March 2018

# INTERNATIONAL CYANIDE MANAGEMENT CODE TRANSPORT AUDIT

# Anhui Anqing Shuguang Chemical Co Ltd Transport Recertification Audit - Summary Audit Report China to Kyrgyzstan Supply Chain

Submitted to:
International Cyanide Management Institute
1400 I Street, NW, Suite 550
WASHINGTON DC 20005
UNITED STATES OF AMERICA

Anhui Anqing Shuguang Chemical Co Ltd
CHINA

REPORT

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# 1.0 INTRODUCTION

## 1.1 Operational Information

| | |
|---|---|
| **Name of Transporter:** | Anhui Anqing Shuguang Chemical Co., Ltd. |
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## 1.2 Description of Operation

Anhui Anqing Suguang Chemical Company Limited (Shuguang) is a manufacturer of cyanide and responsible for the management of the cyanide supply chain which is the subject of this audit. Shuguang is a subsidiary of the Anhui Anqing Shuguang Chemical Group.

Shuguang manufactures solid sodium cyanide at its facility located in Anqing in eastern China. This facility is certified as being compliant with the ICMC with the most recent recertification announcement on 19 January 2017.

Anqing Shuguang Supply, Sales and Transportation Co Ltd (also a subsidiary of the Anhui Anqing Shuguang Chemical Group) is a contracted forwarding agent for Shuguang and undertakes transportation of cyanide from the production facility's 10 destinations in China by road. This portion of road transportation was recertified on 12 October 2016 and included road transportation of solid sodium cyanide from Anqing to North Hefei Railway Station and Hangzhou North Railway Station in China. This portion of road transportation is not within the scope of this Supply Chain Audit.

The supply chain covers the transport of cyanide from the North Hefei Railway Station and Hangzhou North Railway Station in China by rail to Kyrgyzstan for part of the audit period and road transportation from the production facility by road to the China-Kazakstan board by road for part of the audit period. These changes are outlined below.

The incident in Tanjing in 2015 precipitated changes to the method of transport within China. The supply chain certified in 2014, and up until December 2015 of the current audit period, comprised the following:

- Loading packaged solid sodium cyanide into trains at Hangzhou North Railway and North Hefei Railway Station.
- Rail transport to Urumqi in Xinjiang province in western China.
- Unloading the cyanide packages and temporarily placing these in interim storage at a designated cyanide storage facility within the North Urumqi Railway Station precinct.

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|---|---|---|
| Name of Facility | Signature of Lead Auditor | Date |

- Removing cyanide packages from the interim store, placing it in shipping containers and loading onto a train.
- Rail transportation from Urumqi to Dostyk where the cyanide was transferred from the Chinese train to the Kazakhstan train.
- Rail transport from Dostyk to Balykchy Marshalling yard at Balykchy in Kyrgyzstan. The end of the supply chain was the arrival of the train at Balykchy Marshalling yard. Handling of the cyanide following arrival at the marshalling yard is undertaken by Shuguang's customer and is not part of the scope of this audit.

Following the incident in Tanjing, the permission for the storage of cyanide at the facility in the North Urumqi Railway Station precinct was revoked. Shuguang removed the cyanide from the facility in accordance with Government requirements and delivered it to its customers. Without the warehousing facility rail transport to its customers was no longer practical and this necessitated the change to road transportation within China.

Concurrently, at the end of 2015, the Government was not permitting cyanide to be transported through the borders of the Xinjiang province. Shuguang applied to the Government for permission and was initially granted permission in March 2016 to transport cyanide through (Kyzylat) on the border between China and Kyrgyzstan. Shuguang followed the Government directed transport route to the border crossing via road transport in China by (Xinjiang Wangdong International) and then onwards to Balykchy in Kyrgyzstan via road transporter Kyrgyzstan Transport Company (KTC).

In June 2016, the permission to use the border crossing of Kyzlat was revoked and permission was sought for the use of Alashankou/Dotsky border crossing in the China-Kazakhstan border. This necessitated the return to the use of the train transport route through Kazakhstan to Kyrgyzstan. Since June 2016, cyanide has been transported from Anqing in eastern China via road to Alashankou/Dotsky border where the cyanide is transferred from the road transporter to the Kazakhstan train.

## 1.3 Xinjiang Wangdong International

Xinjiang Wangdong International Logistics (Wangdong) is a road transport subcontractor that transport cyanide within China from the production facility in Anqing to the Chinese border. The transporter is responsible for seeking and obtaining government permits to allow transportation of cyanide along the transport route defined by the Government on the permit within the transport period detailed on the permit.

Wangdong is based in Urumqi in the Xinjiang Province and has a fleet of 32 vehicles available for the transport of cyanide and other dangerous goods within China. Wangdong has been involved in the transportation of cyanide for Shuguang since March 2016.

## 1.4 China Rail

The Chinese rail components were used for part of the audit period and Shuguang had undertaken a due diligence assessment of the rail components in November 2013. The rail transport ceased being used in late 2015. Discussions with Shuguang personnel indicated that the procedures and equipment used for transport of cyanide by rail had not changed in the period November 2013 to December 2015. As rail is no longer used and is unlikely to be used in the future, Shuguang has not undertaken a subsequent due diligence assessment of this component of the Supply Chain. Accordingly, no further assessment of this component is presented in the report.

## 1.5 Kazakhstan Rail

Intermodal transfer occurs at the Dostyk Railway Station where the cyanide containers are transferred from the road transporter onto the train for onward transport. The Dostyk Railway Station is owned and operated

by Kazakh Railways (known as Kazakhstan Temir Zholy or KTZ). KTZ is owned by the Kazakhstan government.

Rail transport from Dostyk to Balykchy is undertaken on the Kazakhstan train and there is only one entry point from China into Kazakhstan (at Dostyk) approved for cyanide and there is only one exit point from Kazakhstan to Kyrgyzstan (at Lugovaya, in Kazakhstan). There are several different routes within Kazakhstan that Kazakh Rail can chose to use.

At Lugovaya on the Kazakhstan side of the Kazakhstan/Kyrgyzstan border the train passes through Kazakhstan exit customs and the control of the train is passed from Kazakh rail crew to a Kyrgyz rail crew.

Shuguang personnel accompany the shipment on the train throughout.

## 1.6 Kyrgyzstan Rail

Upon arrival at Raybachie Railway Station (in Balykchy) the train passes through Kyrgyz entry customs and then travels a short distance to KOC's Balykchy Marshalling Yard located in an industrial area southwest of the town where KOC takes delivery of the cyanide on behalf of Kumtor Gold Mine. This point represents the end of the Supply Chain within the scope of this audit. Unloading of the train is undertaken by KOC and is not within the scope of this audit.

## 1.7 Kyrgyzstan Road Transport

During a brief period March to June 2016, Kyrgyzstan Transportation Company (KTC) was used to transport cyanide from the Chinese border of Kyrgyzstan to Balykchy where it was received and unloaded by KOC on behalf of Kumtor Gold Mine. Shuguang confirmed that the road transport had the necessary permits and approvals from the Kyrgyzstan government and experience in transporting cyanide before initiating transport.

Due to the change in border crossing dictated by the Chinese government, the use of this transporter ceased and the completion of a supply chain amendment was not progressed. No further assessment of this transport component has been undertaken in this report.

## 1.8 Transit Storage

Within the scope of this audit, there was a trans-shipping depot for part of the audit period. Following the incident at the Port of Tanjing the government revoke approval for the storage of cyanide at the warehouse

This depos or interim storage sites, as defined in the audit protocol.

Storage in transit may occur in the event that receipt at the port is delayed. In this event containers will not be removed from the trailers and the vehicles will only be parked for a maximum of 24 hours.

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## 1.9 Auditors Findings and Attestation

**The Supply Chain is:**

☒ in full compliance with

☐ in substantial compliance with

☐ not in compliance with

**The International Cyanide Management Code**

**Audit Company:** Golder Associates Pty Ltd

**Audit Team Leader:** Mike Woods, Exemplar Global (113792)

**Email:** MWoods@golder.com.au

No significant cyanide incidents or releases were noted as occurring during the audit period.

## Name and Signatures of Other Auditors

| Name | Position | Signature | Date |
|---|---|---|---|
| Mike Woods | Lead Auditor and Technical Specialist |  | 7 March 2018 |
| Jielu Ding | Auditor/Translator | | 7 March 2018 |

## 1.10 Dates of Audit

The Recertification Audit was undertaken over two days between 5 and 7 September 2017.

I attest that I meet the criteria for knowledge, experience and conflict of interest for Code Verification Audit Team Leader, established by the International Cyanide Management Institute and that all members of the audit team meet the applicable criteria established by the International Cyanide Management Institute for Code Verification Auditors.

I attest that this Summary Audit Report accurately describes the findings of the verification audit. I further attest that the verification audit was conducted in a professional manner in accordance with the *International Cyanide Management Code Verification Protocol for Cyanide Transportation Operations* and using standard and accepted practices for health, safety and environmental audits.

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|---|---|---|
| Name of Facility | Signature of Lead Auditor | Date |

# 2.0 TRANSPORT SUMMARY

## 2.1 Principle 1 – Transport

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

### 2.1.1 Transport Practice 1.1

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

| | | |
|---|---|---|
| | ☒ **in full compliance with** | |
| The Supply Chain is | ☐ in substantial compliance with | **Transport Practice 1.1** |
| | ☐ not in compliance with | |

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

Shuguang is in FULL COMPLIANCE with Transport Practice 1.1 requiring cyanide transport routes to be selected to minimise the potential for accidents and releases.

Shuguang has implemented a process for selecting transport routes that minimises the potential for accidents and releases or the potential impacts of accidents and releases. Shuguang is the consignor and is responsible for the overall management of the Supply Chain.

Shuguang engages road transport contractor Wangdong and rail contractors Kyrgyz Railway and Kazakhstan Temir Zholy (KTZ) to transport sodium cyanide product via road and rail from Urumqi via Alashankou (on the Chinese side of the Chia/Kazakhstan border) to Dostyk (on the Kazakhstan side of the China/Kazakhstan border) by the Xinjiang Shuguang International Trade Co. Ltd., to Balykchy Marshalling Yard (a railway station) located on Balykchy in Kyrgyzstan.

Shuguang has undertaken due diligence assessments of Kyrgyz Railway and KTZ and found that there were no issues of concern in regards to the rail management of solid cyanide product by either transporter. The due diligence assessments state that:

> *The due diligence assessment is not a final acceptance of* [the carriers] *for future work and as with all service providers to Shuguang, Shuguang will continue to review and monitor performance annually.*

Within Kazakhstan there is one main rail route used by Shuguang for transport of cyanide, representing the shortest route. However, the route for each cyanide transport event is selected by the KTZ, which is controlled by the Ministry of Transport of the Republic of Kazakhstan and there are alternative rail routes which may be used.

Within Kyrgyzstan there is only one available rail route, operated by Kyrgyz Railway (KTJ) owned by the Kyrgyz government, which has been assessed by Shuguang as part of the Anqing to Kyrgyzstan Cyanide Transportation Route Evaluation, dated January 2013, Shuguang Chemical Co. Ltd., Anqing City, Anhui Province. The route was deemed acceptable for transportation of cyanide the due diligence review has not identified a need to change.

The railway companies in each country have been used by Shuguang for transport of cyanide for more than 10 years, reportedly without any significant rail incidents or spillages or losses of cyanide.

Additional security arrangements are implemented for rail transport through Kazakhstan and Kyrgyzstan due to risk of terrorist action.

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Shuguang has a procedure that outlines the assessment process and minimum requirements before a contractor is engaged to transport cyanide which includes a check that the legal requirements and permits are in place for the company and drivers.

Shuguang conducts periodic due diligence assessments of transporters to identify potential risks. The measures taken to address risks identified for transporters are addressed within the due diligence process.

The due diligence assessments did not identify the requirement for additional safety or security measures.

### 2.1.2 Transport Practice 1.2

**Ensure that personnel operating cyanide handling and transport equipment can perform their jobs with minimum risk to communities and the environment.**

| | | |
|---|---|---|
| | ☒ **in full compliance with** | |
| The Supply Chain is | ☐ in substantial compliance with | **Transport Practice 1.2** |
| | ☐ not in compliance with | |

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

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

Shuguang through its subcontractors uses only trained, qualified and licensed operators for its transport vehicles. Shuguang utilises rail contractors Kyrgyz Railway and KTZ to transport sodium cyanide product via rail.

Shuguang has utilised Wangdong to provide road transportation within China since March 2016. Wangdong and its drivers have the necessary licences and permits for the transportation of cyanide. Training is provided to the drivers and records of the training are retained.

Shuguang has a procedure that outlines the assessment process and minimum requirements before a contractor is engaged to transport cyanide which includes a check that the legal requirements and permits are in place for the company and drivers.

Shuguang conducts period due diligence assessments of the rail components of its supply chain and works closely with its selected transport contractor Wangdong to verify that suitable systems are in place to manage the transport of cyanide.

Due diligence assessments of Kyrgyz Railway and KTZ were undertaken by Shuguang and found that there were no issues of concern in regards to the management and transport of cyanide product.

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|---|---|---|
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### 2.1.3 Transport Practice 1.3

**Ensure that transport equipment is suitable for the cyanide shipment.**

| | | |
|---|---|---|
| | ☒ **in full compliance with** | |
| The Supply Chain is | ☐ in substantial compliance with | **Transport Practice 1.3** |
| | ☐ not in compliance with | |

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

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

Shuguang through its subcontractors uses equipment designed and maintained to operate within the loads it will be handling.

Wangdong has details of each vehicle combination (prime mover and trailer) including the type, registration, load bearing capacity. Values on the maximum load are provided by the manufacturer and verified through the vehicle certification process. Records for each truck indicated that shipments were conducted within the load capacity of the equipment. Wangdong has a tiered maintenance program and a procedure that details maintenance requirements. The operators of the vehicles also complete inspections of the vehicles.

There is an annual inspection process (Level 2 maintenance conducted by licensed 3rd party) for vehicles transporting dangerous goods. A quality warranty certificate will be issued to individual vehicle.

Maintenance of these records are also a regulatory requirement and subject to inspection by government officials.

There are procedures to verify the adequacy of the equipment for the load it must bear. There are procedures for maintenance which include compliance with annual inspection process for vehicle certification for the transport of dangerous goods issued by the local government. Part of the inspection process is to confirm vehicles are meeting manufacturer's specifications for load bearing.

Pre inspection records denote the load bearing capacity and actual load. A review of completed convoy documentation confirmed shipments are within the load capacity of the vehicles.

Shuguang conducts period due diligence assessments of the rail components of its supply chain and works closely with its selected transport contractor Wangdong to verify that suitable systems are in place to manage the transport of cyanide.

### 2.1.4 Transport Practice 1.4

**Develop and implement a safety program for transport of cyanide.**

| | | |
|---|---|---|
| | ☒ **in full compliance with** | |
| The Supply Chain is | ☐ in substantial compliance with | **Transport Practice 1.4** |
| | ☐ not in compliance with | |

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

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

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Placards and signage used to identify the shipment as cyanide meet local and international standards. Diamonds placed at front and rear of the vehicle identify load as cyanide and the containers also have labelling that identifies the contents of the container.

Shuguang through its subcontractor Wangdong implements a safety programme for cyanide transport that includes:

- Vehicle inspections prior to each departure are undertaken by the driver and escorts. Inspections includes mechanical roadworthiness and particular items.
- The preventative maintenance plan involves a 120-day third party inspection and servicing with certificate for government compliance purposes. A monthly plan is prepared to enable compliance with the servicing intervals. Maintenance records indicate routine basic maintenance is regularly performed and there is pre-convoy checks.
- There are limitations on driver hours and these are monitored through the GPS system.
- Solid cyanide product is packaged by the manufacturer into IBCs which are in turn loaded into sea container. The sea containers are secured to vehicles by twist locks.
- The suspension or modification of in transit is decided by the government agency. The transport companies follow the direction of the controlling government entity.
- Drivers are not permitted to consume alcohol or drugs that have an adverse impact on driving.
- Records are maintained that the above activities have been conducted.

Maintenance records, inspection and convoy records were samples through the audit period.

Shugaung subcontracts the transport of cyanide and due diligence assessments of KTZ and Kyrgyz Rail were undertaken to verify that the shipments are conducted in accordance with the hazardous goods transport guidelines applicable to the country. Due diligence assessments found there were no issues of concern in regard to the management and transport of cyanide product by the rail carriers.

### 2.1.5 Transport Practice 1.5

**Follow international standards for transportation of cyanide by sea and air.**

| | | |
|---|---|---|
| | ☒ **in full compliance with** | |
| The Supply Chain is | ☐ in substantial compliance with | **Transport Practice 1.5** |
| | ☐ not in compliance with | |

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

Transport Practice 1.5 requiring the operation follow international standards for transportation of cyanide by sea and air is NOT APPLICABLE to Shuguang.

Shuguang does not intend to transport consignments of cyanide by sea or air within the scope of this audit.

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### 2.1.6 Transport Practice 1.6

**Track cyanide shipments to prevent losses during transport.**

| | | |
|---|---|---|
| | ☒ **in full compliance with** | |
| The Supply Chain is | ☐ in substantial compliance with | **Transport Practice 1.6** |
| | ☐ not in compliance with | |

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

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

The road transport vehicles have means to communicate (via phone, radio and email) with the transport contractors, Shuguang and emergency responders. Wangdong have an online GPS tracking systems that shows the real-time location of the shipments in transit.

The due diligence for KTZ and Kyrgyz Railway state that all vessels have continuous means of tracking and communication during their journeys. Additionally, each service provider has systems in place to track individual containers from point of origin through to the destination. In addition to the communication system by its subcontractors, Shuguang personnel accompany each shipment from Dostyk to the customer. Communication equipment is tested through continuous use.

There is mobile phone coverage throughout the road transport route within China and the vehicles are GPS tracked. For the rail portion of the transport route there are some black out areas for mobile phones but there is continuous coverage by the railway radio system.

Wangdong has an online GPS tracking system that provides real-time location of the cyanide transport and this information is available to Shuguang.

Shuguang can track train locations via GPS and mobile phones carried by Shuguang's personnel on the train. Train locations are tracked via a system of electronic monitor points that feed information back to a railway information centre in Almaty to advise of train number and location.

Systems Ltd personnel also carry a mobile phone on the train through Kazakhstan and Kyrgyzstan as there is mobile phone reception along the route. Chain of custody documentation is used by KTZ and Kyrgyz Railway to prevent the loss of Shuguang cyanide during shipment. Shuguang representatives visually observe the loading of the transport vehicles and the shipping documentation detailing the amount of cyanide is completed at this time. Single use seals are applied the shipping container prior to release for transport.

Containers are not opened until they arrive at Kumto's Balykchy Marshalling Yard in Kyrgyzstan and have been accepted by KOC. In Balykchy, the train, condition of the containers and the seals are inspected at Rybachie Station by Shuguang, Kyrgyz customs, Kumtor and station officials. Delivery confirmation records are also provided during transfer of containers

Shipping records indicate the amount of cyanide in transit and Safety Data Sheets are available during transport. A review of delivery documentation together with pre-departure security checks confirmed that the amount of cyanide on each vehicle is recorded.

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## 2.2 Principle 2 – Interim Storage

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

### 2.2.1 Transport Practice 2.1

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

| | | |
|---|---|---|
| | ☒ **in full compliance with** | |
| The Supply Chain is | ☐ in substantial compliance with | **Transport Practice 2.1** |
| | ☐ not in compliance with | |

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

Transport Practice 2.1 that requires transporters design, construct and operate cyanide trans-shipping depots and interim storage sites to prevent release and exposures is NOT APPLICABLE to Shuguang.

Within the scope of this audit, there are no trans-shipping depots or interim storage sites, as defined in the audit protocol.

Storage in transit may occur at the event that transport is delayed. In this event, containers will not be removed from the trailers and the vehicles will only be parked for a maximum of 24 hours.

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|---|---|---|
| Name of Facility | Signature of Lead Auditor | Date |

## 2.3 Principle 3 – Emergency Response

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

### 2.3.1 Transport Practice 3.1

**Prepare detailed Emergency Response Plans for potential cyanide releases.**

| | | |
|---|---|---|
| | ☒ **in full compliance with** | |
| The Supply Chain is | ☐ in substantial compliance with | **Transport Practice 3.1** |
| | ☐ not in compliance with | |

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

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

Shuguang has prepared an Emergency Response Plan for cyanide transportation. The plan outlines Shuguang's emergency response policy, scope, purpose, responsibilities, resources and response actions.

This provides the overall response for cyanide transport including reporting to government agencies that are responsible for responding to emergency situations. Shuguang will assess the level of incident and provide notification to the relevant local emergency response agencies and provide support as requested/allowed by the agency in control of the emergency. Shuguang personnel accompany the shipment on the rail components of transport.

Wangdong has an emergency procedures that details the actions to be taken by the drivers in response to an incident. The drivers are responsible for reporting the incident and assisting as directed by the relevant regulatory authorities.

The plan is does consider the transport route and design of the transport vehicle. The plan is based on solid sodium cyanide shipped within IBCs within shipping containers that are sealed at the production facility and remained sealed throughout transport. The shipping container is transferred from the road transport vehicle to rail at Dostyk. There is no storage facility within the transport route.

Whilst product is in KTZ and Kyrgyz Rail trains, all emergency response is governed by the rail authorities in accordance with Hazardous Goods Transport Guidelines (Application 2 – Agreement on International freight traffic (July 2013). These guidelines apply to all rail operations in ex-Soviet countries.

Shuguang conducts due diligence assessments of carriers to verify that transport occurs in accordance with the hazardous goods transport guidelines applicable to the country. Shuguang's due diligence assessments found that there were no issues of concern in regards to the management and shipping of cyanide product by any of the Supply Chain carriers.

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

Each operator implements its 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.

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### 2.3.2 Transport Practice 3.2

**Designate appropriate response personnel and commit necessary resources for emergency response.**

The Supply Chain is
- ☒ in full compliance with
- ☐ in substantial compliance with
- ☐ **not in compliance with**

**Transport Practice 3.2**

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

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

There are descriptions of emergency response duties and responsibilities of personnel. There is a flow chart that summarises the responsibilities of the transport company and Shuguang. Section 2.0 of the emergency response plan details the responsibilities of the four major ERP units within Shuguang.

The emergency response plan does provide a list of emergency response equipment that is provide along the transport route. Section 3.0 of the emergency plan details the contents of the spill control kits and the first aid kits that accompany cyanide shipments.

Drivers of the road transport vehicles are responsible for reporting the incident and assisting as directed by government agencies in managing the incident. Drivers are trained in the properties of cyanide and response actions. The road transporters is responsible for the reporting of the emergency and then providing assistance as directed by the government agency in control of the scene.

Shuguang does have the necessary emergency response and health and safety equipment detailing in their emergency plan available during transport. Shuguang personnel accompany the rail portion of the shipment and part of the pre-departure checks includes checking the spill response and first aid equipment.

Wangdong provide their drivers with training in the emergency plan and the use of personal protective equipment. Training is provided on an annual basis and recorded in a register detailing the training and the date of the training.

There are procedure to inspect emergency response equipment and assure its availability when required. Shuguang does have the necessary emergency response and health and safety equipment detailing in their emergency plan available during transport. Shuguang personnel accompany the rail portion of the shipment and part of the pre-departure checks includes checking the spill response and first aid equipment.

Whilst product is in KTZ and Kyrgyz Rail trains, all emergency response is governed by the rail authorities and government's emergency response departments in accordance with Hazardous Goods Transport Guidelines (Application 2 – Agreement on International freight traffic) (July 2013). These guidelines apply to all rail operations in ex-Soviet countries.

Shuguang conducts due diligence assessments of carriers to verify that transport occurs in accordance with the hazardous goods transport guidelines applicable to the country. Shuguang's due diligence assessments found that there were no issues of concern in regards to the management and shipping of cyanide product by any of the Supply Chain carriers.

Shuguang requires 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 process.

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.

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### 2.3.3 Transport Practice 3.3

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

| | | |
|---|---|---|
| | ☒ in full compliance with | |
| The Supply Chain is | ☐ **in substantial compliance with** | **Transport Practice 3.3** |
| | ☐ not in compliance with | |

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

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

There are procedures and current contact information for the notifying the shipper, receiver/consignee, regulatory agencies, outside response providers, medical facilities and potentially affected communities of an emergency. Shuguang's emergency response plan contains the contact details and emergency call numbers in China, Kazakhstan and Kyrgyzstan.

Wangdong is responsible for notifying Shuguang of the emergency who will notify the consignee.

There are systems in place to ensure that internal and external emergency notification and reporting procedures are kept current. The plan has been updated to include introduction of road transportation and the removal of rail transportation within China.

Whilst product is in KTZ and Kyrgyz Rail trains, all emergency response is governed by the rail authorities and government's emergency response departments in accordance with Hazardous Goods Transport Guidelines (Application 2 – Agreement on International freight traffic) (July 2013). These guidelines apply to all rail operations in ex-Soviet countries.

Shuguang's due diligence assessments found that there were no issues of concern in regards to the management and shipping of cyanide product by any of the Supply Chain carriers.

Shuguang requires carriers to have appropriate emergency response plans, including current contact information, and capabilities for handling any cyanide incident that falls within their contractual responsibility.

### 2.3.4 Transport Practice 3.4

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

| | | |
|---|---|---|
| | ☒ **in full compliance with** | |
| The Supply Chain is | ☐ in substantial compliance with | **Transport Practice 3.4** |
| | ☐ not in compliance with | |

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

Shuguang is in FULL COMPLIANCE with Transport Practice 3.4 requiring development of procedures for remediation of releases that recognise the additional hazards of cyanide treatment.

Shuguang and its transport contractors have procedure for remediation, such as recovery or neutralisation of solutions or solids, decontamination of soils or other contaminated media and management and/or disposal of spill clean-up debris.

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The emergency response plans detail the specific actions required by the transport contractors, supported by Shuguang personnel and external responder depending on the scale and location of the emergency.

The training programs undertaken by the carriers also contain requirements for remediation depending on the spill. The railway company personnel involved in loading and/or unloading cyanide undergo training in emergency response with refreshed training provided at least every three years.

The emergency response plans prohibit the use of chemicals such as sodium hypochlorite, ferrous sulfate and hydrogen peroxide to treat cyanide that has been released into surface water.

### 2.3.5 Transport Practice 3.5

**Periodically evaluate response procedures and capabilities and revise them as needed.**

| | | |
|---|---|---|
| The Supply Chain is | ☒ in full compliance with<br>☐ in substantial compliance with<br>☐ **not in compliance with** | **Transport Practice 3.5** |

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

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

There are provisions for periodically reviewing and evaluating the Plan's adequacy and they are being implemented. The plan has been updated to include introduction of road transportation and the removal of rail transportation within China.

Wandong undertake annual refresher training including emergency response plan implementation and responding to cyanide incidents. There is also training in the use of personal protective equipment required for responding to spills and first aid. Wandong conducted a cyanide related emergency drill in April 2016.

Section 5.0 of Shuguang's Emergency Response Plan provides for the investigation of the emergency and the revision and updating of the plan depending on the outcome of the investigation.

It has not been necessary to implement the plan during the audit period.

Whilst product is in KTZ and Kyrgyz Rail trains, all emergency response is governed by the rail authorities and government's emergency response departments in accordance with Hazardous Goods Transport Guidelines (Application 2 – Agreement on International freight traffic) (July 2013). These guidelines apply to all rail operations in ex-Soviet countries.

Shuguang conducts due diligence assessments to verify that the shipments occur in accordance with the hazardous goods transport guidelines applicable to the country. Due diligence assessments have found that there were no issues of concern in regards to the management and shipping of cyanide product by any of the carriers.

Shuguang requires carriers to have appropriate emergency response plans, including current contact information, and capabilities for handling any cyanide incident that falls within their contractual responsibility.

The emergency response plans contain provisions for conducting a review after the incident. However, there have been no incidents to date to trigger the need for review.

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# 3.0 DUE DILIGENCE

## 3.1 Kazakhstan Temir Zholy

The Kazakhstan Temir Zholy (KTZ) railway is use as part of Shuguang's supply chain. The due diligence of the railway dated 3 November 2017 was prepared by Jielu Ding of Golder Associates (China) and reviewed by Mr Ed Clerk who meets the ICMI requirements for a Transport Expert.

The following items were addressed within the due diligence:

- Summary or railway operations
- Compliance with the International Cyanide Management Code:
  - Transport Practice 1.1
  - Transport Practice 1.5
  - Transport Practice 1.6
  - Transport Practice 2.1
  - Transport Practice 3.1

The due diligence was compiled through interviews and discussions with appropriate personnel and review of available documentation.

### 3.1.1 Overview of Rail Transportation in Kazakhstan

At Dostyk Railway Station, following customs clearance, the trains arrive at Park where a railway specialist inspects the containers and the seals and accepts the shipment on behalf of the Kazakhstan Railway Company. An agent of the Xinjiang Shuguang International Trade Co,. Ltd. hands over the delivery records (railway shipping bills for sodium cyanide prepared by Shuguang in Chinese and Russian) to the Kazakhstan Railway Company clerks at the handover office. Upon confirmation that the paperwork is in order the train passes to the trans-shipping depot where the containers are transferred from the Xinjiang Shuguang International Trade Co. Ltd. to the Kazakhstan train.

For the short distance between Alashankou and Dostyk, which is the crossing of the border from China to Kazakhstan by trucks.

The inventory controls are considered to be detailed and rigorous. Shuguang and the railway companies advised that there have not been any losses of cyanide during more than ten years of operation and there have not been any train accidents resulting in damage to cyanide containers.

#### *Road Transport from Alashankou to Dostyk, Kazakhstan*

The cyanide is transported from Alashankou (on the Chinese side of the China/Kazakhstan border) to Dostyk, Kazakhstan by Road by Xinjiang Shuguang International Trade Co. Ltd.

#### *Rail Transportation from Dosty, Kazakhstan to Lugovaya, Kyrgyzstan*

The cyanide is transported from Dosty, Kazakhstan to Lugovaya, Kyrgyzstan by rail transportation, the rail transportation is responsible by KTZ.

### *KTZ – Kazakhstan's state-owned railway company*

KTZ is the state-owned railway company, which operates Kazakhstan's network of approximately 15 000 km of rail lines.

- KTZ owns and operates the Dostyk Railway Station, which undertakes the transfer of the cyanide shipping containers from the tracks of the Xinjiang Shuguang International Trade Co. Ltd. to the Kazakhstan train in Dostyk.
- KTZ owns the train used for transporting cyanide from Dostyk in Kazakhstan through to Lugovaya in Kyrgyzstan.
- KTZ operates the cyanide transport train from Dostyk to Lugovaya Railway Station in Kyrgyzstan.

Much of the rail network was constructed during the Soviet era. The Kazakhstan railway line reached Dostyk on the border with China in 1959, but the border rail link did not open till 1990.

### *Intermodal Transfer at Dostyk Railway Station, Kazakhstan*

At Dostyk Railway Station the cyanide shipping containers pass through Kazakhstan customs and are transferred from the trucks of Xinjiang Shuguang International Trade Co. Ltd. to the Kazakh train.

Kazakh Railways (part of KTZ) organises the transhipping schedule with the Xinjiang Shuguang International Trade Co. Ltd. and then advises Shuguang's Kazakhstan transport contractor, the Trade-Industrial Olimp Co., Ltd. of the shipment date and time.

### *The Trade-Industrial Olimp Co., Ltd.*

Shuguang's transport contractor is the Trade-Industrial Olimp Co., Ltd. This company accompanies all cyanide transport on trains from Dostyk in Kazakhstan through to Balychy in Kyrgyzstan. It operates under Shuguang's procedures.

## 3.1.2 Compliance with Transport Practice 1.1

Within Kazakhstan there is one main rail route used by Shuguang for transport of cyanide, representing the shortest route; however, the route for each cyanide transport event is selected by the KTZ, which is controlled by the Ministry of Transport of the Republic of Kazakhstan, and there are alternative rail routes which may be used.

KTZ reportedly undertakes assessments of transport risks along railway routes and generates reports. However, these reports are not made available to Shuguang or its transport contractor (The Trade-Industrial Olimp Co., Ltd.) due to national security requirements.

From Dostyk in Kazakhstan to Lugovaya in Kyrgyzstan Shuguang's transport contractor (The Trade-Industrial Olimp Co., Ltd) accompanies the cyanide transport. From Dostyk to Lugovaya in Kazakhstan a team of armed security guards employed by the Kazakhstan railway company accompany the cyanide transport.

Shuguang has used the transport route for over 10 years and has not encountered any issues with the route requiring modification of the transport route.

Additional security arrangements are implemented for rail transport through Kazakhstan and Kyrgyzstan due to risk of terrorist action.

The rail transport events from Dostyk to Lugovaya are kept confidential. The train is not numbered and the cargo contents are not publicly disclosed. The date and time of the train movements are kept confidential.

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### 3.1.3 Compliance with Transport Practice 1.5

Shuguang does not transport consignments of cyanide by sea within the scope of this audit.

### 3.1.4 Compliance with Transport Practice 1.6

The transport vehicles (trains) have means to communicate with the transport company (the railway companies), the cyanide producer (Shuguang) and emergency responders.

The train driver in each country has a radio that can contact the respective rail company at all times. The radios have a signal at all locations along the route and there are scheduled radio contacts with the railway operating companies along the transport routes in each country.

Shuguang's transport contractor also telephones Shuguang twice per day, though in some locations there is no mobile phone access.

The train drivers in each company may also speak via radio to railway stations (owned and operated by the railway company) if required. If the train drivers are not able to make contact as scheduled they are required to stop the train.

Any need for emergency response would be managed by the railway operators in each country in communication with Shuguang and relevant government agencies.

### 3.1.5 Compliance with Transport Practice 2.1

Within the scope of this audit, there is no interim storage site, as defined in the audit protocol.

### 3.1.6 Compliance with Transport Practice 3.1

Emergency response actions of rail authorities in Kazakhstan and Kyrgyzstan are specified in Hazardous Goods Transport Guidelines (Application 2 – Agreement on international rail freight traffic), dated 1 July 2013. These Guidelines apply to all railway operations in ex-Soviet countries and was referenced by each of the railway stations and rail authorities the Auditor interviewed in Kazakhstan and Kyrgyzstan. Copies of the Guidelines are held at the stations at Dostyk and Rybachie (Lugovaya) and are available in Russian language on the web-sites of the Kazakhstan and Kyrgyz railway companies.

These Guidelines include the following requirements:

- Volume 1, Chapter 1.8 specifies that all spills of 50 kg (or 50 litres) or more of dangerous goods during loading, transport or unloading must be reported by the transporter, the infrastructure manager or receiver (depending upon under whose control the cyanide is at the time) to the designated authorities in that country within one month.
- Volume 1, Chapter 1.10 details the Emergency Plans including:
  - specific allocation of responsibilities to persons with appropriate competence, qualifications and credentials.
  - list of dangerous goods or types of dangerous goods.
  - review of current operations and the associated risks, including any actions necessary in accordance with the conditions of carriage and keeping of dangerous goods in the tank or container before, during and after transport.
  - clear statement of measures that should be applied to reduce the risks.

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- Volume 1, Chapter 1.11 states that railway internal security shall coordinate all persons involved in the management of an emergency to prevent or reduce the harmful effects on human health and the environment.
- Volume 3, Chapter 5.4.3 includes details of the written instructions and emergency card which must be provided before each rail journey to the train crew and kept in a readily accessible location in the train cabin.
- Volume 3 specifies the measures to be taken in case of an emergency situation involving dangerous goods, including the following:
  - Stop the train in a suitable location. The locomotive crew needs to consider the type of hazard (e.g. fire, leaking cargo), local conditions (e.g. tunnel, viaduct) and the possibility of emergency services to access the area and evacuation.
  - Stop the train, if in accordance with the instruction, manually switch off the locomotive engine, activate the handbrake and secure the structure brake.
  - Avoid sources of sparks, in particular, do not smoke or use an open flame.
  - Depending on the hazards of the goods involved in an emergency situation, comply with additional instructions that are specified in an accompanying table.
  - Follow the advice contained in the SDS (Emergency Card No. 619 for solid sodium cyanide) which contains information about the properties of the goods, personal protection and guidance for action in case of emergency.
  - Inform the manager of railway infrastructure and/or rescue services using established procedures, reporting as much information about the emergency situation and the dangerous goods involved in an emergency situation.
  - Maintain shipping documents and other information on the dangerous goods, so arrived rescue services have ready access to available information.
  - Use personal protective equipment.
  - Avoid contact with spilled substances, do not breathe fumes, smoke and dust.
  - Follow the instructions of responsible rail and emergency services, evacuate area, advise other persons to leave the danger zone.
  - Remove contaminated clothing, personal protective equipment after exiting from the danger zone.

*Emergency Card Number 619*, contained in the Guidelines identifies the basic characteristics of solid sodium cyanide and specifies applicable emergency response measures, including:

- Health risks and symptoms.
- Personnel protective equipment requirements.
- Immediate response actions, including evacuation of personnel, extinguishing fires and containing spills with earthworks.
- Collection of spilled material and neutralisation of impacted areas.
- First aid measures, including administration of oxygen and amyl nitrate.

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In the event of an incident involving cyanide during rail transport Shuguang's representative on the train would notify both Shuguang's in-country management and the railway company. The railway company would manage the response to the incident with assistance as required from Shuguang. The railway company would notify and involve the following government authorities as appropriate to the incident:

- Ministry of Emergency Services (Kazakhstan), which would send a rescue team.
- Ministry of Environment (Kazakhstan).
- Ministry for Sanitary Services (Kazakhstan).
- Fire Brigades (Kazakhstan and Kyrgyzstan).
- Hospitals (Kazakhstan and Kyrgyzstan).

Prior to a shipment of cyanide departing Dostyk in Kazakhstan, the following Kazakhstan authorities are notified:

- Ministry of Industry.
- Ministry of Oil and Gas.
- Ministry of Environment.
- Ministry of Sanitary Service.
- Ministry of National Health.
- Committee of National Security.

All cyanide shipments in Kazakhstan and Kyrgyzstan are accompanied by three to four representatives of Shuguang (specialists who have been trained in regards to first aid and chemical properties of cyanide) and three to four representatives of its transport contractor (document controllers and first aid personnel).

All cyanide shipments under Kyrgyz control (from Lugovaya in Kazakhstan to Lugovaya in Kyrgyzstan) are followed by a Kyrgyz Railway Company's specialist emergency response team based in Bishkek. The team includes environmental and health and safety specialists all trained in emergency response. This team compiles an Emergency Response Plan for each shipment. A copy of the Plan was not available for review by the Auditor – no shipments were underway in Kazakhstan or Kyrgyzstan at the time of the Audit.

In the event of an incident the Emergency Response Team would liaise as appropriate with the Kyrgyz fire brigade, police, hospitals, train technicians and Ministry for Environmental Protection. No details or records were available for the Auditor of training undertaken by KTZ, the Kyrgyz Railway Company or other government agencies in relation to emergency response.

Shuguang's representatives carry with them on the train Shuguang's Plan of Liquidation of Emergency Situations, for Railway Shipments of Sodium Cyanide, dated 1 March 2013 and five suitcases containing emergency response and first equipment. Upon arrival at Lugovaya the Plan and the equipment are returned to Shuguang's office in Almaty in preparation for the next cyanide transport event.

All representative of Shuguang, The Trade-Industrial Olimp Co., Ltd. and KTZ interviewed during the audit by Mr Jim Shao advised that that there had not been any emergency response situations in the more than 10 years that cyanide has been transported along the Supply Chain route through Kazakhstan and Kyrgyzstan.

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## 3.2 Kyrgyzstan Railway

The Kyrgyzstan Railway is used as part of Shuguang's supply chain. The due diligence of the railway dated 3 November 2017 was prepared by Jielu Ding of Golder Associates (China) and reviewed by Mr Ed Clerk who meets the ICMI requirements for a Transport Expert.

The following items were addressed within the due diligence:

- Summary or railway operations
- Compliance with the International Cyanide Management Code:
  - Transport Practice 1.1
  - Transport Practice 1.5
  - Transport Practice 1.6
  - Transport Practice 2.1
  - Transport Practice 3.1

The due diligence was compiled through interviews and discussions with appropriate personnel and review of available documentation.

### 3.2.1 Overview of Rail Transportation in Kyrgyzstan

In Balykchy, the train undergoes an inspection at Rybachie Station by Shuguang, Kyrgyz customs, Kumtor and station officials. The inspection examines the condition of the containers and the seals. The train containing the cyanide is then driven by the Kyrgyz Rail Company train driver, with Kyrgyz guards, to Kumtor's Balykchy Marshalling Yard.

At Balykchy Marshalling Yard, following Kyrgyz customs clearance, Kumtor signs acceptance and takes ownership of the cyanide. A delivery confirmation record is prepared by Kumtor including the container number, custom's seal number and railway seal number and is signed by Kumtor and Shuguang. A copy of the delivery order is kept by Shuguang.

From Lugovaya to Balykchy, another team of armed security guards employed by the Kyrgyz railway company accompanies the cyanide transport through to Balykchy.

The inventory controls are considered to be detailed and rigorous. Shuguang and the railway companies advised that there have not been any losses of cyanide during more than 10 years of operation and there have not been any train accidents resulting in damage to cyanide containers.

#### *Rail Transport from Lugovaya to Balykchy, Kyrgyzstan*

Rail transport from Lugovaya to Balykchy is undertaken on the Kazakhstan train.

At Lugovaya on the Kazakhstan side of the Kazakhstan/Kyrgyzstan border, the train passes through Kazakhstan exit customs and the control of the train is passed from a Kazakh rail crew to a Kyrgyz rail crew.

#### *Kyrgyz Railway*

Kyrgyz Railway, a state-owned railway company, operates the rail line from Lugovaya Railway Station in Kazakhstan to Balykchy Marshalling Yard in Kyrgyzstan, i.e. at Lugovaya the Kazakhstan train operator hands the train over to a Kyrgyzstan train operator. This stretch of rail is Kyrgyzstan's only operating rail line. The rail line was constructed during the Soviet era.

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### *Arrival at Balykchy*

Upon arrival at Rybachie Railway Station (in Balykchy), the train passes through Kyrgyz entry customs and then travels a short distance to Kumtor Gold Company (KGC)'s Balykchy Marshalling Yard, located in an industrial area south-west of the town, where KGC takes delivery of the cyanide on behalf of Kumtor Gold Mine. This point represents the end of the Supply Chain the subject of this audit. Unloading of the train is undertaken by KGC and is not within the scope of this audit.

### *Other Parties*

KGC takes delivery and unloads the cyanide boxes/drums from the train at Balykchy Marshalling Yard in Kyrgyzstan. This unloading operation is not part of this transport due diligence.

Shuguang is assisted by several contractor companies to liaise with customs and railway authorities in China, Kazakhstan and Kyrgyzstan. These contractor companies are not involved in the physical handling of cyanide or supervision of transport operations along the transport route. These companies include the following.

Invest-Translogistics is contracted by Shuguang in Kyrgyzstan to provide coordination of shipment logistics and commercial terms with Kyrgyzstan Rail.

Shuguang's subsidiary in Urumqi employs representatives in Kazakhstan (based in Almaty) and Kyrgyzstan (Bishkek) to manage the transport of cyanide within those countries.

Custom's clearance from Kazakhstan to Kyrgyzstan is arranged by Invest-Translogistics, a contractor, on behalf of Shuguang.

## 3.2.2 Compliance with Transport Practice 1.1

Within Kyrgyzstan there is only one available rail route, operated by Kyrgyz Railway owned by the Kyrgyz government, which has been assessed by Shuguang as part of the Anqing to Kyrgyzstan Cyanide Transportation Route Evaluation, dated January 2013, Shuguang Chemical Co. Ltd., Anqing City, Anhui Province. The route was deemed acceptable for transportation of cyanide.

The railway companies in each country have been used by Shuguang for transport of cyanide for more than 10 years reportedly without any significant rail incidents or spillages or losses of cyanide. From Lugovaya to Balykchy, another team of armed security guards employed by the Kyrgyz railway company and representatives of Shuguang (in addition to the Invest-Translogistics personnel) also accompany the cyanide transport through to Balykchy.

The representatives of the Invest-Translogistics report to Shuguang's head office on each cyanide delivery, including any issues identified along the transport route as part of the cyanide delivery chains of custody forms. The representatives of the Invest-Translogistics report to Shuguang's head office on each cyanide delivery, including any issues identified along the transport route as part of the cyanide delivery chains of custody forms. Additional security arrangements are implemented for rail transport through Kyrgyzstan due to risk of terrorist action.

From Lugovaya to Balykchy, a team of armed security guards employed by the Kyrgyz railway company accompanies the cyanide transport through to Balykchy. The rail transport events from Lugovaya to Balykchy are kept confidential. The train is not numbered and the cargo contents are not publicly disclosed. The date and time of the train movements are kept confidential.

Shuguang has used the transport route for over ten years and has not encountered any issues with the route requiring modification of the transport route.

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The receival area at Balykchy Marshalling Yard is a large gated compound enclosed by 2.5 m high concrete walls topped with barbed wire. Cyanide is delivered on specific days when no other materials are being handled at the site. Upon arrival, a team of security guards are appointed to secure the train until it has been unloaded.

### 3.2.3 Compliance with Transport Practice 1.5

Shuguang does not transport consignments of cyanide by sea within the scope of this audit.

### 3.2.4 Compliance with Transport Practice 1.6

The transport vehicles (trains) have means to communicate with the transport company (the railway companies), the cyanide producer (Shuguang) and emergency responders.

The train driver in each country has a radio that can contact the respective rail company at all times. The radios have a signal at all locations along the route and there are scheduled radio contacts with the railway operating companies along the transport routes in each country.

Shuguang's transport contractor also telephones Shuguang twice per day, though in some locations there is no mobile phone access. The train drivers in each company may also speak via radio to railway stations (owned and operated by the railway company) if required. If the train drivers are not able to make contact as scheduled they are required to stop the train.

Any need for emergency response would be managed by the railway operators in each country in communication with Shuguang and relevant government agencies.

### 3.2.5 Compliance with Transport Practice 2.1

Within the scope of this audit, there is no interim storage site, as defined in the audit protocol.

### 3.2.6 Compliance with Transport Practice 3.1

Emergency response actions of rail authorities in Kazakhstan and Kyrgyzstan are specified in Hazardous Goods Transport Guidelines (Application 2 – Agreement on international rail freight traffic), dated 1 July 2013. These Guidelines apply to all railway operations in ex-Soviet countries and was referenced by each of the railway stations and rail authorities the Auditor interviewed in Kazakhstan and Kyrgyzstan. Copies of the Guidelines are held at the stations at Lugovaya and Rybachie (Balykchy) and are available in Russian language on the web-sites of the Kazakhstan and Kyrgyz railway companies.

These Guidelines include the following requirements:

- Volume 1, Chapter 1.8 specifies that all spills of 50 kg (or 50 litres) or more of dangerous goods during loading, transport or unloading must be reported by the transporter, the infrastructure manager or receiver (depending upon under whose control the cyanide is at the time) to the designated authorities in that country within one month.
- Volume 1, Chapter 1.10 details the Emergency Plans including:
  - specific allocation of responsibilities to persons with appropriate competence, qualifications and credentials.
  - list of dangerous goods or types of dangerous goods.
  - review of current operations and the associated risks, including any actions necessary in accordance with the conditions of carriage and keeping of dangerous goods in the tank or container before, during and after transport.

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  - clear statement of measures that should be applied to reduce the risks.

- Volume 1, Chapter 1.11 states that railway internal security shall coordinate all persons involved in the management of an emergency to prevent or reduce the harmful effects on human health and the environment.
- Volume 3, Chapter 5.4.3 includes details of the written instructions and emergency card which must be provided before each rail journey to the train crew and kept in a readily accessible location in the train cabin.
- Volume 3 specifies the measures to be taken in case of an emergency situation involving dangerous goods, including the following:
  - Stop the train in a suitable location. The locomotive crew needs to consider the type of hazard (e.g. fire, leaking cargo), local conditions (e.g. tunnel, viaduct) and the possibility of emergency services to access the area and evacuation.
  - Stop the train, if in accordance with the instruction, manually switch off the locomotive engine, activate the handbrake and secure the structure brake.
  - Avoid sources of sparks, in particular, do not smoke or use an open flame.
  - Depending on the hazards of the goods involved in an emergency situation, comply with additional instructions that are specified in an accompanying table.
  - Follow the advice contained in the SDS (Emergency Card No. 619 for solid sodium cyanide), which contains information about the properties of the goods, personal protection and guidance for action in case of emergency.
  - Inform the manager of railway infrastructure and/or rescue services using established procedures, reporting as much information about the emergency situation and the dangerous goods involved in an emergency situation.
  - Maintain shipping documents and other information on the dangerous goods, so arrived rescue services have ready access to available information.
  - Use personal protective equipment.
  - Avoid contact with spilled substances, do not breathe fumes, smoke and dust.
  - Follow the instructions of responsible rail and emergency services, evacuate area, advise other persons to leave the danger zone.
  - Remove contaminated clothing, personal protective equipment after exiting from the danger zone.

*Emergency Card Number 619*, contained in the Guidelines identifies the basic characteristics of solid sodium cyanide and specifies applicable emergency response measures, including:

- Health risks and symptoms.
- Personnel protective equipment requirements.
- Immediate response actions, including evacuation of personnel, extinguishing fires and containing spills with earthworks.
- Collection of spilled material and neutralisation of impacted areas.

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- First aid measures, including administration of oxygen and amyl nitrate.

In the event of an incident involving cyanide during rail transport Shuguang's representative on the train would notify both Shuguang's in-country management and the railway company. The railway company would manage the response to the incident with assistance as required from Shuguang. The railway company would notify and involve the following government authorities as appropriate to the incident:

- Police (Kazakhstan and Kyrgyzstan).
- Ministry for Environmental Protection (Kyrgyzstan).
- Fire Brigades (Kazakhstan and Kyrgyzstan).
- Hospitals (Kazakhstan and Kyrgyzstan).

All cyanide shipments in Kazakhstan and Kyrgyzstan are accompanied by three to four representatives of Shuguang (specialists who have been trained in regards to first aid and chemical properties of cyanide) and three to four representatives of its transport contractor Systems Ltd (document controllers and first aid personnel).

All cyanide shipments under Kyrgyz control (from Lugovaya in Kazakhstan to Balykchy in Kyrgyzstan) are followed by a Kyrgyz Railway Company's specialist emergency response team based in Bishkek. The team includes environmental and health and safety specialists all trained in emergency response. This team compiles an Emergency Response Plan for each shipment. A copy of the Plan was not available for review by the Auditor – no shipments were underway in Kazakhstan or Kyrgyzstan at the time of the Audit.

In the event of an incident the Emergency Response Team would liaise as appropriate with the Kyrgyz fire brigade, police, hospitals, train technicians and Ministry for Environmental Protection. No details or records were available for the Auditor of training undertaken by KTZ, the Kyrgyz Railway Company or other government agencies in relation to emergency response.

Shuguang's representatives carry with them on the train Shuguang's Plan of Liquidation of Emergency Situations, for Railway Shipments of Sodium Cyanide, dated 1 March 2013 and five suitcases containing emergency response and first equipment. Upon arrival at Balykchy the Plan and the equipment are returned to Shuguang's office in Almaty in preparation for the next cyanide transport event.

All representative of Shuguang, Kazakhstan Systems Ltd, the Kazakhstan Railway Company, the Kyrgyz Railway Company and Kumtor interviewed during the audit advised that that there had not been any emergency response situations in the more than 10 years that cyanide has been transported along the Supply Chain route through Kazakhstan and Kyrgyzstan.

## 3.3 Auditor review of due diligence

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

# 4.0 IMPORTANT INFORMATION

Your attention is drawn to the document titled – "Important Information Relating to this Report", which is included in Appendix A 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.

| Anhui Anqing Shuguang Chemical Co., Ltd Supply Chain | | 7 March 2018 |
|---|---|---|
| Name of Facility | Signature of Lead Auditor | Date |

# Report Signature Page

**GOLDER ASSOCIATES PTY LTD**

Mike Woods
ICMC Lead Auditor/Technical Specialist

MCW/EWC/hn

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# APPENDIX A

## Important Information

# IMPORTANT INFORMATION RELATING TO THIS REPORT

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.**

At Golder Associates we strive to be the most respected global company providing consulting, design, and construction services in earth, environment, and related areas of energy. Employee owned since our formation in 1960, our focus, unique culture and operating environment offer opportunities and the freedom to excel, which attracts the leading specialists in our fields. Golder professionals take the time to build an understanding of client needs and of the specific environments in which they operate. We continue to expand our technical capabilities and have experienced steady growth with employees who operate from offices located throughout Africa, Asia, Australasia, Europe, North America, and South America.


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