goods in Ports. The IEP outlines measures for the protection of property and people, areas in which operations for handling, storage and internal transport of dangerous goods. The Port Authority has implemented the IEP since 1992.

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

Colombia has been a member State of the IMO Council since 1974, it complies with the requirements of the IMDG Code.

The Port of Cartagena is certified under the IMO's International Convention on Oil Pollution Preparedness, Response and Cooperation 1990 (OPRC 90). States which are party to OPRC 90 protocol are required to establish a national system for responding to oil and hazardous/noxious substances pollution incidents, including a designated national authority, a national operational contact point and a national contingency plan. This needs to be supported by a minimum level of response equipment, communications plans, regular training and exercises.

### 4.0 CONCLUSION

It was not possible during this due diligence to physically inspected the Port of Cartagena, therefore the review was based on information obtained from previous due diligence reviews, ICMI audit reports, and publicly available online information.

Based on the evidence reviewed, this due diligence did not find significant issues of concern in regards to the Port of Cartagena's management of solid sodium cyanide products and additional management measures by the consigner are not considered necessary.

This assessment should not be a final acceptance of the Port of Cartagena for all future work; rather it is recommended that Orica continue to review and monitor the Port’s performance annually and implement an adaptive management process.

### 5.0 CLOSING

We trust this due diligence report meets Orica's requirements. If you have any questions, please do not hesitate to contact the undersigned.

### 6.0 REFERENCES


Logcluster (2018). *Colombia Port of Cartagena*. Accessed 1 October 2018. Available at: https://dlca.logcluster.org/display/public/DLCA/2.1.3+Colombia+Port+of+Cartagena


Signature Page

Golder Associates Pty Ltd

Sara Pritchard
Environmental Scientist

Mike Woods
Transport Technical Specialist

SP/MW/as

Golder and the G logo are trademarks of Golder Associates Corporation
ICMC DUE DILIGENCE ASSESSMENT FOR THE PORT OF BURNIE

Dear Owen

EXECUTIVE SUMMARY

Golder Associates Pty Ltd (Golder) conducted a due diligence of the port of Burnie, Australia during May 2017 on behalf of Orica Australia Pty Ltd (Orica). The assessment was conducted by Ed Clerk who meets the International Cyanide Management Institute’s (ICMI) requirements for a Transport Technical Specialist.

The following items, as detailed in the ICMI’s Auditor Guidance for Use of Cyanide Transportation Verification Protocol (December 2016), were addressed within the due diligence:

- Transport Practice 1.1 (Questions 1-4 and 6)
- Transport Practice 1.5 (Question 1, Items g-i)
- Transport Practice 1.6
- Transport Practice 2.1
- Transport Practice 3.1.

The ICMI’s Auditor Guidance for Use of Cyanide Transportation Verification Protocol (December 2016) was used to conduct the due diligence assessment. It was not possible during this due diligence to physically inspect the port, as such the review was based on information obtained from previous due diligence reviews, ICMI audit reports and publicly available online information.

Golder’s assessment of the port of Burnie found no issues of concern in regards to the port’s management of solid sodium cyanide product.

This assessment should not be a final acceptance of the port of Burnie for future work; rather it is recommended that Orica continue to review and monitor the port’s performance annually and implement an adaptive management process.
1.0 INTRODUCTION

This letter provides the results of a due diligence assessment against the port of Burnie, Australia, in accordance with the International Cyanide Management Code for the Manufacture, Transport and Use of Cyanide in the Production of Gold (ICMC or the Code).

Golder conducted a desktop due diligence assessment of the port of Burnie, Australia during May 2017. The assessment was conducted by Ed Clerk who meets the International Cyanide Management Institute’s (ICMI) requirements for a Transport Technical Specialist.

The following items, as detailed in the ICMI’s Auditor Guidance for Use of Cyanide Transportation Verification Protocol (December 2016), were addressed within the due diligence:

- Introduction
- ICMC Transport Verification Protocol Assessment
  - Transport Practice 1.1 (Questions 1-4 and 6)
  - Transport Practice 1.5 (Question 1, Items g-i)
  - Transport Practice 1.6
  - Transport Practice 2.1
  - Transport Practice 3.1.
- Conclusion
- References.

The ICMI’s Auditor Guidance for Use of Cyanide Transportation Verification Protocol (December 2016) was used to conduct the due diligence assessment. Due to access restrictions, it was not possible during this due diligence to physically inspect the port of Burnie. The due diligence assessment was completed based on information obtained from previous due diligences, ICMI audit reports and publicly available online information.

1.1 Overview of Port of Burnie, Australia

The port of Burnie (Tasmania) is situated on the western shore of Emu Bay, the Bay is approximately 3 km wide and 1.5 km deep facing in a northerly direction. The port of Burnie is easily accessible due to its geographic location.

Burnie port services Tasmania’s major West Coast mines and handles most types of bulk shipping requirements including, minerals, fuels, woodchips and logs, as well as containerised consumables and heavy-lift project cargo. There are multiple berths and storage facilities available.

A comprehensive fleet of mechanical equipment is available including container handling forklifts of up to 30 tonnes capacity and hazardous cargoes of most categories are handled as per Australian Standard 3846.

The Tasmanian Ports Corporation Pty Ltd (Tasports) is a registered, private company fully owned by the Tasmanian Government. Tasports is responsible for the operation and management of the port of Burnie.

Burnie has been clearly identified as the State’s future largest natural gateway for container freight into and out of Tasmania. The Port of Burnie was chosen as the most suitable location for its deep water port with direct sea access, enabling it to cater for large ships in the decades ahead. Burnie is also directly connected to an intermodal rail facility which will allow containerised freight to be railed safely and efficiently to Launceston and Hobart.
Overview of port operations:

- Port protocols exist for docking of vessels (e.g. use of Pilots, use of tug boats, management of different weather conditions, tides, currents and safety and general port operations). This sees to the safe docking and turnaround of the vessels in and out of the port.

- Entry into port is controlled by the port’s Pilot who understands the port protocols and any unique issues regarding the approach and docking of a vessel at the port. The Ship’s Captain works in conjunction with the Pilot as he understands his vessel and can implement and assist with the Pilot’s instructions.

- The approach of the vessel to the ports will take into any account any channels, special navigation points and as mentioned above the currents, tides and weather.

- Once a vessel is secure alongside the wharf the shipping activities changeover to port activities. The vessels manifest of what containers are required to be unloaded from the vessel, including the manifest for containers for loading are handed over. This manifest will identify hazardous cargos and their UN number and classification and segregation requirements.

Third party stevedoring companies manage the onshore (wharf) operations at the dedicated container terminal. There are multiple deep water berths and the port currently handles hazardous cargoes of most categories.

Stevedoring operations include:

- Handling of the containers whether full or empty on and off the vessels; container storage areas for general cargo, port security, control systems for companies and their vehicles collecting and or delivering containers.

- Software programs that control container placement and movement; these software packages identify each individual container placement area in designated stacks. The input information for the placement of containers comes from the vessel’s manifest.

2.0 ICMC TRANSPORT VERIFICATION PROTOCOL ASSESSMENT

The ICMI’s Auditor Guidance for Use of Cyanide Transportation Verification Protocol, General Guidance states:

*Except as specifically identified in this Guidance document, the Cyanide Transportation Protocol is not to be used to evaluate transport by rail and ship or management of cyanide at rail terminals and port facilities due to security issues, limited access, and the inability of consignors to affect changes in the operating practices of these transport facilities. Rather than conduct Code audits of these facilities, the consignor must conduct and document due diligence investigations of rail carriers, rail terminals, shipping companies and port facilities that are engaged to handle cyanide shipments, as further discussed below under Transport Practice 1.1. The consignor’s due diligence investigation must either be conducted or reviewed by an auditor meeting ICMI requirements for a transport expert, and the auditor must conclude that the due diligence investigation has reasonably evaluated these facilities and that the consignor has, to the extent practical, implemented any necessary management measures.*

Transport Practice 1.1: Select cyanide transport routes to minimise the potential for accidents and releases

The international sales and exports of sodium cyanide by Orica take into consideration the ports and their extended infrastructure available to service the intended target area. Orica only operates in export markets that are serviced by major international shipping companies with the ability to offer scheduled container services from point of origin to destination.
Orica procedure “Selection of Transport Routes – Transportation of Sodium Cyanide to Customer Sites or Stock Points” (Orica ref: UP-GLO-PRO-001-017) aims to minimise the risk associated with the transportation of sodium cyanide while maintaining a safe, reliable, efficient and cost effective delivery system to customer sites and Orica stock points throughout the world. The procedure applies to the selection of delivery routes for Orica sodium cyanide and states that the “selection of route(s) is to be effected by the overall assessment of the risks associated with the utilisation of such route, taking into particular consideration likelihood of an incident occurring and the consequence of such an incident.” This procedure is applicable to all routes used for the transportation of Orica sodium cyanide as well as to Orica’s contracted transportation agencies.

Burnie is directly connected to an intermodal rail facility which allows for containerised freight to be railed safely and efficiently to industry use in the hinterland and also Launceston and Hobart.

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

Orica’s manufacturing facility and transfer stations are ICMC certified, sodium cyanide is packaged and transported in accordance with international regulatory standards, such as the United Nations Recommendation on the Transport of Dangerous Goods – Model Regulations, (2005) and National Codes of Practice such as the Australian Code for the Transport of Dangerous Goods by Road or Rail, (2015) thereby meeting the requirements of the political jurisdictions through which the loads will pass.

Orica only operates in export markets that are serviced by major international shipping companies with the ability to offer scheduled container services from point of origin to destination. Orica procedure “Carrier Assessment” (Orica ref: SUP-GLO-PRO-016-008) provides the framework for ensuring that carriers and their contractors are assessed at regular intervals to ensure that, amongst others, storage, safety, security, maintenance and emergency response standards are being maintained. Carriers are required to provide manifest documentation, to satisfy local customs regulations and the requirements of the IMDG Code, to the destination port. This documentation contains a list of the cargo types and in the case of sodium cyanide and any other hazardous cargo the quantity, unique packaging numbers, stowage reference and emergency response procedures.

Australia is both an IMO Member State (1952) and SOLAS Signatory Nation (1983), thereby requiring the port of Burnie to adhere to the international regulations for the transportation and handling of dangerous goods as set out in the IMDG Code (Parts 4, 5 and 7) and SOLAS Convention ((1974) Chapter 7).

**g) Does the ship carrying the cyanide have a list or manifest identifying the presence and location of the cyanide or a detailed stowage plan including this information, as required under Section 5.4.3.1 of the DG Code?**

The Australian Maritime Safety Authority (AMSA) develops and implements policies, statutes and regulations governing the carriage of dangerous goods and other goods by ships in accordance with relative national and international requirements. Marine and Safety Tasmania (MAST) are the designated Port Authority and are responsible for supervising the safety of ships carrying dangerous goods and other goods, processing declarations made by ships carrying dangerous goods, providing accreditation services for personnel involved in the declaration of dangerous goods and inspection of containers, and inspecting containers holding dangerous goods.

As an IMO Member State and to comply with the IMDG Code, Tasports require that notification of the carriage of dangerous goods is received at least 24 hours prior to arrival in the port either by vessel or road in the form of a suitably prepared manifest.

The port of Burnie operates under National orders and standards, State regulations and local guidelines, including Australian Standard 3856-2005 (Handling and Transport of Dangerous Cargoes in Port Areas), AMSA Marine Order 41 (Carriage of Dangerous Goods), AMSA Marine Order 42 (Carriage, Stowage and Securing of Cargoes and Containers) and the Marine and Safety (General) Regulations (2013), which ensures its compliance with regards to the transportation, handling and storage of dangerous goods.
**h) Does the ship carrying the cyanide have cyanide emergency response information, as required under Section 5.4.3.2 of the DG Code?**

Dangerous goods delivered to or from the port are required to be appropriately manifested, packaged, labelled and placarded. Documentation that accompanies the cyanide throughout transportation by sea and delivery at ports includes emergency response information along with the dangerous goods manifest, packing certificates and Multimodal Dangerous Goods Form.

Emergency response procedures for ships carrying dangerous goods, including the emergency schedules to be followed in case of incidents involving dangerous substances, materials or articles, or harmful substances (marine pollutants), is regulated under the IMDG Code. In accordance with the Code, all ships, and the companies responsible for their operation, are required to maintain a Safety Management System (SMS). Within the SMS, procedures for responding to potential shipboard emergencies are required.

Port operations personnel provide the vessel’s Master with copies of the Emergency Information, Dangerous Goods manifest (including stowage plan) and Packaging Certificates for each hazardous cargo transport units loaded onto the ship at the port of origin.

**AMSA Marine Order 41 (Carriage of Dangerous Goods)** requires the owner of a vessel on which it is intended to carry dangerous goods in packaged form to possess detailed instructions on emergency response and medical first aid relevant to incidents involving those goods.

**i) Does the ship comply with the stowage and separation requirements of Part 7 of the DG Code?**

As a member of the IMO and to comply with the IMDG Code and National Regulations vessels are required to declare dangerous cargo 24 hours prior to loading/handling of such cargo, additionally, all cargo listed on the dangerous cargo manifest must be stowed and handled as prescribed by its UN number and dangerous goods class.

The port of Burnie has dedicated storage areas for specialised products including dangerous goods; cyanide containers are segregated and stacked separately. All sodium cyanide remains packaged within its sealed container at all times. Dangerous goods are delivered to, and removed from, the port within 12 hrs of being loaded/unloaded from a vessel.

**Australian Standard 3856-2005 (Handling and Transport of Dangerous Cargoes in Port Areas)** sets out requirements and recommendations for the safe entry, presence, handling and transport of dangerous cargoes, as listed in the IMDG Code and occurring within port areas. It provides technical guidance that may assist in the handling and transport of dangerous cargoes in port areas in accordance with regulatory requirements.

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

The Dispatch Centre organises ship movements, tracks pilotage operations, and supervises terminal operations via real-time CCTV monitoring.

Orica only operates in export markets that are serviced by major international shipping companies with the ability to offer scheduled container services from point of origin to destination.

Carriers are required to provide manifest documentation, to satisfy local customs regulations and the requirements of the IMDG Code, to the destination port. This documentation contains a list of the cargo types and in the case of sodium cyanide and any other hazardous cargo the quantity, unique packaging numbers, stowage reference and emergency response procedures.

Chain of custody documentation is also used by shipping companies to prevent the loss of cargo during shipment. This documentation includes the vessel manifest – which identifies the location and content of each container on the vessel along with packing certificates, Multimodal Dangerous Goods Forms and Material Safety Data Sheets (MSDS).
Transport Practice 2.1: Store cyanide in a manner that minimises the potential for accidental releases

In response to the risk of terrorism, the Commonwealth Government of Australia has interpreted the International Ship and Port Facility and Security (ISPS) Code, through its introduction of the Maritime Transport and Offshore Facilities Security Act (MTOFSA) and Regulation 2003. The port of Burnie is a security regulated port as set out in the MTOFSA.

Worksafe Tasmania’s Code of Practice for Managing Risks of Hazardous Chemicals in the Workplace (2012) provides guidance for spill containment requirements for dangerous goods storage facilities/areas. Occupiers storing and handling dangerous goods must ensure that in each area where dangerous goods are stored or handled, provision is made for spill containment that will eliminate the risk from any spill or leak of solid or liquid dangerous goods and must also be able to contain within the premises, the dangerous goods that have been spilled or leaked and any solid or liquid effluent arising from an incident.

The port of Burnie uses isolation as a control measure to control physicochemical risks. Hazardous chemicals, including cyanide, are separated from any chemicals or other items/substances that may be incompatible. This is achieved by distance, barriers, or a combination of both. The choice of isolation measure used will depend on a range of factors, including the quantity of hazardous chemicals stored and handled and all other activities in the work area which may increase the risks. Locations used for the storage of hazardous substances also take into consideration the requirement for adequate ventilation.

Cyanide transited through the port of Burnie is temporary and remains on site for a short period of time. This is a management measure to minimise potential for accidental releases during storage. All sodium cyanide transited through the port of Burnie remains sealed within containers at all times preventing contact with water and other incompatible materials.

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

The port of Burnie is certified under the IMO’s International Convention on Oil Pollution Preparedness, Response and Cooperation 1990 (OPRC 90). States which are party to OPRC 90 protocol are required to establish a national system for responding to oil and hazardous/noxious substances pollution incidents, including a designated national authority, a national operational contact point and a national contingency plan. This needs to be supported by a minimum level of response equipment, communications plans, regular training and exercises.

AMSA, a federal government self-funded maritime safety agency established in 1990, is responsible for providing a national response capability for marine pollution. AMSA administers the National Plan to Combat Pollution of the Sea by Oil and other Noxious and Hazardous Substances, a cooperative arrangement between the Federal, State and Northern Territory (NT) Governments and the shipping, oil, exploration and chemical industries, emergency services and fire brigades.

Under National Plan arrangements, a wide strategic range of response equipment is held at nine regional stockpiles. Equipment provided by AMSA is generally targeted at larger spills, though this is complemented by equipment held by port authorities, State Governments and individual oil and chemical companies.

Worksafe Tasmania’s Code of Practice for Managing Risks of Hazardous Chemicals in the Workplace (2012), specifically Regulation 43 and Regulation 361, requires an operation to prepare an emergency plan for the workplace. An emergency plan must be prepared and provided to the emergency services organisation if the quantity of Schedule 11 hazardous chemicals (hazardous chemicals, as specified in the Australian Workplace Health and Safety Regulations) used, handled or stored at a workplace exceeds the manifest quantity for that hazardous chemical. The operation must revise the plan in accordance with any recommendations the primary emergency services organisation provides about its effectiveness.
3.0 CONCLUSION

Based on the evidence reviewed, this due diligence did not find significant issues of concern in regards to the port of Burnie’s management of solid sodium cyanide product. It was not possible during this due diligence to physically inspect the port, as such the review was based on information obtained from previous due diligence reviews, ICMI audit reports and publicly available online information. The Auditor recommends that Orica undertakes annual reviews at the port to monitor the management of dangerous goods.

This assessment should not be a final acceptance of the port of Burnie for future work; rather it is recommended that Orica continue to review and monitor the port’s performance annually and implement an adaptive management process.

4.0 CLOSING

We trust this due diligence letter meets your requirements. If you have any questions, please do not hesitate to contact the undersigned.

GOLDER ASSOCIATES PTY LTD

Craig Currie
Environmental Scientist

Ed Clerk
ICMC Lead Auditor and Technical Specialist

CC/EWC/hsl
REFERENCES


24 October 2017

Owen Warren
Senior Manager Global Distribution
Orica

Email: owen.warren@orica.com

ICMC DUE DILIGENCE ASSESSMENT FOR THE PORT OF JAKARTA

Dear Owen

EXECUTIVE SUMMARY

Golder Associates Pty Ltd (Golder) conducted a due diligence of the port of Jakarta, Indonesia during July 2017 on behalf of Orica Australia Pty Ltd (Orica). The assessment was conducted by Ed Clerk who meets the International Cyanide Management Institute’s (ICMI) requirements for a Transport Technical Specialist.

The following items, as detailed in the ICMI’s Auditor Guidance for Use of Cyanide Transportation Verification Protocol (December 2016), were addressed within the due diligence:

- Transport Practice 1.1 (Questions 1-4 and 6)
- Transport Practice 1.5 (Question 1, Items g-i)
- Transport Practice 1.6
- Transport Practice 2.1
- Transport Practice 3.1.

The ICMI’s Auditor Guidance for Use of Cyanide Transportation Verification Protocol (December 2016) was used to conduct the due diligence assessment. It was not possible during this due diligence to physically inspect the port, as such the review was based on information obtained from previous due diligence reviews, ICMI audit reports and publicly available online information.

Golder’s assessment of the port of Jakarta found no issues of concern in regards to the port’s management of solid sodium cyanide product.

This assessment should not be a final acceptance of the port of Jakarta for future work; rather it is recommended that Orica continue to review and monitor the port’s performance annually and implement an adaptive management process.
1.0 INTRODUCTION

This letter provides the results of a due diligence assessment against the Port of Jakarta, Indonesia, in accordance with the *International Cyanide Management Code for the Manufacture, Transport and Use of Cyanide in the Production of Gold* (ICMC or the Code).

Golder conducted a desktop due diligence assessment of the port of Jakarta, Indonesia during July 2017. The assessment was conducted by Ed Clerk who meets the International Cyanide Management Institute’s (ICMI) requirements for a Transport Technical Specialist.

The following items, as detailed in the ICMI’s *Auditor Guidance for Use of Cyanide Transportation Verification Protocol* (December 2016), were addressed within the due diligence:

- Introduction
- ICMC Transport Verification Protocol Assessment
  - Transport Practice 1.1 (Questions 1-4 and 6)
  - Transport Practice 1.5 (Question 1, Items g-i)
  - Transport Practice 1.6
  - Transport Practice 2.1
  - Transport Practice 3.1.
- Conclusion
- References

The ICMI’s *Auditor Guidance for Use of Cyanide Transportation Verification Protocol* (December 2016) was used to conduct the due diligence assessment. Due to access restrictions, it was not possible during this due diligence to physically inspect the port of Jakarta. The due diligence assessment was completed based on information obtained from previous due diligences, ICMI audit reports and publicly available online information.

1.1 Overview of Port of Jakarta, Indonesia

The port of Jakarta (also known as Tanjung Priok) lies on the north-west coast of the island of Java at the mouth of the Ciliwung River, about 116 nautical miles east south-east of the port of Panjang on the island of Sumatra. The twelfth largest city in the world, the port of Jakarta is an important centre for education and industry.

The port of Jakarta is the busiest port in Indonesia. It handles more than 30% of non-oil-and-gas cargo in the country, and around 50% of the entire flow of goods into and out of Indonesia. The comprehensive intermodal transport and modern technology facilities at the port allow it to connect to a network of cities in Indonesia.

The port of Jakarta contains twenty terminals devoted to general, dry bulk, liquid bulk, and containerised cargoes. Specialised terminals handle oil, chemicals, scrap, and passengers. The port of Jakarta has 76 berths and a total quay area of 16 800 square metres. The port of Jakarta also contains storage areas of 662 000 square metres with capacity to store over 401 000 tonnes of cargo.

In 2007, over 17 800 vessels carried a total of almost 42 million tonnes of cargo and 3.7 million TEUs of containerised cargoes through the port of Jakarta. This total included 10.5 million tonnes of containerised goods in 3.7 million TEUs, 8.2 million tonnes of liquid bulk cargo, 7.9 million tonnes of general cargo, 8.2 million tonnes of dry bulk cargo, and 1.8 million tonnes of bag cargo.
2.0 ICMC TRANSPORT VERIFICATION PROTOCOL ASSESSMENT

The ICMI’s Auditor Guidance for Use of Cyanide Transportation Verification Protocol, General Guidance states:

Except as specifically identified in this Guidance document, the Cyanide Transportation Protocol is not to be used to evaluate transport by rail and ship or management of cyanide at rail terminals and port facilities due to security issues, limited access, and the inability of consignors to affect changes in the operating practices of these transport facilities. Rather than conduct Code audits of these facilities, the consignor must conduct and document due diligence investigations of rail carriers, rail terminals, shipping companies and port facilities that are engaged to handle cyanide shipments, as further discussed below under Transport Practice 1.1. The consignor’s due diligence investigation must either be conducted or reviewed by an auditor meeting ICMI requirements for a transport expert, and the auditor must conclude that the due diligence investigation has reasonably evaluated these facilities and that the consignor has, to the extent practical, implemented any necessary management measures.

Transport Practice 1.1: Select cyanide transport routes to minimise the potential for accidents and releases

The international sales and exports of sodium cyanide by Orica take into consideration the ports and their extended infrastructure available to service the intended target area. Orica only operates in export markets that are serviced by major international shipping companies with the ability to offer scheduled container services from point of origin to destination.

Orica procedure “Selection of Transport Routes – Transportation of Sodium Cyanide to Customer Sites or Stock Points” (Orica ref: UP-GLO-PRO-001-017) aims to minimise the risk associated with the transportation of sodium cyanide while maintaining a safe, reliable, efficient and cost effective delivery system to customer sites and Orica stock points throughout the world. The procedure applies to the selection of delivery routes for Orica sodium cyanide and states that the “selection of route(s) is to be effected by the overall assessment of the risks associated with the utilisation of such route, taking into particular consideration likelihood of an incident occurring and the consequence of such an incident.” This procedure is applicable to all routes used for the transportation of Orica sodium cyanide as well as to Orica’s contracted transportation agencies.

The port is selected on the basis that it is the closest port to the customer and that it meets all reasonable industry standards for safety, security and emergency response.

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

Orica’s manufacturing facility and transfer stations are ICMC certified, sodium cyanide is packaged and transported in accordance with international regulatory standards, such as the United Nations Recommendation on the Transport of Dangerous Goods – Model Regulations, (2005) and National Codes of Practice such as the Australian Code for the Transport of Dangerous Goods by Road or Rail, (2015) thereby meeting the requirements of the political jurisdictions through which the loads will pass.

Orica only operates in export markets that are serviced by major international shipping companies with the ability to offer scheduled container services from point of origin to destination. Orica procedure “Carrier Assessment” (Orica ref: SUP-GLO-PRO-016-008) provides the framework for ensuring that carriers and their contractors are assessed at regular intervals to ensure that, amongst others, storage, safety, security, maintenance and emergency response standards are being maintained. Carriers are required to provide manifest documentation, to satisfy local customs regulations and the requirements of the IMDG Code, to the destination port. This documentation contains a list of the cargo types and in the case of sodium cyanide and any other hazardous cargo the quantity, unique packaging numbers, stowage reference and emergency response procedures.

Indonesia is both an IMO Member State (1961) and SOLAS Signatory Nation (1981), thereby requiring the port of Jakarta to adhere to the international regulations for the transportation and handling of dangerous goods as set out in the IMDG Code (Parts 4, 5 and 7) and SOLAS Convention ((1974) Chapter 7).
g) Does the ship carrying the cyanide have a list or manifest identifying the presence and location of the cyanide or a detailed stowage plan including this information, as required under Section 5.4.3.1 of the DG Code?

The Director General of Sea Transportation (DGST) develops and implements policies, statutes and regulations governing the carriage of dangerous goods and other goods by ships in accordance with relative national and international requirements. PT. Pelabuhan Indonesia III is responsible for supervising the safety of ships carrying dangerous goods and other goods, processing declarations made by ships carrying dangerous goods, providing accreditation services for personnel involved in the declaration of dangerous goods and inspection of containers, and inspecting containers holding dangerous goods.

As an IMO Member State and to comply with the IMDG Code, vessels are required to declare dangerous cargo before arriving at or leaving the port, to the port authority.

If containers requiring handling at the port contain dangerous goods cargoes then the port authority requires that the shipper provide a Shippers Certificate and a Container Packing Certificate. The ship Owner/Agent of foreign and domestic dangerous goods cargo must also notify the authority not less than 24 hours prior to arrival, in order to get approval for the loading/unloading of dangerous cargo in bulk, break bulk or containers at the port. The information required must include a dangerous goods manifest, the correct technical name of the dangerous cargo in accordance with the IMDG Code, the IMO Class, the UN Number, the number and type of packages, the total quantity of dangerous (Gross Weight) and the name and address of the Consignee (Emergency contacted name).

The port of Jakarta operates under National regulations, standards and codes of practice which ensures its compliance with regards to the transportation, handling and storage of dangerous goods.

h) Does the ship carrying the cyanide have cyanide emergency response information, as required under Section 5.4.3.2 of the DG Code?

Dangerous goods delivered to or from the port are required to be appropriately manifested, packaged, labelled and placarded. Documentation that accompanies the cyanide throughout transportation by sea and delivery at ports includes emergency response information along with the dangerous goods manifest, packing certificates and Multimodal Dangerous Goods Form.

Emergency response procedures for ships carrying dangerous goods, including the emergency schedules to be followed in case of incidents involving dangerous substances, materials or articles, or harmful substances (marine pollutants), is regulated under the IMDG Code. In accordance with the Code, all ships, and the companies responsible for their operation, are required to maintain a Safety Management System (SMS). Within the SMS, procedures for responding to potential shipboard emergencies are required.

Port operations personnel provide the vessel's Master with copies of the Emergency Information, Dangerous Goods manifest (including stowage plan) and Packaging Certificates for each hazardous cargo transport units loaded onto the ship at the port of origin.

i) Does the ship comply with the stowage and separation requirements of Part 7 of the DG Code?

As a member of the IMO and to comply with the IMDG Code and National Regulations vessels are required to declare dangerous cargo before arriving at or leaving the port, additionally, all cargo listed on the dangerous cargo manifest must be stowed and handled as prescribed by its UN number and dangerous goods class.

The port of Jakarta has dedicated storage areas for specialised products including dangerous goods; cyanide containers are segregated and stacked separately. All sodium cyanide remains packaged within its sealed container at all times.
Transport Practice 1.6: Track cyanide shipments to prevent losses during transport

Port Operators are fully aware when sodium cyanide containers are to arrive at the port. The stevedores receive the vessel’s manifest along with other shipping information prior to arrival. This includes unloading and handling information of dangerous goods for the port, this information is then captured in the terminal operator’s advanced information management system allowing for the complete traceability of cargoes within the port.

Indonesia has National regulations in place for the minimum requirements for radio-communication and ship tracking in Indonesian waters and Port facilities, the Port of Jakarta ensures all vessels satisfy and abide by these regulations.

All transhipping operations are carried out in a dedicated dangerous goods area by suitably trained personnel. The transhipping operations are monitored by the port’s CCTV system and the containers are tracked to record the positioning of the containers within the dangerous goods storage areas.

Following final clearance, the consignment is placed on road transport vehicles for the inland transportation leg to the relevant end destination. These road transport vehicles are owned by the ICMI accredited transport company providing the road transport service.

Transport Practice 2.1: Store cyanide in a manner that minimises the potential for accidental releases

In general, Port and vessel security are managed through the International Ship and Port Facility Security Code (ISPS Code). The ISPS Code is a comprehensive set of measures to enhance security of ships and port facilities. All vessels calling at Indonesian Ports must meet ISPS requirements.

The purpose of the ISPS Code is to provide a standardised, consistent framework for evaluating risk, enabling Governments to offset changes in threat with changes in vulnerability for ships and port facilities through determination of appropriate security levels and corresponding security measures. The ISPS Code takes the approach that ensuring the security of ships and port facilities is a risk management activity and that, to determine what security measures are appropriate, an assessment of the risks must be made in each particular case.

The Port of Jakarta operates under a suite of National regulations that ensure compliance with the above. In particular, for the handling and storage of dangerous goods, these regulations ensure that shipments of cyanide are authorised for discharge from the vessel, handled by appropriately trained personnel, stored in designated and secured areas, segregated according to dangerous goods classes and removed from the port in a timely manner.

The Port has restricted access and the Dispatch Centre organises ship movements, tracks pilotage operations, and supervises terminal operations via real-time CCTV monitoring. All sodium cyanide transited through the Port of Jakarta remains sealed within containers at all times.

Security requirements are also addressed under National regulations and the port of Jakarta satisfies the conditions set out for security personnel and check points, monitoring and surveillance systems.

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

The Indonesian Government has national standards in place for the transportation, handling and storage of hazardous substances.

Indonesia’s National Oil Spill Contingency Plan (NOSCP) (2006), extends to hazardous and noxious substances (HNS). In the event of an emergency situation, the National Team for Oil Spill Response would provide the technical expertise, with input from other institutions, government departments, the private sector and other non-government organisations. The National Team through its Command and Control Centre would carry out the response, using personnel, equipment and materials belonging to its member organisations in the vicinity of the emergency incident.

The DGST is the competent authority and administers the Plan for dealing with pollution by oil and other noxious substances in marine and freshwater environments. The DGST has equipment which could be utilised for HNS spills and is supported by further equipment from the oil industry.
3.0 CONCLUSION

Based on the evidence reviewed, this due diligence did not find significant issues of concern in regards to the port of Jakarta's management of solid sodium cyanide product. It was not possible during this due diligence to physically inspect the port, as such the review was based on information obtained from previous due diligence reviews, ICMI audit reports and publicly available online information. The Auditor recommends that Orica undertakes annual reviews at the port to monitor the management of dangerous goods.

This assessment should not be a final acceptance of the Port of Jakarta for future work; rather it is recommended that Orica continue to review and monitor the Port’s performance annually and implement an adaptive management process.

4.0 CLOSING

We trust this due diligence letter meets your requirements. If you have any questions, please do not hesitate to contact the undersigned.

GOLDER ASSOCIATES PTY LTD

Craig Currie
Environmental Scientist

Ed Clerk
ICMC Lead Auditor and Technical Specialist

CC/EWC/hsl
REFERENCES


24 October 2017

Owen Warren
Senior Manager Global Distribution
Orica

Email: owen.warren@orica.com

ICMC DUE DILIGENCE ASSESSMENT FOR THE PORT OF ALMA

Dear Owen

EXECUTIVE SUMMARY

Golder Associates Pty Ltd (Golder) conducted a due diligence of the port of Alma, Australia during July 2017 on behalf of Orica Australia Pty Ltd (Orica). The assessment was conducted by Ed Clerk who meets the International Cyanide Management Institute’s (ICMI) requirements for a Transport Technical Specialist.

The following items, as detailed in the ICMI’s Auditor Guidance for Use of Cyanide Transportation Verification Protocol (December 2016), were addressed within the due diligence:

- Transport Practice 1.1 (Questions 1-4 and 6)
- Transport Practice 1.5 (Question 1, Items g-i)
- Transport Practice 1.6
- Transport Practice 2.1
- Transport Practice 3.1.

The ICMI’s Auditor Guidance for Use of Cyanide Transportation Verification Protocol (December 2016) was used to conduct the due diligence assessment. It was not possible during this due diligence to physically inspect the port, as such the review was based on information obtained from previous due diligence reviews, ICMI audit reports and publicly available online information.

Golder’s assessment of the port of Alma found no issues of concern in regards to the port’s management of solid sodium cyanide product.

This assessment should not be a final acceptance of the port of Alma for future work; rather it is recommended that Orica continue to review and monitor the port’s performance annually and implement an adaptive management process.
1.0 INTRODUCTION

This letter provides the results of a due diligence assessment against the port of Alma, Australia, in accordance with the International Cyanide Management Code for the Manufacture, Transport and Use of Cyanide in the Production of Gold (ICMC or the Code).

Golder conducted a desktop due diligence assessment of the port of Alma, Australia during July 2017. The assessment was conducted by Ed Clerk who meets the International Cyanide Management Institute’s (ICMI) requirements for a Transport Technical Specialist.

The following items, as detailed in the ICMI’s Auditor Guidance for Use of Cyanide Transportation Verification Protocol (December 2016), were addressed within the due diligence:

- Introduction
- ICMC Transport Verification Protocol Assessment
  - Transport Practice 1.1 (Questions 1-4 and 6)
  - Transport Practice 1.5 (Question 1, Items g-i)
  - Transport Practice 1.6
  - Transport Practice 2.1
  - Transport Practice 3.1.
- Conclusion
- References.

The ICMI’s Auditor Guidance for Use of Cyanide Transportation Verification Protocol (December 2016) was used to conduct the due diligence assessment. Due to access restrictions, it was not possible during this due diligence to physically inspect the port of Alma. The due diligence assessment was completed based on information obtained from previous due diligences, ICMI audit reports and publicly available online information.

1.1 Overview of Port of Alma, Australia

The port of Alma is situated approximately 60 km by road from the city of Rockhampton, Queensland, on the southern end of the Fitzroy River delta. The port is managed by the Gladstone Ports Corporation (GPC), a statutory Queensland Government-owned corporation who maintain the dredging, security, berths and operations at the port. The principal cargoes handled are class 1 explosives, ammonium nitrate, bulk tallow and military equipment for exercises held regularly at Shoalwater Bay to the north of Rockhampton. The port is a natural deep water harbour able to accommodate vessels up to 180 m in length and has a total storage area of 140 ha.

The port has three berths, two for general cargo and one dolphin berth for the handling of bulk liquids. Suitable infrastructure is available for the handling of containers. Currently, the port of Alma imports and exports ammonium nitrate, explosives, petroleum products, general and break bulk cargoes.

Shipping legislation in Queensland is controlled by Maritime Safety Queensland (MSQ), a state government agency attached to the Department of Transport and Main Roads. GPC is responsible for the management of dangerous goods in the port, including the loading and unloading of ships alongside and movement across the wharf. Whilst MSQ is responsible for monitoring and managing the safe movement of ships in Queensland waters.
Overview of port operations:

- Management of the port protocols exists for docking of vessels (e.g. use of Pilots, use of tug boats, management of different weather conditions, tides, currents and safety and general port operations). This sees to the safe docking and turnaround of the vessels in and out of the port.

- Entry into port is controlled by the port’s Pilot who understands the port protocols and any unique issues regarding the approach and docking of a vessel at the port. The Ship’s Captain works in conjunction with the Pilot as he understands his vessel and can implement and assist with the Pilot’s instructions.

- The approach of the vessel to the ports will take into any account any channels, special navigation points and as mentioned above the currents, tides and weather.

- Once a vessel is secure alongside the wharf the shipping activities changeover to port activities. The vessels manifest of what containers are required to be unloaded from the vessel, including the manifest for containers for loading are handed over. This manifest will identify hazardous cargos and their UN number and classification and segregation requirements.

Third party stevedores manage the onshore (wharf) operations at the dedicated container terminal.

Stevedoring operations include:

- Handling of the containers whether full or empty on and off the vessels; container storage areas for general cargo, port security, control systems for companies and their vehicles collecting and or delivering containers.

- Software programs that control container placement and movement; these software packages identify each individual container placement area in designated stacks. The input information for the placement of containers comes from the vessel’s manifest.

2.0 ICMC TRANSPORT VERIFICATION PROTOCOL ASSESSMENT

The ICMI's Auditor Guidance for Use of Cyanide Transportation Verification Protocol, General Guidance states:

Except as specifically identified in this Guidance document, the Cyanide Transportation Protocol is not to be used to evaluate transport by rail and ship or management of cyanide at rail terminals and port facilities due to security issues, limited access, and the inability of consignors to affect changes in the operating practices of these transport facilities. Rather than conduct Code audits of these facilities, the consignor must conduct and document due diligence investigations of rail carriers, rail terminals, shipping companies and port facilities that are engaged to handle cyanide shipments, as further discussed below under Transport Practice 1.1. The consignor's due diligence investigation must either be conducted or reviewed by an auditor meeting ICMI requirements for a transport expert, and the auditor must conclude that the due diligence investigation has reasonably evaluated these facilities and that the consignor has, to the extent practical, implemented any necessary management measures.

Transport Practice 1.1: Select cyanide transport routes to minimise the potential for accidents and releases

The international sales and exports of sodium cyanide by Orica take into consideration the ports and their extended infrastructure available to service the intended target area. Orica only operates in export markets that are serviced by major international shipping companies with the ability to offer scheduled container services from point of origin to destination.

Orica procedure “Selection of Transport Routes – Transportation of Sodium Cyanide to Customer Sites or Stock Points” (Orica ref: UP-GLO-PRO-001-017) aims to minimise the risk associated with the transportation of sodium cyanide while maintaining a safe, reliable, efficient and cost effective delivery system to customer sites and Orica stock points throughout the world. The procedure applies to the selection of delivery routes for Orica sodium cyanide and states that the “selection of route(s) is to be effected by the overall assessment of the risks associated with the utilisation of such route, taking into particular consideration likelihood of an incident occurring and the consequence of such an incident.” This procedure is applicable to all routes used for the transportation of Orica sodium cyanide as well as to Orica’s contracted transportation agencies.
The port of Alma is located in close proximity to well established primary industries, including mining, milling, bulk production, processing and manufacturing. It is the leading transhipment point for trade and resources into the region. Whilst no rail connection currently exists, the port is well connected for onward transport via road.

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

Orica’s manufacturing facility and transfer stations are ICMC certified. Sodium cyanide is packaged and transported in accordance with international regulatory standards, such as the United Nations Recommendation on the Transport of Dangerous Goods – Model Regulations, (2005) and National Codes of Practice such as the Australian Code for the Transport of Dangerous Goods by Road or Rail, (2015) thereby meeting the requirements of the political jurisdictions through which the loads will pass.

Orica only operates in export markets that are serviced by major international shipping companies with the ability to offer scheduled container services from point of origin to destination. Orica procedure “Carrier Assessment” (Orica ref: SUP-GLO-PRO-016-008) provides the framework for ensuring that carriers and their contractors are assessed at regular intervals to ensure that, amongst others, storage, safety, security, maintenance and emergency response standards are being maintained. Carriers are required to provide manifest documentation, to satisfy local customs regulations and the requirements of the IMDG Code, to the destination port. This documentation contains a list of the cargo types and in the case of sodium cyanide and any other hazardous cargo the quantity, unique packaging numbers, stowage reference and emergency response procedures.

Australia is both an IMO Member State (1952) and SOLAS Signatory Nation (1983), thereby requiring the port of Alma to adhere to the international regulations for the transportation and handling of dangerous goods as set out in the IMDG Code (Parts 4, 5 and 7) and SOLAS Convention ((1974) Chapter 7).

**g) Does the ship carrying the cyanide have a list or manifest identifying the presence and location of the cyanide or a detailed stowage plan including this information, as required under Section 5.4.3.1 of the DG Code?**

AMSA develops and implements policies, statutes and regulations governing the carriage of dangerous goods and other goods by ships in accordance with relative national and international requirements. GPC is responsible for the management of dangerous goods in the port, including the loading and unloading of ships alongside and movement across the wharf.

As an IMO Member State and to comply with the IMDG Code, vessels are required to declare dangerous cargo 48 hours prior to loading/handling of such cargo to GPC.

The port of Alma operates under National regulations, including Australian Standard 3846-2005 (Handling and Transport of Dangerous Cargoes in Port Areas), AMSA Marine Order 41 (Carriage of Dangerous Goods), AMSA Marine Order 42 (Carriage, Stowage and Securing of Cargoes and Containers) and the Queensland Transport Operations Marine Safety Act 1994, which ensures its compliance with regards to the transportation, handling and storage of dangerous goods.

**h) Does the ship carrying the cyanide have cyanide emergency response information, as required under Section 5.4.3.2 of the DG Code?**

Dangerous goods delivered to or from the port are required to be appropriately manifested, packaged, labelled and placarded. Documentation that accompanies the cyanide throughout transportation by sea and delivery at ports includes emergency response information along with the dangerous goods manifest, packing certificates and Multimodal Dangerous Goods Form.

Emergency response procedures for ships carrying dangerous goods, including the emergency schedules to be followed in case of incidents involving dangerous substances, materials or articles, or harmful substances (marine pollutants), is regulated under the IMDG Code. In accordance with the Code, all ships, and the companies responsible for their operation, are required to maintain a Safety Management System (SMS). Within the SMS, procedures for responding to potential shipboard emergencies are required.
Port operations personnel provide the vessel's Master with copies of the Emergency Information, Dangerous Goods manifest (including stowage plan) and Packaging Certificates for each hazardous cargo transport units loaded onto the ship at the port of origin.

AMSA Marine Order 41 (Carriage of Dangerous Goods) requires the owner of a vessel on which it is intended to carry dangerous goods in packaged form to possess detailed instructions on emergency response and medical first aid relevant to incidents involving those goods.

The port of Alma also has its own emergency response procedures and capabilities.

i) Does the ship comply with the stowage and separation requirements of Part 7 of the DG Code?

To comply with the port procedures and National Regulations vessels are required to declare dangerous cargo 48 hours prior to loading/handling of such cargo, additionally, all cargo listed on the dangerous cargo manifest must be stowed and handled as prescribed by its UN number and dangerous goods class.

The port of Alma has dedicated storage areas for specialised products including dangerous goods; cyanide containers are segregated and stacked separately. All sodium cyanide remains packaged within its sealed container at all times.

Australian Standard 3846-2005 sets out requirements and recommendations for the safe entry, presence, handling and transport of dangerous cargoes, as listed in the IMDG Code and occurring within port areas. The purpose of this Standard is to provide minimum acceptable safety requirements for the handling and transport of dangerous goods at port facilities, including operating procedures, repair work, emergency planning and fire protection. It provides technical guidance that may assist in the handling and transport of dangerous cargoes in port areas in accordance with regulatory requirements.

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

MSQ, through the authority of the Harbour Master, has jurisdiction over the safe movement of all shipping within the pilotage area. Generally, the Regional Harbour Master controls the movement of vessels within the port area, whilst the allocation of berths and moorings is controlled by GPC.

Chain of custody documentation is used by shipping companies to prevent the loss of cargo during shipment. This documentation includes the vessel manifest – which identifies the location and content of each container on the vessel along with packing certificates, Multimodal Dangerous Goods Forms and Material Safety Data Sheets (MSDS).

Section 11, Dangerous Cargo, of the Port Procedures and Information for Shipping, Port of Alma, outlines the duties of owners and masters of vessels in relation to the carriage of dangerous goods. The regulations require that ships carrying dangerous goods must comply with the appropriate directions of the IMDG code and Australian Standard 3846-2005 and are to notify GPC of the intent to bring dangerous cargo into or depart from a pilotage area.

Transport Practice 2.1: Store cyanide in a manner that minimises the potential for accidental releases

Cyanide transited through the port of Alma is temporary and remains on site for a short period of time. This is a management measure to minimise potential for accidental releases during storage. All sodium cyanide transited through the port of Alma is segregated and remains sealed within containers at all times preventing contact with water and other incompatible materials. GPC has secure container yards available for use.

In general, port and vessel security are managed through the International Ship and Port Facility Security Code (ISPS Code). The ISPS Code is a comprehensive set of measures to enhance security of ships and port facilities, regulated by the Maritime Transport and Offshore Facilities Security Act, 2003.
GPC has an approved Maritime Security Plan as required under the *Maritime Transport and Offshore Facilities Security Act, 2003*. A ship's master, prior to entering the port of Port Alma, must report directly to the port authority or via their respective ship agency the following information:

- ISPS compliance number
- current ship security level or any change to the ship security level whilst in port
- list of expected visitors/contractors
- nominated stevedore
- crew list and identification
- any security incident (as defined under the ISPS code or maritime transport security legislation) whilst in port.

The *Maritime Transport and Offshore Facilities Security Act and Regulations 2003* also requires the establishment of maritime security zones in and around the port and wharf facilities as part of maritime security plans. These regulated zones have been established at the port of Alma and place restrictions and limitations on who may enter both land and marine side restricted zones.

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

The port of Alma is certified under the IMO’s International Convention on Oil Pollution Preparedness, Response and Cooperation 1990 (OPRC 90). States which are party to OPRC 90 protocol are required to establish a national system for responding to oil and hazardous/noxious substances pollution incidents, including a designated national authority, a national operational contact point and a national contingency plan. This needs to be supported by a minimum level of response equipment, communications plans, regular training and exercises.

AMSA, a federal government self-funded maritime safety agency established in 1990, is responsible for providing a national response capability for marine pollution. AMSA administers the *National Plan to Combat Pollution of the Sea by Oil and other Noxious and Hazardous Substances*, a cooperative arrangement between the Federal, State and Northern Territory (NT) Governments and the shipping, oil, exploration and chemical industries, emergency services and fire brigades.

Additionally, MSQ’s emergency procedures are prepared under the provisions of the *Transport Operations (Marine Safety) Act 1994* and the *Transport Operations (Marine Pollution) Act 2008*. GPC has published an emergency response plan for the port of Alma which details the required response to an emergency within the port. All emergencies are reported via VHF channel 13, which activates the emergency response plan and notifies the appropriate emergency response service. *Section 12, Port Safety*, of the Port Procedures and Information for Shipping, Port of Alma, provides guidance to the port community and Maritime Safety Queensland’s personnel in the response procedures in the event of dangerous incidents, emergencies and disasters.

**3.0 CONCLUSION**

Based on the evidence reviewed, this due diligence did not find significant issues of concern in regards to the port of Alma’s management of solid sodium cyanide product. It was not possible during this due diligence to physically inspect the port, as such the review was based on information obtained from previous due diligence reviews, ICMI audit reports, discussions with consignors and publicly available online information. The Auditor recommends that Orica undertakes annual reviews at the port to monitor the management of dangerous goods.

This assessment should not be a final acceptance of the port of Alma for future work; rather it is recommended that Orica continue to review and monitor the port’s performance annually and implement an adaptive management process.
4.0 CLOSING

We trust this due diligence letter meets your requirements. If you have any questions, please do not hesitate to contact the undersigned.

GOLDER ASSOCIATES PTY LTD

Craig Currie  
Environmental Scientist  
CC/EWC/hsI

Ed Clerk  
ICMC Lead Auditor and Technical Specialist

1\golder.gds\perth\jobs\env\2016 - environment\1665113 - orica icmc audit ocean freight supply chain\correspondence out\001 - 034 due diligences\1778636-003-i\rev0 dd port alma, australia.docx
REFERENCES


Queensland Transport Operations (Marine Safety) Regulation 2016


24 October 2017

Dear Owen

EXECUTIVE SUMMARY

Golder Associates Pty Ltd (Golder) conducted a due diligence of the port of Chalmers, New Zealand during July 2017 on behalf of Orica Australia Pty Ltd (Orica). The assessment was conducted by Ed Clerk who meets the International Cyanide Management Institute’s (ICMI) requirements for a Transport Technical Specialist.

The following items, as detailed in the ICMI’s Auditor Guidance for Use of Cyanide Transportation Verification Protocol (December 2016), were addressed within the due diligence:

- Transport Practice 1.1 (Questions 1-4 and 6)
- Transport Practice 1.5 (Question 1, Items g-i)
- Transport Practice 1.6
- Transport Practice 2.1
- Transport Practice 3.1.

The ICMI’s Auditor Guidance for Use of Cyanide Transportation Verification Protocol (December 2016) was used to conduct the due diligence assessment. It was not possible during this due diligence to physically inspect the port, as such the review was based on information obtained from previous due diligence reviews, ICMI audit reports and publicly available online information.

Golder’s assessment of the port of Chalmers found no issues of concern in regards to the port’s management of solid sodium cyanide product.

This assessment should not be a final acceptance of the port of Chalmers for future work; rather it is recommended that Orica continue to review and monitor the port’s performance annually and implement an adaptive management process.

Owen Warren
Senior Manager Global Distribution
Orica
Email: owen.warren@orica.com
1.0 INTRODUCTION
This letter provides the results of a due diligence assessment against the port of Chalmers, New Zealand, in accordance with the *International Cyanide Management Code for the Manufacture, Transport and Use of Cyanide in the Production of Gold* (ICMC or the Code).

Golder conducted a desktop due diligence assessment of the port of Chalmers, New Zealand during July 2017. The assessment was conducted by Ed Clerk who meets the International Cyanide Management Institute’s (ICMI) requirements for a Transport Technical Specialist.

The following items, as detailed in the ICMI’s *Auditor Guidance for Use of Cyanide Transportation Verification Protocol* (December 2016), were addressed within the due diligence:

- Introduction
- ICMC Transport Verification Protocol Assessment
  - Transport Practice 1.1 (Questions 1-4 and 6)
  - Transport Practice 1.5 (Question 1, Items g-i)
  - Transport Practice 1.6
  - Transport Practice 2.1
  - Transport Practice 3.1.
- Conclusion
- References.

The ICMI’s *Auditor Guidance for Use of Cyanide Transportation Verification Protocol* (December 2016) was used to conduct the due diligence assessment. Due to access restrictions, it was not possible during this due diligence to physically inspect the port of Chalmers. The due diligence assessment was completed based on information obtained from previous due diligences, ICMI audit reports and publicly available online information.

1.1 Overview of Port of Chalmers, New Zealand
The port of Chalmers is located inside the greater Otago Harbour region. Situated on the lower east coast of the South Island of New Zealand, port Otago operates two wharf systems - port Chalmers and Dunedin - within the Otago Harbour. Port Otago Limited is the managing body.

Port Chalmers has three berths, suitable for handling containerised, multipurpose, and conventional vessels, berth lengths range from 297 - 400 m. The port Chalmers Container Facility covers 15 hectares of heavy duty paved area with the capacity to store over 7 000 containers, over 38 000 m$^2$ of covered warehousing is also available.

The Harbour is dredged to accommodate vessels with a maximum draught of 13.0 metres from Taiaroa Head to port Chalmers, where the container terminal is located. This enables the largest container ships in New Zealand trade to call at port Chalmers.

Overview of port operations:
- Port protocols exist for docking of vessels (e.g. use of Pilots, use of tug boats, management of different weather conditions, tides, currents and safety and general port operations). This sees to the safe docking and turnaround of the vessels in and out of the port.

- Entry into port is controlled by the port’s Pilot who understands the port protocols and any unique issues regarding the approach and docking of a vessel at the port. The Ship’s Captain works in conjunction with the Pilot as he understands his vessel and can implement and assist with the Pilot’s instructions.

- The approach of the vessel to the ports will take into account any channels, special navigation points and as mentioned above the currents, tides and weather.
Once a vessel is secure alongside the wharf the shipping activities changeover to port activities. The vessels manifest of what containers are required to be unloaded from the vessel, including the manifest for containers for loading are handed over. This manifest will identify hazardous cargos and their UN number and classification and segregation requirements.

Private third party stevedores manage the onshore (wharf) operations at the dedicated Container Facility. Stevedoring operations include:

- Handling of the containers whether full or empty on and off the vessels; container storage areas for general cargo, port security, control systems for companies and their vehicles collecting and or delivering containers.
- Software programs that control container placement and movement; these software packages identify each individual container placement area in designated stacks. The input information for the placement of containers comes from the vessel’s manifest.

2.0 ICMC TRANSPORT VERIFICATION PROTOCOL ASSESSMENT

The ICMI’s Auditor Guidance for Use of Cyanide Transportation Verification Protocol, General Guidance states:

*Except as specifically identified in this Guidance document, the Cyanide Transportation Protocol is not to be used to evaluate transport by rail and ship or management of cyanide at rail terminals and port facilities due to security issues, limited access, and the inability of consignors to affect changes in the operating practices of these transport facilities. Rather than conduct Code audits of these facilities, the consignor must conduct and document due diligence investigations of rail carriers, rail terminals, shipping companies and port facilities that are engaged to handle cyanide shipments, as further discussed below under Transport Practice 1.1. The consignor’s due diligence investigation must either be conducted or reviewed by an auditor meeting ICMI requirements for a transport expert, and the auditor must conclude that the due diligence investigation has reasonably evaluated these facilities and that the consignor has, to the extent practical, implemented any necessary management measures.*

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

The international sales and exports of sodium cyanide by Orica take into consideration the ports and their extended infrastructure available to service the intended target area. Orica only operates in export markets that are serviced by major international shipping companies with the ability to offer scheduled container services from point of origin to destination.

Orica procedure “Selection of Transport Routes – Transportation of Sodium Cyanide to Customer Sites or Stock Points” (Orica ref: UP-GLO-PRO-001-017) aims to minimise the risk associated with the transportation of sodium cyanide while maintaining a safe, reliable, efficient and cost effective delivery system to customer sites and Orica stock points throughout the world. The procedure applies to the selection of delivery routes for Orica sodium cyanide and states that the “selection of route(s) is to be effected by the overall assessment of the risks associated with the utilisation of such route, taking into particular consideration likelihood of an incident occurring and the consequence of such an incident.” This procedure is applicable to all routes used for the transportation of Orica sodium cyanide as well as to Orica’s contracted transportation agencies.

Proximity to major export production in the lower South Island, and the strategic location of the Harbour for vessel rotation to and from deep-sea destinations makes the port of Chalmers (Otago Harbour) a key link in international supply chains. Intermodal freight transport and the emergence of nearby Dunedin as the regional centre for major export industries enables the port to act as the southern gateway for the key primary industries that drive New Zealand’s international trade.
Transport Practice 1.5: Follow international standards for the transportation of cyanide by sea and air

Orica’s manufacturing facility and transfer stations are ICMC certified. Sodium cyanide is packaged and transported in accordance with international regulatory standards, such as the United Nations Recommendation on the Transport of Dangerous Goods – Model Regulations, (2005) and National Codes of Practice such as the Australian Code for the Transport of Dangerous Goods by Road or Rail, (2015) thereby meeting the requirements of the political jurisdictions through which the loads will pass.

Orica only operates in export markets that are serviced by major international shipping companies with the ability to offer scheduled container services from point of origin to destination. Orica procedure “Carrier Assessment” (Orica ref: SUP-GLO-PRO-016-008) provides the framework for ensuring that carriers and their contractors are assessed at regular intervals to ensure that, amongst others, storage, safety, security, maintenance and emergency response standards are being maintained. Carriers are required to provide manifest documentation, to satisfy local customs regulations and the requirements of the IMDG Code, to the destination port. This documentation contains a list of the cargo types and in the case of sodium cyanide and any other hazardous cargo the quantity, unique packaging numbers, stowage reference and emergency response procedures.

New Zealand is both an IMO Member State (1960) and SOLAS Signatory Nation (1990), thereby requiring the port of Chalmers to adhere to the international regulations for the transportation and handling of dangerous goods as set out in the IMDG Code (Parts 4, 5 and 7) and SOLAS Convention ((1974) Chapter 7).

g) Does the ship carrying the cyanide have a list or manifest identifying the presence and location of the cyanide or a detailed stowage plan including this information, as required under Section 5.4.3.1 of the DG Code?

Maritime New Zealand (MNZ) is the national regulatory, compliance and response agency for the safety, security and environmental protection of coastal and inland waterways. MNZ develops and implements policies, statutes and regulations governing the carriage of dangerous goods and other goods by ships in accordance with relative national and international requirements. This includes supervising the safety of ships carrying dangerous goods, processing declarations made by ships carrying dangerous goods, providing accreditation services for personnel involved in the handling of dangerous goods and the inspection of containers holding dangerous goods.

Maritime Rule Part 24A: Carriage of Cargoes – Dangerous Goods Subpart D – Documentation and Notification 24A.82 requires that when transporting dangerous goods both the shipper and the carrier are to complete dangerous goods transport documents in accordance with Chapter 5.4 of the IMDG Code. Furthermore Subpart 24A.83 IMDG Documentation – Operator and Master states that the ships master must not accept any consignment of dangerous goods for carriage unless a dangerous goods transport document and container packing certificates are received prior.

The shipper responsible for a consignment of dangerous goods must, before the consignment is loaded on the ship, provide the ship’s operator with notification of the shipper’s intention to transport the consignment, including an accurate description of the contents. If the consignment is dangerous goods freight, then all dangerous goods transport documents relevant to that consignment and all container and vehicle packing certificates must be provided.

The port of Chalmers operates under the requirements of overarching national legislation such as the Maritime Transport Act 1994 and Hazardous Substances and New Organisms Act 1996. Additionally there are Maritime and Marine Protection Rules as enforced by MNZ, such as Maritime Rules 24A and 24B concerning the carriage of dangerous goods and stowage and security requirements for all vessels, respectively.
**h) Does the ship carrying the cyanide have cyanide emergency response information, as required under Section 5.4.3.2 of the DG Code?**

Dangerous goods delivered to or from the port are required to be appropriately manifested, packaged, labelled and placarded. Documentation that accompanies the cyanide throughout transportation by sea and delivery at ports includes emergency response information along with the dangerous goods manifest, packing certificates and Multimodal Dangerous Goods Form.

Emergency response procedures for ships carrying dangerous goods, including the emergency schedules to be followed in case of incidents involving dangerous substances, materials or articles, or harmful substances (marine pollutants), is regulated under the IMDG Code. In accordance with the Code, all ships, and the companies responsible for their operation, are required to maintain a Safety Management System (SMS). Within the SMS, procedures for responding to potential shipboard emergencies are required.

Port operations personnel provide the vessel's Master with copies of the Emergency Information, Dangerous Goods manifest (including stowage plan) and Packaging Certificates for each hazardous cargo transport units loaded onto the ship at the port of origin.

**Maritime Rule Part 24A: Carriage of Cargoes – Dangerous Goods Subpart E – Hazard Management and Emergency Response** details the requirements for ships carrying dangerous goods and their emergency response procedures. The Rule states that the operator of the ship must ensure that procedures for managing hazards associated with dangerous goods are adopted, maintained and carried on the ship in a readily accessible place. Crew members are required to be familiarised with the emergency response procedures.

**i) Does the ship comply with the stowage and separation requirements of Part 7 of the DG Code?**

As a member of the IMO and to comply with the IMDG Code and National Regulations vessels are required to declare dangerous cargo before arriving at or leaving the port, additionally, all cargo listed on the dangerous cargo manifest must be stowed and handled as prescribed by its UN number and dangerous goods class. Real time container tracking is available via the port’s Jade Master Terminal Rich Internet Application (JMT RIA), this system provides detailed information about the status and location of containers via unique ID numbers.

The port of Chalmers has dedicated storage areas for specialised products including dangerous goods; cyanide containers are segregated and stacked separately. All sodium cyanide remains packaged within its sealed container at all times.

Worksafe New Zealand has developed Codes of Practice that manage the risks associated with manufacturing, using, handling or storing hazardous substances. The Codes of Practice are derived from the requirements of the *Hazardous Substances and New Organisms (HSNO) Act 1996*. This is the overarching legislation that aims to protect the environment, and the health and safety of people and communities, by preventing or managing the adverse effects of hazardous substances and new organisms. Current Codes of Practice for the storage and separation of hazardous substances in New Zealand ports include HSNOCOP-16 Hazardous Substances Storage Code, HSNOCOP-28 Incompatible Hazardous Substances Separations, HSNOCOP-47 Secondary Containment Systems and Information on HSNOCOP-2 Signage for Premises Storing Hazardous Substances & Dangerous Goods.

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

Harbour Control is manned 24 hours a day and is based at the gatehouse at port Chalmers. Harbour Control monitor VHF channels and can track vessels on the approaches to and within Otago Harbour utilising Radar and Automatic Identification System (AIS). They also monitor Aids to Navigation in the form of lights, beacons, etc. providing the status of these to shipping and Harbour users. Real time container tracking is available via the port’s JMT RIA tracking system.

Chain of custody documentation is used by shipping companies to prevent the loss of cargo during shipment. This documentation includes the vessel manifest – which identifies the location and content of each container on the vessel along with packing certificates, Multimodal Dangerous Goods Forms and Material Safety Data Sheets (MSDS).
Transport Practice 2.1: Store cyanide in a manner that minimises the potential for accidental releases

Since 1 July 2004, ports and shipping worldwide have had to comply with security measures as detailed under the International Ship and Port Facility Security Code (ISPS Code). The Maritime Security Act 2004 covers the New Zealand legislative requirements and is in place to safeguard port users and the local community, and to provide for the security of trade and tourism. Port Chalmers (Otago Harbour) has been verified by Maritime New Zealand as being compliant with international security requirements.


For the import of dangerous goods, the port adopts either a Direct to Motor Vehicle (DMV) or Land & Remove (L&R) process. Allowable dwell times are specified based on dangerous goods class and UN numbers, the dwell time commences from the time the container is discharged onto the wharf.

The HSNO Act 1996 and its associated Codes of Practice- HSNOCOP-16, HSNOCOP-28 and HSNOCOP-2 ensure that cyanide is stored securely and with adequate ventilation.

All entry to the port is controlled and subject to the possession of acceptable photographic identification. The port and wharf area are closed to general public access and entering the port facilities is deemed as consent for identification checks and searching. Failure to consent to the security measures in place will result in admittance being denied.

Port Otago Limited and the New Zealand Customs Service together to maintain safe and secure trading conditions. Systems and equipment are in place to provide border security and includes the use of mobile non-invasive inspection technologies. Transporters are subject to compliance requirements.

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

New Zealand has been a member State of the IMO Council since 1960, it complies with the requirements of the IMDG Code.

The MNZ is the competent authority and has responsibility for all forms of marine emergencies, including administering the National Contingency Plan (NCP) for dealing with pollution by oil and other noxious substances in marine and freshwater environments.

The port of Chalmers is certified under the IMO’s International Convention on Oil Pollution Preparedness, Response and Cooperation 1990 (OPRC 90). States which are party to OPRC 90 protocol are required to establish a national system for responding to oil and hazardous/noxious substances pollution incidents, including a designated national authority, a national operational contact point and a national contingency plan. This needs to be supported by a minimum level of response equipment, communications plans, regular training and exercises.

Code of Practice HSNOCOP-36 Preparing for a Chemical Emergency also provides a comprehensive guide to emergency management suitable for use by businesses and facilities engaged in the storage, transport, use and handling of chemicals and hazardous substances.

3.0 CONCLUSION

Based on the evidence reviewed, this due diligence did not find significant issues of concern in regards to the port of Chalmers’s management of solid sodium cyanide product. It was not possible during this due diligence to physically inspect the port, as such the review was based on information obtained from previous due diligence reviews, ICMI audit reports and publicly available online information. The Auditor recommends that Orica undertakes annual reviews at the port to monitor the management of dangerous goods.

This assessment should not be a final acceptance of the port of Chalmers for future work; rather it is recommended that Orica continue to review and monitor the port’s performance annually and implement an adaptive management process.
4.0 CLOSING

We trust this due diligence letter meets your requirements. If you have any questions, please do not hesitate to contact the undersigned.

GOLDER ASSOCIATES PTY LTD

Craig Currie  
Environmental Scientist

Ed Clerk  
ICMC Lead Auditor and Technical Specialist

CC/EWC/hsl
REFERENCES


Distribution List

1 Copy - Orica Australia Pty Ltd

1 Copy - Golder Associates Pty Ltd
Executive Summary

Golder Associates Pty Ltd (Golder) was engaged by Orica Australia Pty Ltd (Orica) to conduct a due diligence of the Port of Gladstone, Queensland. This assessment was conducted by Environmental Scientist Sara Pritchard and International Cyanide Management Code (ICMC or the Code) Transport Technical Specialist Mike Woods.

The following items, as detailed in the International Cyanide Management Institute’s (ICMI’s) *Auditor Guidance for Use of the Cyanide Transportation Verification Protocol* (Auditor Guidance; ICMI, 2016a) were addressed within the due diligence:

- Transport Practice 1.1 (Questions 1-4 and 6)
- Transport Practice 1.5 (Question 1, Items g-i)
- Transport Practice 1.6
- Transport Practice 2.1
- Transport Practice 3.1.

The Auditor Guidance (ICMI, 2016a) was used to guide the due diligence assessment. It was not possible during this due diligence to physically inspect the Port of Gladstone, as such the review was based on information obtained from previous due diligence reviews, ICMI audit reports and publicly available online information.

Based on the evidence reviewed, this due diligence did not find significant issues of concern in regard to the Port’s management of solid sodium cyanide product.

This assessment should not be a final acceptance of the Port of Gladstone for future work; rather it is recommended that Orica continue to review and monitor the Port’s performance annually and implement an adaptive management process.
Table of Contents

1.0 INTRODUCTION ......................................................................................................................................... 1
  1.1 Terms of Reference ................................................................................................................................... 1
  1.2 Scope and Method ................................................................................................................................... 1

2.0 OVERVIEW OF THE PORT OF GLADSTONE, QUEENSLAND ............................................................... 1

3.0 ICMC TRANSPORT VERIFICATION PROTOCOL ASSESSMENT .......................................................... 3

4.0 CONCLUSION ............................................................................................................................................ 7

5.0 CLOSING .................................................................................................................................................... 7

6.0 REFERENCES ............................................................................................................................................ 7

FIGURES

Figure 1: Overview of the Port of Gladstone, Queensland (Cruise Mapper, 2018) ......................................................... 3
1.0 INTRODUCTION

This letter report provides the results of a due diligence assessment of the Port of Gladstone (or the Port), Queensland, in accordance with the International Cyanide Management Code for the Manufacture, Transport and Use of Cyanide in the Production of Gold (ICMC or the Code).

Golder conducted a Desktop Due Diligence Assessment of the Port of Gladstone, Queensland, during September 2018. This assessment was conducted by Environmental Scientist Sara Pritchard and International Cyanide Management Code (ICMC or the Code) Transport Technical Specialist Mike Woods.

1.1 Terms of Reference

Orica Australia Pty Ltd (herein after referred to as “Orica”) retained Golder Associates Pty Ltd (herein after referred to as “Golder”) to conduct a desktop Due Diligence Assessment of the Port of Gladstone, Queensland. The Port of Gladstone is to be included in Orica’s Global Ocean Supply Chain.

1.2 Scope and Method

The scope of this Due Diligence Assessment includes the management, interim storage and emergency response in relation to cyanide transported through the Port of Gladstone, Queensland.

As detailed in the International Cyanide Management Institute’s (ICMI’s) Auditor Guidance for Use of the Cyanide Transportation Verification Protocol (Auditor Guidance; ICMI, 2016a), the following items were addressed within the Due Diligence Assessment:

- Overview of the Port of Gladstone
- ICMC Transport Verification Protocol Assessment
  - Transport Practice 1.1 (Questions 1-4 and 6)
  - Transport Practice 1.5 (Question 1, Items g-i)
  - Transport Practice 1.6
  - Transport Practice 2.1
  - Transport Practice 3.1.
- Conclusion
- References.

The ICMI’s December 2016 version of the Cyanide Transportation Verification Protocol (CTPV Protocol; ICMI, 2016b), was adopted to guide the Due Diligence Assessment process. The Auditor Guidance (ICMI, 2016a) was used to interpret the CTPV Protocol questions and aid in evaluating the measures taken to meet the Transportation Practices. The Due Diligence Assessment was conducted as a desktop process using information obtained from previous due diligence reviews, ICMI audit reports and publicly available online information.

2.0 OVERVIEW OF THE PORT OF GLADSTONE, QUEENSLAND

The Port of Gladstone is located approximately 525 kilometres (km) north of Brisbane in Queensland, Australia, and is the principal port in central Queensland. It is owned and managed by Gladstone Ports Corporation (GPC), which is a statutory corporate body of the Government of Queensland and is charged with overseeing the commercial activities in the port, including the maintenance of the port infrastructure and provisioning of pilots. The Port of Gladstone is Queensland’s largest multi-commodity port, handling over 30
different products. Major cargoes include coal, bauxite, alumina, aluminium and cement. The port has a total throughput of more than 98 million tonnes per annum (Mtpa).

The Port of Gladstone has eight main wharf centres, comprising 20 wharves:

- RG Tanna Coal Terminal – four wharves owned and operated by GPC
- Barney Point Terminal – one wharf owned and operated by GPC
- Auckland Point Terminal – four wharves owned by GPC and operated by others
- Fisherman’s Landing – four wharves operated by multiple companies
- South Trees – two wharves operated by Queensland Alumina Limited (QAL)
- Boyne Wharf – one wharf operated by Boyne Smelters Limited (BSL)
- Curtis Island – three wharves operated by Liquefied Natural Gas (LNG) companies; Australia Pacific LNG (APLNG), Santos GLNG and Queensland Curtis LNG (QCLNG)
- Wiggins Island Coal Terminal – one wharf operated by Wiggins Island Coal Export Terminal (WICET).

Of the 20 wharves, the multi-user Auckland Point Terminal No. 4 is the only container wharf within the Port of Gladstone. It has a berth pocket of 11.4 m (LAT), a berth pocket length of 220 m, wharf face of 220 m, wharf width of 33.9 m, wharf length (including mooring dolphins) of 269 m, bollard capacity of 100 tonnes (t), and a max vessel Dead Weight Tonnage (DWT) of 70,000 t. Container operations at Auckland Port Terminal No. 4 are carried out by a large mobile container crane.

The Port of Gladstone limits ship size to 315 metres (m) length overall (LOA), beam 55 m and draft dependent on tide but not likely to exceed 18 m. Loaded ships may be draft restricted. The design depth of the Outer Harbour Channel is 16.1 m but may be less than this between scheduled dredging; a vessel can sail (weather conditions permitting) at 17 m draft on any day of the year and up to 18 m draft with the appropriate tide heights.

Port service providers are available 24 hours per day, seven days per week.

Figure 1 provides an overview of the Port of Gladstone.
3.0 ICMC TRANSPORT VERIFICATION PROTOCOL ASSESSMENT

The ICMI’s Auditor Guidance for Use of Cyanide Transportation Verification Protocol, General Guidance states:

*Except as specifically identified in this Guidance document, the Cyanide Transportation Protocol is not to be used to evaluate transport by rail and ship or management of cyanide at rail terminals and port facilities due to security issues, limited access, and the inability of consignors to affect changes in the operating practices of these transport facilities. Rather than conduct Code audits of these facilities, the consignor must conduct and document due diligence investigations of rail carriers, rail terminals, shipping companies and port facilities that are engaged to handle cyanide shipments, as further discussed below under Transport Practice 1.1. The consignor’s due diligence investigation must either be conducted or reviewed by an auditor meeting ICMI requirements for a transport expert, and the auditor must conclude that the due diligence investigation has reasonably evaluated these facilities and that the consignor has, to the extent practical, implemented any necessary management measures.*

Transport Practice 1.1: Select cyanide transport routes to minimise the potential for accidents and releases

The international sales and exports of sodium cyanide by Orica take into consideration the ports and their extended infrastructure available to service the intended target area. Orica only operates in export markets that are serviced by major international shipping companies with the ability to offer scheduled container services from point of origin to destination.

Orica procedure “Selection of Transport Routes – Transportation of Sodium Cyanide to Customer Sites or Stock Points” (Orica ref: UP-GLO-PRO-001-017) aims to minimise the risk associated with the transportation of sodium cyanide while maintaining a safe, reliable, efficient and cost effective delivery system to customer sites and Orica stock points throughout the world. The procedure applies to the selection of delivery routes for Orica sodium cyanide and states that the “selection of route(s) is to be effected by the overall assessment of the risks associated with the utilisation of such route, taking into particular consideration likelihood of an incident occurring and the consequence of such an incident.” This procedure is applicable to all routes used for the transportation of Orica sodium cyanide as well as to Orica’s contracted transportation agencies.
The Port of Gladstone’s location offers entry to international markets through direct connectivity to Australia’s major road and rail networks and international shipping lines.

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

Orica’s manufacturing facility and transfer stations are ICMC certified. Sodium cyanide is packaged and transported in accordance with international regulatory standards, such as the United Nations Recommendation on the Transport of Dangerous Goods – Model Regulations (2005) and National Codes of Practice such as the Australian Code for the Transport of Dangerous Goods by Road or Rail (2015) thereby meeting the requirements of the political jurisdictions through which the loads will pass.

Orica only operates in export markets that are serviced by major international shipping companies with the ability to offer scheduled container services from point of origin to destination. Orica procedure “Carrier Assessment” (Orica ref: SUP-GLO-PRO-016-008) provides the framework for ensuring that carriers and their contractors are assessed at regular intervals to ensure that, amongst others, storage, safety, security, maintenance and emergency response standards are being maintained. Carriers are required to provide manifest documentation, to satisfy local customs regulations and the requirements of the IMDG Code, to the destination port. This documentation contains a list of the cargo types and in the case of sodium cyanide and any other hazardous cargo the quantity, unique packaging numbers, stowage reference and emergency response procedures.

Australia is both an International Maritime Organisation (IMO) Member State (1952) and Safety of Life at Sea (SOLAS) Signatory Nation (1983), thereby requiring the port of Gladstone to adhere to the international regulations for the transportation and handling of dangerous goods as set out in the International Maritime Dangerous Goods Code (IMDG Code) (Parts 4, 5 and 7) and SOLAS Convention ((1974) Chapter 7).

g) Does the ship carrying the cyanide have a list or manifest identifying the presence and location of the cyanide or a detailed stowage plan including this information, as required under Section 5.4.3.1 of the DG Code?

The Australian Maritime Safety Authority (AMSA) develops and implements policies, statutes and regulations governing the carriage of dangerous goods and other goods by ships in accordance with relative national and international requirements. The Gladstone Ports Corporation (GPC), is responsible for supervising the safety of ships carrying dangerous goods and other goods, processing declarations made by ships carrying dangerous goods, providing accreditation services for personnel involved in the declaration of dangerous goods and inspection of containers, and inspecting containers holding dangerous goods.

As an IMO Member State and to comply with the IMDG Code, vessels are required to declare dangerous cargo 24 hours prior to loading/handling of such cargo to the GPC.

The Port of Gladstone operates under National regulations, including Australian Standard 3856-2005 (Handling and Transport of Dangerous Cargoes in Port Areas), AMSA Marine Order 41 (Carriage of Dangerous Goods), AMSA Marine Order 42 (Carriage, Stowage and Securing of Cargoes and Containers) and the Queensland Transport Operations Marine Safety Act 1994, which ensures its compliance with regards to the transportation, handling and storage of dangerous goods.

h) Does the ship carrying the cyanide have cyanide emergency response information, as required under Section 5.4.3.2 of the DG Code?

Dangerous goods delivered to or from the Port of Gladstone are required to be appropriately manifested, packaged, labelled and placarded. Documentation that accompanies the cyanide throughout transportation
by sea and delivery at ports includes emergency response information along with the dangerous cargo manifest, packing certificates and Multimodal Dangerous Goods Form.

Emergency response procedures for ships carrying dangerous goods, including the emergency schedules to be followed in case of incidents involving dangerous substances, materials or articles, or harmful substances (marine pollutants), is regulated under the IMDG Code. In accordance with the Code, all ships, and the companies responsible for their operation, are required to maintain a Safety Management System (SMS). Within the SMS, procedures for responding to potential shipboard emergencies are required.

The Harbour Master provides the vessel’s Master with copies of the Emergency Information, Dangerous Goods manifest (including stowage plan) and Packaging Certificates for each hazardous cargo transport units loaded onto the ship at the port of origin.

AMSA Marine Order 41 (Carriage of Dangerous Goods) requires the owner of a vessel on which it is intended to carry dangerous goods in packaged form to possess detailed instructions on emergency response and medical first aid relevant to incidents involving those goods.

i) Does the ship comply with the stowage and separation requirements of Part 7 of the DG Code?

As a member of the IMO and to comply with the IMDG Code and National Regulations vessels are required to declare dangerous cargo 24 hours prior to loading/handling of such cargo, additionally, all cargo listed on the dangerous cargo manifest must be stowed and handled as prescribed by its UN number and dangerous goods class.

The Port of Gladstone has dedicated storage areas for specialised products including dangerous goods; cyanide containers are segregated and stacked separately. All sodium cyanide remains packaged within its sealed container at all times.

Australian Standard 3856-2005 (Handling and Transport of Dangerous Cargoes in Port Areas) sets out requirements and recommendations for the safe entry, presence, handling and transport of dangerous cargoes, as listed in the IMDG Code and occurring within port areas. The purpose of this Standard is to provide minimum acceptable safety requirements for the handling and transport of dangerous goods at port facilities, including operating procedures, repair work, emergency planning and fire protection. It provides technical guidance that may assist in the handling and transport of dangerous cargoes in port areas in accordance with regulatory requirements.

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

Maritime Safety Queensland (MSQ), through the authority of the Harbour Master, has jurisdiction over the safe movement of all shipping within the pilotage area. The scheduling of ship movements is initiated by the agent submitting movement details for a vessel to the Gladstone Vessel Traffic Services (VTS) Centre via the Queensland Shipping Information Planning System (QSHIPS).

Chain of custody documentation is used by shipping companies to prevent the loss of cargo during shipment. This documentation includes the vessel manifest – which identifies the location and content of each container on the vessel along with packing certificates, Multimodal Dangerous Goods Forms and Safety Data Sheets (SDSs).

Division 13 of the Transport Operations (Marine Safety) Regulation 2004 outlines the duties of owners and masters of vessels in relation to the carriage of dangerous goods. The regulation requires that ships carrying dangerous goods and bulk liquids must comply with the appropriate directions of the IMDG code and Australian Standard 3856-2005 and are to notify GPC and the Gladstone VTS Centre of the intent to bring dangerous cargo into or depart from a pilotage area.
Ships have to report the information, namely the arrival and/or departure of the ship, the removal of the ship to another berth or anchorage, the transfer of the cargo to another ship the loading of the dangerous cargo, and the details of the dangerous cargo in an approved form.

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

All sodium cyanide transited through the Port of Gladstone remains contained within its sealed containers at all times preventing contact with water and other incompatible materials. A review of recent aerial imagery showed that the container storage area is fenced with a secure entrance and a boom gate.

GPC is responsible for the security and protection of the Port's infrastructure and assets, and the provision of risk-based security services.

In response to the risk of terrorism, the Commonwealth Government of Australia has interpreted the International Ship and Port Facility and Security (ISPS) Code, through its introduction of the Maritime Transport and Offshore Facilities Security Act (MTOFSA) and Regulation 2003. This act requires the establishment of maritime security zones in and around the port and wharf facilities as part of GPC’s maritime security plans. These regulated zones place restrictions and limitations on who may enter.

In addition to GPC’s maritime security plan, security regulated ships, port facilities and port service providers also have maritime security plans which outline the measures and procedures undertaken to protect vessels that trade in Australian seaports and the port infrastructure that services those vessels.

The Landside Restricted Zones (LRZ) for GPC managed facilities within the Port of Gladstone include the wharves and wharf approaches. To enter these areas, a person must have authorisation to do so and produce and display a current GPC identification card and a Maritime Security Identification Card (MSIC). Entry to all other areas of a facility will require authorisation and a current GPC ID card.

The zone will be in force one hour prior to a Security Regulated Ship berthing at a facility. The zone will remain in force until the Security Regulated Ship has intentionally let go its moorings and has cleared the berth by a distance of no less than 400 metres. The zone will be in force at all maritime security levels.

There are Restricted Zones in place around all berths within the Port of Gladstone. These zones are operational at all times of the day and night. These zones include a distance of 60 meters from the seaward face of a berth and 20 meters from the most westerly, easterly, approach and landside face of a berth, inclusive from the high water mark to the sea bed. Unauthorised entry into these zones is an offence under both State and Commonwealth legislation.

The Maritime Security Identification Card (MSIC) is a nationally recognised identity card which identifies the holder as a person who has met the necessary background requirements to work in a maritime security zone. It shows that the holder has met the minimum security requirements to work unescorted or unmonitored in a maritime security zone and is not considered a threat to maritime security.

Security cameras operate at GPC’s facilities, to ensure public safety, for the investigation and prosecution of criminal offences and for the investigation of safety, environmental or security incidents.

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

The Port of Gladstone is certified under the IMO’s International Convention on Oil Pollution Preparedness, Response and Cooperation 1990 (OPRC 90). States which are party to OPRC 90 protocol are required to establish a national system for responding to oil and hazardous/noxious substances pollution incidents, including a designated national authority, a national operational contact point and a national contingency plan.
This needs to be supported by a minimum level of response equipment, communications plans, regular training and exercises.

AMSA, a federal government self-funded maritime safety agency established in 1990, is responsible for providing a national response capability for marine pollution. AMSA administers the *National Plan to Combat Pollution of the Sea by Oil and other Noxious and Hazardous Substances*, a cooperative arrangement between the Federal, State and Northern Territory Governments and the shipping, oil, exploration and chemical industries, emergency services and fire brigades.

Under National Plan arrangements, a wide strategic range of response equipment is held at nine regional stockpiles. Equipment provided by AMSA is generally targeted at larger spills, though this is complemented by equipment held by port authorities, State Governments and individual oil and chemical companies.

GPC has an Emergency Response Plan that covers situations such as cyclones, marine incidents, bomb threats, fire, explosion or fatalities. Copies of the Response Plan are held at GPC’s office in the Port, by the Regional Harbour Master and by a number of port users and other key agency contacts (GPCL, 2018).

### 4.0 CONCLUSION

It was not possible during this due diligence to physically inspected the Port of Gladstone, therefore the review was based on information obtained from previous due diligence reviews, ICMI audit reports, and publicly available online information.

Based on the evidence reviewed, this due diligence did not find significant issues of concern in regards to the Port of Gladstone’s management of solid sodium cyanide products and additional management measures by the consigner are not considered necessary.

This assessment should not be a final acceptance of the Port of Gladstone for all future work; rather it is recommended that Orica continue to review and monitor the Port’s performance annually and implement an adaptive management process.

### 5.0 CLOSING

We trust this due diligence report meets Orica’s requirements. If you have any questions, please do not hesitate to contact the undersigned.

### 6.0 REFERENCES


Signature Page

Golder Associates Pty Ltd

Sara Pritchard
Environmental Scientist

Mike Woods
Transport Technical Specialist

SR/MW/as

Golder and the G logo are trademarks of Golder Associates Corporation

\golder.gds\gap\perth\jobs\env\2017 - environment\1778636 - orica aus_nz supply chains\correspondence out\011 due diligence - port of gladstone\1778636-011-r-rev0.docx
Distribution List

1 copy – Orica Africa Pty Ltd

1 copy – Golder Associates Pty Ltd
Executive Summary

Golder Associates Pty Ltd (Golder) was engaged by Orica Africa Pty Ltd (Orica) to conduct a due diligence assessment of the Port of Walvis Bay, Namibia.

The following items, as detailed in the International Cyanide Management Institute’s (ICMI’s) *Auditor Guidance for Use of the Cyanide Transportation Verification Protocol* (Auditor Guidance; ICMI, 2016a) were addressed within the due diligence:

- Transport Practice 1.1 (Questions 1-4 and 6)
- Transport Practice 1.5 (Question 1, Items g-i)
- Transport Practice 1.6
- Transport Practice 2.1
- Transport Practice 3.1.

The Auditor Guidance (ICMI, 2016a) was used to guide the due diligence assessment. It was not possible during this due diligence to physically inspect the Port of Walvis Bay; as such the review was based on information obtained from previous due diligence reviews, ICMI audit reports, and publicly available online information.

Based on the evidence reviewed, this due diligence did not find significant issues of concern in regard to the port’s management of cyanide product.

This assessment should not be a final acceptance of the Port of Walvis Bay for future work; rather it is recommended that Orica continue to review and monitor the Port’s performance annually and implement an adaptive management process.
Table of Contents

1.0 INTRODUCTION ................................................................................................................................. 1
  1.1 Terms of Reference ............................................................................................................................. 1
  1.2 Scope and Method ............................................................................................................................... 1

2.0 OVERVIEW OF THE PORT OF WALVIS BAY, NAMIBIA ................................................................. 1

3.0 ICMC TRANSPORT VERIFICATION PROTOCOL ASSESSMENT .................................................. 3

4.0 CONCLUSION ....................................................................................................................................... 6

5.0 CLOSING .............................................................................................................................................. 6

6.0 REFERENCES ........................................................................................................................................ 7

FIGURES

Figure 1: Port of Walvis Bay, Namibia (Namports, 2018) ........................................................................... 2
1.0 INTRODUCTION
This letter report provides the results of a Desktop Due Diligence Assessment of the Port of Walvis Bay, Namibia (or the Port), in accordance with the International Cyanide Management Code for the Manufacture, Transport and Use of Cyanide in the Production of Gold (ICMC or the Code).

Golder conducted the desktop Due Diligence Assessment of the port during March 2019.

1.1 Terms of Reference
Orica retained Golder to conduct a Desktop Due Diligence Assessment of the Port of Walvis Bay and to subsequently complete an amendment of Orica’s Global Marine Supply Chain via the addition of this Port.

1.2 Scope and Method
The scope of this Desktop Due Diligence Assessment includes the management, interim storage and emergency response capacity in relation to cyanide transported through the Port of Walvis Bay.

As detailed in the International Cyanide Management Institute’s (ICMI’s) Auditor Guidance for Use of the Cyanide Transportation Verification Protocol (Auditor Guidance; ICMI, 2016a), the following items are addressed within this assessment:

- Overview of the Port of Walvis Bay
- ICMC Transport Verification Protocol Assessment
  - Transport Practice 1.1 (Questions 1-4 and 6)
  - Transport Practice 1.5 (Question 1, Items g-i)
  - Transport Practice 1.6
  - Transport Practice 2.1
  - Transport Practice 3.1
- Conclusion
- References.

The ICMI’s December 2016 version of the Cyanide Transportation Verification Protocol (CTPV Protocol; ICMI, 2016b), was adopted to guide the Desktop Due Diligence Assessment process. The Auditor Guidance (ICMI, 2016a) was used to interpret the CTPV Protocol questions and aid in evaluating the measures taken to meet the Transportation Practices. The assessment was conducted as a desktop process using information obtained from previous due diligence reviews, ICMI audit reports, and publicly available online information.

2.0 OVERVIEW OF THE PORT OF WALVIS BAY, NAMIBIA
The Namibian Port Authority (NAMPORT) was formed on 28 February 1994, when Walvis Bay was reintegrated into Namibia and the Namibian Ports Authority Act was passed. The Act placed the Port of Walvis Bay’s assets, management and staff back under Namibia’s jurisdiction. Since then, NAMPORT, under the auspices of the Ministry of Works and Transport, has been tasked with managing, operating and developing Namibia’s ports.
The Port of Walvis Bay is situated on the west coast of Africa and strategically placed to provide a transit route between southern Africa, Europe, Asia and the Americas. Namibia continues to attract foreign direct investment, and its ports form a natural gateway for international trade. Walvis Bay offers direct access to principal shipping routes, and Namibia’s connecting transport corridors enable the country to compete as a transport hub for regional and international trade between the Southern African Development Community (SADC) countries, Europe, Asia, the Americas, and the rest of the world.

Entrance to the port consists of a 5.2 Nautical Mile (NM) long channel that is 134 m wide and 14 m deep. On average, between 2 000 and 2 250 vessels visit the Port of Walvis Bay every year, of which container vessels account for the largest number of visits. The existing container terminal has 350 000 Twenty-foot Equivalent Unit (TEU) throughput capacity per annum. A new container terminal will soon increase that to 750 000 TEUs per annum. Considered a congestion-free port with minimum delays, the Port of Walvis Bay currently handles 7 million tonnes of cargo per annum and is suitably equipped to increase that total to 8-10 million tonnes. The New Container Terminal project will provide increased container handling capacity as well as increase the port’s bulk and break-bulk handling capacity by freeing up the existing container terminal to become a multi-purpose terminal.

The Port of Walvis Bay handles container imports, exports and transshipments, as well as bulk and break-bulk of various commodities. NAMPORT serves a wide range of industries such as the petroleum, salt, mining, and fishing industries. Both bulk and bagged salt are also exported from the Port of Walvis Bay.

The existing Walvis Bay container terminal is shown in Figure 1.

Figure 1: Port of Walvis Bay, Namibia (Namports, 2018)
3.0 ICMC TRANSPORT VERIFICATION PROTOCOL ASSESSMENT

The ICMI’s Auditor Guidance for Use of Cyanide Transportation Verification Protocol, General Guidance states:

Except as specifically identified in this Guidance document, the Cyanide Transportation Protocol is not to be used to evaluate transport by rail and ship or management of cyanide at rail terminals and port facilities due to security issues, limited access, and the inability of consignors to affect changes in the operating practices of these transport facilities. Rather than conduct Code audits of these facilities, the consignor must conduct and document due diligence investigations of rail carriers, rail terminals, shipping companies and port facilities that are engaged to handle cyanide shipments, as further discussed below under Transport Practice 1.1. The consignor’s due diligence investigation must either be conducted or reviewed by an auditor meeting ICMI requirements for a transport expert, and the auditor must conclude that the due diligence investigation has reasonably evaluated these facilities and that the consignor has, to the extent practical, implemented any necessary management measures.

Transport Practice 1.1: Select cyanide transport routes to minimise the potential for accidents and releases

The international sales and exports of cyanide by Orica take into consideration the ports and their extended infrastructure available to service the intended target area. Orica only operates in export markets that are serviced by major international shipping companies with the ability to offer scheduled container services from point of origin to destination.

Orica procedure “Selection of Transport Routes – Transportation of Sodium Cyanide to Customer Sites or Stock Points” (Orica ref: UP-GLO-PRO-001-017) aims to minimise the risk associated with the transportation of cyanide while maintaining a safe, reliable, efficient and cost-effective delivery system to customer sites and Orica stock points throughout the world. The procedure applies to the selection of delivery routes for Orica cyanide and states that the "selection of route(s) is to be effected by the overall assessment of the risks associated with the utilisation of such route, taking into particular consideration likelihood of an incident occurring and the consequence of such an incident". This procedure is applicable to all routes used for the transportation of Orica cyanide as well as to Orica’s contracted transportation agencies.

The port is selected on the basis that it is the closest port to the customer and that it appears to meet reasonable industry standards for safety, security and emergency response.

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

Orica’s manufacturing facility and transfer stations are ICMC certified. Cyanide is packaged and transported in accordance with international regulatory standards, such as the United Nations Recommendation on the Transport of Dangerous Goods – Model Regulations (2005) and National Codes of Practice such as the Australian Code for the Transport of Dangerous Goods by Road or Rail (2015) thereby meeting the requirements of the political jurisdictions through which the loads will pass.
Orica only operates in export markets that are serviced by major international shipping companies with the ability to offer scheduled container services from point of origin to destination. Orica procedure “Carrier Assessment” (Orica ref: SUP-GLO-PRO-016-008) provides the framework for ensuring that carriers and their contractors are assessed at regular intervals to ensure that, amongst others, storage, safety, security, maintenance and emergency response standards are being maintained. Carriers are required to provide manifest documentation, to satisfy local customs regulations and the requirements of the IMDG Code, to the destination port. This documentation contains a list of the cargo types and in the case of cyanide and any other hazardous cargo the quantity, unique packaging numbers, stowage reference and emergency response procedures.

NAMPORT Regulations state that “…the handling of dangerous cargoes shall be in accordance with the rules laid down in the IMDG Code…” and there are entry requirements for all vessels carrying dangerous goods. Namibia is both an International Maritime Organization (IMO) Member State (1994) and Safety of Life at Sea (SOLAS) Signatory Nation (2000), thereby requiring the Port of Walvis Bay to adhere to the international regulations for the transportation and handling of dangerous goods as set out in the International Maritime Dangerous Goods Code (IMDG Code) (Parts 4, 5 and 7) and SOLAS Convention ((1974) Chapter 7).

g) Does the ship carrying the cyanide have a list or manifest identifying the presence and location of the cyanide or a detailed stowage plan including this information, as required under Section 5.4.3.1 of the DG Code?

NAMPORT implements policies, statutes and regulations governing the carriage of dangerous goods and other goods by ships in accordance with relative national and international requirements. This includes supervising the safety of ships carrying dangerous goods and other goods, processing declarations made by ships carrying dangerous goods, providing accreditation services for personnel involved in the declaration of dangerous goods and inspection of containers, and inspecting containers holding dangerous goods.

As an IMO Member State and to comply with the IMDG Code, vessels are required to declare dangerous cargo before arriving at or leaving the Port.

NAMPORT Regulations require that vessels deliver a provisional manifest or report of incoming cargo, to the port Operations Manager, at least 18 hours before a vessels arrival to the Port. Additionally, and regarding the carriage of dangerous goods, Regulation 106 (1) and (2) requires the owner, master or agent of a vessel carrying dangerous goods, as defined in the IMDG Code, to provide written notification to the port Operations Manager at least 72 hours prior to arrival of the vessel; and, the notification is to provide full particulars, correct technical name as required by Regulation 4.1 of Part A of the SOLAS Convention, dangerous goods class and UN number, the number of packages and mass of such dangerous goods that fall within any of the categories listed in the IMDG Code.

h) Does the ship carrying the cyanide have cyanide emergency response information, as required under Section 5.4.3.2 of the DG Code?

Dangerous goods delivered to or from the Port of Walvis Bay are required to be appropriately manifested, packaged and labelled. Documentation that accompanies the cyanide throughout transportation by sea and delivery at ports includes emergency response information along with the dangerous cargo manifest, packing certificates and a multimodal dangerous goods form.
Emergency response procedures for ships carrying dangerous goods, including the emergency schedules to be followed in case of incidents involving dangerous substances, materials or articles, or harmful substances (marine pollutants), is regulated under the IMDG Code. In accordance with the Code, all ships, and the companies responsible for their operation, are required to maintain a Safety Management System (SMS). Within the SMS, procedures for responding to potential shipboard emergencies are required.

Port operations personnel provide the vessel’s Master with copies of emergency information, dangerous goods manifest (including stowage plan) and packaging certificates for each hazardous cargo transport units loaded onto the ship at the port of origin. The port Operations Manager may also require additional emergency response precautions for a vessel having dangerous goods on board when berthed alongside a wharf or jetty.

i) Does the ship comply with the stowage and separation requirements of Part 7 of the DG Code?

As a member of the IMO and to comply with the International Maritime Solid Bulk Cargoes Code (IMSBC) and IMDG Code, vessels are required to declare dangerous cargo to the port Operations Manager before arriving at or leaving the Port. All cargo listed on the dangerous cargo manifest must be stowed and handled as prescribed by its UN number and dangerous goods class.

The Port of Walvis Bay has dedicated storage areas for specialised products including dangerous goods; whereby cyanide containers are segregated and stacked separately. Cyanide product remains sealed within containers preventing contact with water and other incompatible materials.

Transport Practice 1.6: Track cyanide shipments to prevent losses during transport
The Port Authority organises ship movements, tracks pilotage operations, and supervises terminal operations via real-time CCTV monitoring.

Chain of custody documentation is used by shipping companies to prevent the loss of cargo during shipment. This documentation includes the vessel manifest – which identifies the location and content of each container on the vessel along with packing certificates and multimodal dangerous goods forms.

Transport Practice 2.1: Store cyanide in a manner that minimises the potential for accidental releases
The port area has a closed perimeter with restricted access that is controlled by security personnel. There is a dedicated storage areas for specialised products including dangerous goods; the container storage area has CCTV installed and remains fully lit at night.

The Control Centre for the port is equipped with computer management systems for alarms, dangerous goods tracking, emergency communications, records of access/egress and video surveillance.

NAMPORT has an Emergency Response Procedure for the hazardous cargos that pass through the Port.

Transport Practice 3.1: Prepare detailed emergency response plans for potential cyanide releases
Namibia has been a member State of the IMO Council since 1994, it complies with the requirements of the IMDG Code.

A Government Action Control Group, led by Namibian Search & Rescue (NAMSAR) has developed an Emergency Plan covering 17 scenarios, including oil spills. The Directorate of Maritime Affairs of the Ministry of Works, Transport and Communication has also produced a National Oil Spill Contingency Plan (NOSCP) with the aid of the IMO. The Port of Walvis Bay has developed a local spill contingency plan.
The Port of Walvis Bay is certified under the IMO’s International Convention on Oil Pollution Preparedness, Response and Cooperation 1990 (OPRC 90). States that are party to OPRC 90 protocol are required to establish a national system for responding to oil and hazardous/noxious substances pollution incidents, including a designated national authority, a national operational contact point, and a national contingency plan. This needs to be supported by a minimum level of response equipment, communications plans, regular training, and exercises.

4.0 CONCLUSION

The Port of Walvis Bay was not physically inspected during this due diligence; therefore, the review was based on information obtained from Orica Africa, previous due diligence reviews, ICMI audit reports, and publicly available online information.

Based on the evidence reviewed, this due diligence did not find significant issues of concern regarding the Port of Walvis Bay’s management of cyanide products and additional management measures by the consigner are not considered necessary.

This assessment should not be a final acceptance of the Port of Walvis Bay for all future work; rather it is recommended that Orica continue to review and monitor the Port’s performance annually and implement an adaptive management process.

5.0 CLOSING

We trust this due diligence report meets Orica’s requirements. If you have any questions, please do not hesitate to contact the undersigned.
6.0 REFERENCES


Signature Page

Golder Associates Pty Ltd

Craig Currie
Environmental Consultant

Ed Clerk
Principal & Mining Environment Division Leader APAC EMEA

CC/EWC/hn

A.B.N. 64 006 107 857

Golder and the G logo are trademarks of Golder Associates Corporation

https://golderassociates.sharepoint.com/sites/107137/project files/6 deliverables/001 - due diligence/19120760-001-r-rev0 dd port walvis bay namibia.docx
REPORT

Due Diligence Assessment of the Port of Izmir, Turkey

Orica Australia Pty Ltd

Submitted to:

Orica Australia Pty Ltd
Mr Joe Quagliata
Lead – Distribution Pacific APA Supply Chain
Unit 4, 165, Boundary Street
SOUTH TOWNSVILLE  QLD 4810

Submitted by:

Golder Associates Pty Ltd
Level 3, 1 Havelock Street, West Perth, Western Australia 6005, Australia

+61 8 9213 7600

19120760-004-R-Rev0

August 2019
Distribution List

1 copy – Orica Australia Pty Ltd
1 copy – Golder Associates Pty Ltd
Executive Summary

Golder Associates Pty Ltd (Golder) was engaged by Orica Australia Pty Ltd (Orica) to conduct a due diligence assessment of the Port of Izmir, Turkey.

The following items, as detailed in the International Cyanide Management Institute’s (ICMI’s) Auditor Guidance for Use of the Cyanide Transportation Verification Protocol (Auditor Guidance; ICMI, 2016a) were addressed within the due diligence:

- Transport Practice 1.1 (Questions 1-4 and 6)
- Transport Practice 1.5 (Question 1, Items g-i)
- Transport Practice 1.6
- Transport Practice 2.1
- Transport Practice 3.1.

The Auditor Guidance (ICMI, 2016a) was used to guide the due diligence assessment. It was not possible during this due diligence to physically inspect the Port of Izmir, as such the review was based on information obtained from previous due diligence reviews, ICMI audit reports and publicly available online information.

Based on the evidence reviewed, this due diligence did not find significant issues of concern in regard to the Port’s management of cyanide product.

This assessment should not be a final acceptance of the Port of Izmir for future work; rather it is recommended that Orica continue to review and monitor the Port’s performance annually and implement an adaptive management process.
Table of Contents

1.0 INTRODUCTION ................................................................. 1
  1.1 Terms of Reference ............................................................... 1
  1.2 Scope and Method ............................................................... 1

2.0 OVERVIEW OF THE PORT OF IZMIR, TURKEY ................................................................. 1

3.0 ICMC TRANSPORT VERIFICATION PROTOCOL ASSESSMENT .......................................... 2

4.0 CONCLUSION ........................................................................ 5

5.0 CLOSING ............................................................................. 5

6.0 REFERENCES .......................................................................... 5

FIGURES

Figure 1: Port of Izmir (Source: Panaramio) ................................................................. 2
1.0 INTRODUCTION

This letter report provides the results of a Desktop Due Diligence Assessment of the Port of Izmir, Turkey (or the Port), in accordance with the International Cyanide Management Code for the Manufacture, Transport and Use of Cyanide in the Production of Gold (ICMC or the Code).

Golder conducted the desktop Due Diligence Assessment of the Port during April 2019.

1.1 Terms of Reference

Orica retained Golder to conduct a Desktop Due Diligence Assessment of the Port of Izmir and, to subsequently complete an amendment of the Orica Global Marine Supply Chain via the addition of this Port.

1.2 Scope and Method

The scope of this Desktop Due Diligence Assessment includes the management, interim storage and emergency response capacity in relation to cyanide transported through the Port of Izmir.

As detailed in the International Cyanide Management Institute’s (ICMI’s) Auditor Guidance for Use of the Cyanide Transportation Verification Protocol (Auditor Guidance; ICMI, 2016a), the following items are addressed within this assessment:

- Overview of the Port of Izmir
- ICMC Transport Verification Protocol Assessment
  - Transport Practice 1.1 (Questions 1-4 and 6)
  - Transport Practice 1.5 (Question 1)
  - Transport Practice 1.6
  - Transport Practice 2.1
  - Transport Practice 3.1
- Conclusion
- References.

The ICMI’s December 2016 version of the Cyanide Transportation Verification Protocol (CTPV Protocol; ICMI, 2016b), was adopted to guide the Desktop Due Diligence Assessment process. The Auditor Guidance (ICMI, 2016a) was used to interpret the CTPV Protocol questions and aid in evaluating the measures taken to meet the Transportation Practices. The assessment was conducted as a desktop process using information obtained from previous due diligence reviews, ICMI audit reports and publicly available online information.

2.0 OVERVIEW OF THE PORT OF IZMIR, TURKEY

The Port of Izmir lies on the south-east coast of Izmir Gulf in West Turkey, to the east of Aegean. It is the largest seaport in West Turkey. Port of Izmir is about 505 nautical miles south of Bur Said, 569 nautical miles east of Mersin, and 509 nautical miles of Mesos, 198 nautical miles west of Peiraelevs, and 276 nautical miles north of Istanbul.

The General Directorate of Turkish State Railways (TCDD) is the port authority for the Port of Izmir. Izmir is the third largest city in Turkey and the port facility is connected with Turkeys rail and highway networks providing a key node for import and export for the country.
According to the Turkish Ministry of Transport’s Maritime Bureau data, Port of Izmir has set a record for 1.44 million Twenty foot equivalent units (TEU) container throughput in 2017. The container terminal has 7 berths which have an alongside depth of 13 m. The total length of the berths is 1050 m.

The terminal covers an area of 152 000 m², and the holding capacity is 7074 TEU. Container operations at the quays are carried out by five gantry cranes of 40 tons capacity. The operations at the container yard are carried out by 19 rubber-tyred transtainers and 21 reach stackers of 40 tons capacity, together with 28 containers forklifts of up to 42 tons capacity. Reefer facilities for refrigerated containers are also available. The berths and the yard behind are well equipped with modern handling facilities. There is one floating crane with 100 tons capacity, five container quayside gantry cranes of 40 tons capacity, nine shore cranes of 3-15 tons capacity, 14 mobile cranes of 5-25 tons capacity, 16 rubber-tyred transtainers of 40 tons capacity, 21 reach stackers of 40 tons capacity, 28 container forklifts of 10-42 tons capacity, 47 general cargo forklifts of 2-5 tons capacity, 36 tug masters, two loaders, and 62 trailers.

The existing Port of Izmir container terminal is shown in Figure 1

![Port of Izmir](https://via.placeholder.com/150)

**Figure 1: Port of Izmir (Source: Panaramio)**

### 3.0 ICMC TRANSPORT VERIFICATION PROTOCOL ASSESSMENT

The ICMI’s *Auditor Guidance for Use of Cyanide Transportation Verification Protocol*, General Guidance states:

> Except as specifically identified in this Guidance document, the Cyanide Transportation Protocol is not to be used to evaluate transport by rail and ship or management of cyanide at rail terminals and port facilities due to security issues, limited access, and the inability of consignors to affect changes in the operating practices of these transport facilities. Rather than conduct Code audits of these facilities, the consignor must conduct and document due diligence investigations of rail carriers, rail terminals, shipping companies and port facilities that are engaged to handle cyanide shipments, as further discussed below under Transport Practice 1.1. The consignor’s due diligence investigation must either be conducted or reviewed by an auditor meeting ICMI requirements for a transport expert, and the auditor must conclude that the due diligence investigation has reasonably evaluated these facilities and that the consignor has, to the extent practical, implemented any necessary management measures.
Transport Practice 1.1: Select cyanide transport routes to minimise the potential for accidents and releases

The international sales and exports of cyanide by Orica take into consideration the ports and their extended infrastructure available to service the intended target area. Orica only operates in export markets that are serviced by major international shipping companies with the ability to offer scheduled container services from point of origin to destination.

Orica procedure “Selection of Transport Routes – Transportation of Sodium Cyanide to Customer Sites or Stock Points” (Orica ref: UP-GLO-PRO-001-017) aims to minimise the risk associated with the transportation of cyanide while maintaining a safe, reliable, efficient and cost-effective delivery system to customer sites and Orica stock points throughout the world. The procedure applies to the selection of delivery routes for Orica cyanide and states that the “selection of route(s) is to be effected by the overall assessment of the risks associated with the utilisation of such route, taking into particular consideration likelihood of an incident occurring and the consequence of such an incident.” This procedure is applicable to all routes used for the transportation of Orica cyanide as well as to Orica’s contracted transportation agencies.

The port is selected on the basis that it is the closest port to the customer and that it meets all reasonable industry standards for safety, security and emergency response.

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

Orica’s manufacturing facility and transfer stations are ICMC certified. Cyanide is packaged and transported in accordance with international regulatory standards, such as the United Nations Recommendation on the Transport of Dangerous Goods – Model Regulations (2005) and National Codes of Practice such as the Australian Code for the Transport of Dangerous Goods by Road or Rail (2015) thereby meeting the requirements of the political jurisdictions through which the loads will pass.

Orica only operates in export markets that are serviced by major international shipping companies with the ability to offer scheduled container services from point of origin to destination. Orica procedure “Carrier Assessment” (Orica ref: SUP-GLO-PRO-016-008) provides the framework for ensuring that carriers and their contractors are assessed at regular intervals to ensure that, amongst others, storage, safety, security, maintenance and emergency response standards are being maintained. Carriers are required to provide manifest documentation, to satisfy local customs regulations and the requirements of the IMDG Code, to the destination port. This documentation contains a list of the cargo types and in the case of cyanide and any other hazardous cargo the quantity, unique packaging numbers, stowage reference and emergency response procedures.

Turkey is both an International Maritime Organization (IMO) Member State (1958) and Safety of Life at Sea (SOLAS) Signatory Nation (1980), thereby requiring the Port of Izmir to adhere to the international regulations for the transportation and handling of dangerous goods as set out in the International Maritime Dangerous Goods Code (IMDG Code) (Parts 4, 5 and 7) and SOLAS Convention ((1974) Chapter 7).

As an IMO Member State and to comply with the IMDG Code, vessels are required to declare dangerous cargo before arriving at or leaving the Port. Additionally, and regarding the carriage of dangerous goods, Regulation 106 (1) and (2) requires the owner, master or agent of a vessel carrying dangerous goods, as defined in the IMDG Code, to provide written notification to the Port Operations Manager at least 72 hours prior to arrival of the vessel; and, the notification is to provide full particulars, correct technical name as required by Regulation 4.1 of Part A of the SOLAS Convention, dangerous goods class and UN number, the number of packages and mass of such dangerous goods that fall within any of the categories listed in the IMDG Code.
Dangerous goods delivered to or from the Port of Izmir are required to be appropriately manifested, packaged, labelled and placarded. Documentation that accompanies the cyanide throughout transportation by sea and delivery at ports includes emergency response information along with the dangerous cargo manifest, packing certificates and Multimodal Dangerous Goods Form.

Emergency response procedures for ships carrying dangerous goods, including the emergency schedules to be followed in case of incidents involving dangerous substances, materials or articles, or harmful substances (marine pollutants), is regulated under the IMDG Code. In accordance with the Code, all ships, and the companies responsible for their operation, are required to maintain a Safety Management System (SMS). Within the SMS, procedures for responding to potential shipboard emergencies are required.

Port operations personnel provide the vessel’s Master with copies of the Emergency Information, Dangerous Goods manifest (including stowage plan) and Packaging Certificates for each hazardous cargo transport units loaded onto the ship at the port of origin.

As a member of the IMO and to comply with the International Maritime Solid Bulk Cargoes Code (IMSBC) and IMDG Codes, vessels are required to declare dangerous cargo to the Port Operations Manager before arriving at or leaving the Port. All cargo listed on the dangerous cargo manifest must be stowed and handled as prescribed by its UN number and dangerous goods class.

Cyanide product remains sealed within containers preventing contact with water and other incompatible materials.

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

The Port Authority organises ship movements, tracks pilotage operations, and supervises terminal operations via real-time CCTV monitoring.

Chain of custody documentation is used by shipping companies to prevent the loss of cargo during shipment. This documentation includes the vessel manifest – which identifies the location and content of each container on the vessel along with packing certificates, Multimodal Dangerous Goods Forms and Safety Data Sheets (SDS).

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

Storage facilities at Izmir consist of 215 940 m² open storage and 26 978 m² covered areas including a designated hazardous cargo warehouse. Storage in transit may occur in the event that receipt at the Port is delayed. Cargo handling and storage services are provided at the port using modern equipment and staff 7 days a week, 24 hours a day. The ISPS “International Ship and Port Facilities Safety Code” is implemented and security and access control are provided at the port including CCTV, controlled access points and perimeter security.

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

Turkey has been a member State of the IMO Council since 1958, it complies with the requirements of the IMDG Code.

Pollution response in Turkey is governed under Act 5312 Law Concerning the Principles of Emergency Response and Compensation for Damages for Pollution of the Marine Environment by Oil and Other Harmful Substances. The Undersecretariat for Maritime Affairs has ultimate responsibility for dealing with oil pollution at sea and the Ministry of Environment and Urbanisation undertakes or causes to be undertaken the necessary response measures. In the event of an incident, a Damage Commission of these authorities is usually convened and chaired by the Provincial Head of the Ministry of Environment and Urbanisation.
At local level, a governor or mayor may direct the Damage Commission. Local responsibility is designated to managers of individual ports or, in the case of spills at sea, to the Turkish Navy. Oil on shore would normally be dealt with by the municipalities or installation concerned.

Turkey has regional and national emergency response plans based on a tiered response structure.

4.0 CONCLUSION

It was not possible during this due diligence to physically inspected the Port of Izmir, therefore the review was based on information obtained from previous due diligence reviews, ICMI audit reports, and publicly available online information.

Based on the evidence reviewed, this due diligence did not find significant issues of concern regarding the Port of Izmir’s management of cyanide products and additional management measures by the consigner are not considered necessary.

This assessment should not be a final acceptance of the Port of Izmir for all future work; rather it is recommended that Orica continue to review and monitor the Port’s performance annually and implement an adaptive management process.

5.0 CLOSING

We trust this due diligence report meets Orica’s requirements. If you have any questions, please do not hesitate to contact the undersigned.

6.0 REFERENCES


Signature Page

Golder Associates Pty Ltd

Ed Clerk
Principal & Mining Environment Division Leader APAC EMEA

MCW/EWC/hn

A.B.N. 64 006 107 857

Golder and the G logo are trademarks of Golder Associates Corporation
APPENDIX C

Important Information
The document ("Report") to which this page is attached and which this page forms a part of, has been issued by Golder Associates Pty Ltd ("Golder") subject to the important limitations and other qualifications set out below.

This Report constitutes or is part of services ("Services") provided by Golder to its client ("Client") under and subject to a contract between Golder and its Client ("Contract"). The contents of this page are not intended to and do not alter Golder’s obligations (including any limits on those obligations) to its Client under the Contract.

This Report is provided for use solely by Golder’s Client and persons acting on the Client’s behalf, such as its professional advisers. Golder is responsible only to its Client for this Report. Golder has no responsibility to any other person who relies or makes decisions based upon this Report or who makes any other use of this Report. Golder accepts no responsibility for any loss or damage suffered by any person other than its Client as a result of any reliance upon any part of this Report, decisions made based upon this Report or any other use of it.

This Report has been prepared in the context of the circumstances and purposes referred to in, or derived from, the Contract and Golder accepts no responsibility for use of the Report, in whole or in part, in any other context or circumstance or for any other purpose.

The scope of Golder’s Services and the period of time they relate to are determined by the Contract and are subject to restrictions and limitations set out in the Contract. If a service or other work is not expressly referred to in this Report, do not assume that it has been provided or performed. If a matter is not addressed in this Report, do not assume that any determination has been made by Golder in regards to it.

At any location relevant to the Services conditions may exist which were not detected by Golder, in particular due to the specific scope of the investigation Golder has been engaged to undertake. Conditions can only be verified at the exact location of any tests undertaken. Variations in conditions may occur between tested locations and there may be conditions which have not been revealed by the investigation and which have not therefore been taken into account in this Report.

Golder accepts no responsibility for and makes no representation as to the accuracy or completeness of the information provided to it by or on behalf of the Client or sourced from any third party. Golder has assumed that such information is correct unless otherwise stated and no responsibility is accepted by Golder for incomplete or inaccurate data supplied by its Client or any other person for whom Golder is not responsible. Golder has not taken account of matters that may have existed when the Report was prepared but which were only later disclosed to Golder.

Having regard to the matters referred to in the previous paragraphs on this page in particular, carrying out the Services has allowed Golder to form no more than an opinion as to the actual conditions at any relevant location.

That opinion is necessarily constrained by the extent of the information collected by Golder or otherwise made available to Golder. Further, the passage of time may affect the accuracy, applicability or usefulness of the opinions, assessments or other information in this Report. This Report is based upon the information and other circumstances that existed and were known to Golder when the Services were performed and this Report was prepared. Golder has not considered the effect of any possible future developments including physical changes to any relevant location or changes to any laws or regulations relevant to such location.

Where permitted by the Contract, Golder may have retained subconsultants affiliated with Golder to provide some or all of the Services. However, it is Golder which remains solely responsible for the Services and there is no legal recourse against any of Golder’s affiliated companies or the employees, officers or directors of any of them.

By date, or revision, the Report supersedes any prior report or other document issued by Golder dealing with any matter that is addressed in the Report.

Any uncertainty as to the extent to which this Report can be used or relied upon in any respect should be referred to Golder for clarification