SUPPLY CHAIN AUDIT SUMMARY
POYLUS LOGISTICS
VERNINSKOYE SUPPLY CHAIN, RUSSIA

MARCH 2021

Prepared by

WARDELL ARMSTRONG INTERNATIONAL

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SUMMARY AUDIT REPORT

Name of Mine: Verninskoye Mine
Name of Mine Owner: Polyus
Name of Operation: Polyus Logistics Verninskoye Supply Chain
Name of Responsible Manager: Sergey Shoshkin
Address: Bodaybo
State/Province: Irkutsk Region
Country: Russia
E-Mail: GrigorevaDK@polyus.com

The Auditor has been provided with all supporting documentation to accompany the audit. During the site visit a photographic record was made. This information remains with the Auditor at WAI and if needed provided to ICMI.

Summary

1.1 Background and Location

Verninskoye mine is located close to Bodaybo in the Irkutsk region, Eastern Siberia, Russia (see Figure 1). Polyus and Polyus Logistics both have offices in Bodaybo. Bodaybo is 1,135km by road (900km by air) away from the city of Irkutsk and c 400km from Tamisko (major rail link). Bodaybo has a wharf (used by Polyus Logistics) on the right bank of the Vitim River and close to where the Bodaybo River flows into the Vitim River. Bodaybo is a major base of the Lena-Vitim gold industry region. Bodaybo traces its history back to 1864 as a location for warehouses for the storage of provisions for the gold industry for the region and steadily grew. Bodaybo was made a city in 1925 and is an established community of approximately 22,000 people. Verninskoye lies 130 km to the north of the Bodaybo city district centre in the northern part of the Bodaybo Administrative District, Irkutsk Region (see Figure 1), Russia. The nearest village, Kropotkin, to the mine is 6 km.

Figure 1: Irkutsk Region, Eastern Siberia, Russia

Polyus acquired Verninskoye mine in 2005, and the process plant was commissioned in December 2011. The operation currently has an estimated remaining life of 33 years. Polyus Logistics is the logistical supply and transport company for the Polyus group. The ICMI cyanide audit was undertaken on Verninskoye process plant and Polyus Logistics Bodaybo in February 2019 by Lead Cyanide Auditor, Christine Blackmore.

Overview of Project

Polyus purchases its sodium cyanide for Verninskoye mine from Saratovorgsontez JSC, Russia (Saratov). Saratov became a signatory to the ICMI Code in March 2015 and was fully accredited in April 2017.

The cyanide is uploaded to rail cars by Saratov and transported by Russian Rail (RZD) through Russia by train (5,200 km) to Taksimo station where it is diverted on to Polyus`s own spur rail line to their good receiving depot. The Auditor visited both Taksimo station and Polyus rail depot in order to fulfil segments of the audit.

Polyus Logistics (PL). PL are responsible for the rail spur and off-loading cranes, road haulage and the small roll on roll off (SP-9) used in the summer months to cross the Vitim river at Bodaido. All of the facilities were audited and visited by the Auditor except for SP-9 Ferry. A remote Due Diligence (DD) was undertaken on the ferry (summary Due Diligence report attached). See Figures 2 and 3. Cyanide is delivered to Verninskoye four times a year by these routes. The PL ferry is only used in Summer and Autumn Figure 3 shows the logistical supply chain. There is only one road route to Verninskoye from Taksimo, this is through the mountains, however the road is adequate and has been approved by the Russian Federation Authorities (RFA). Procedures and risk assessments have been undertaken to ensure the safe transportation of Cyanide to site.

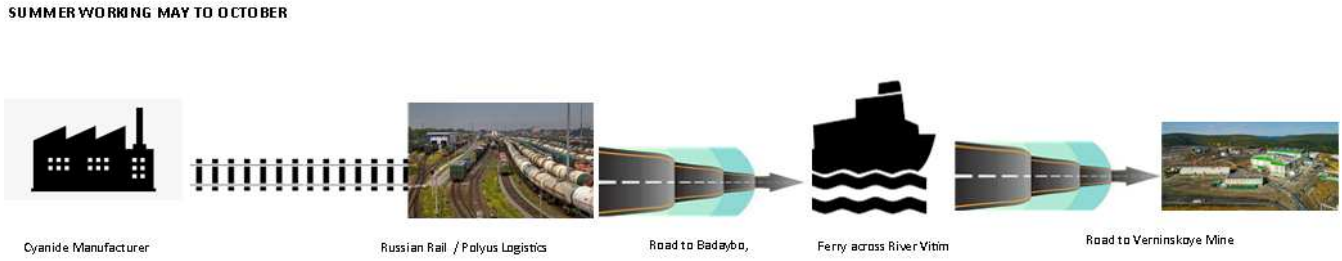

Figure 2: Winter Working, Figure 3: Summer Working

Figure 4 shows the route map from Taksimo to Verninskoye. The Auditor travelled the route during the site visit for the audit, in order to visit the Taksimo facilities and confirm segments of the audit.

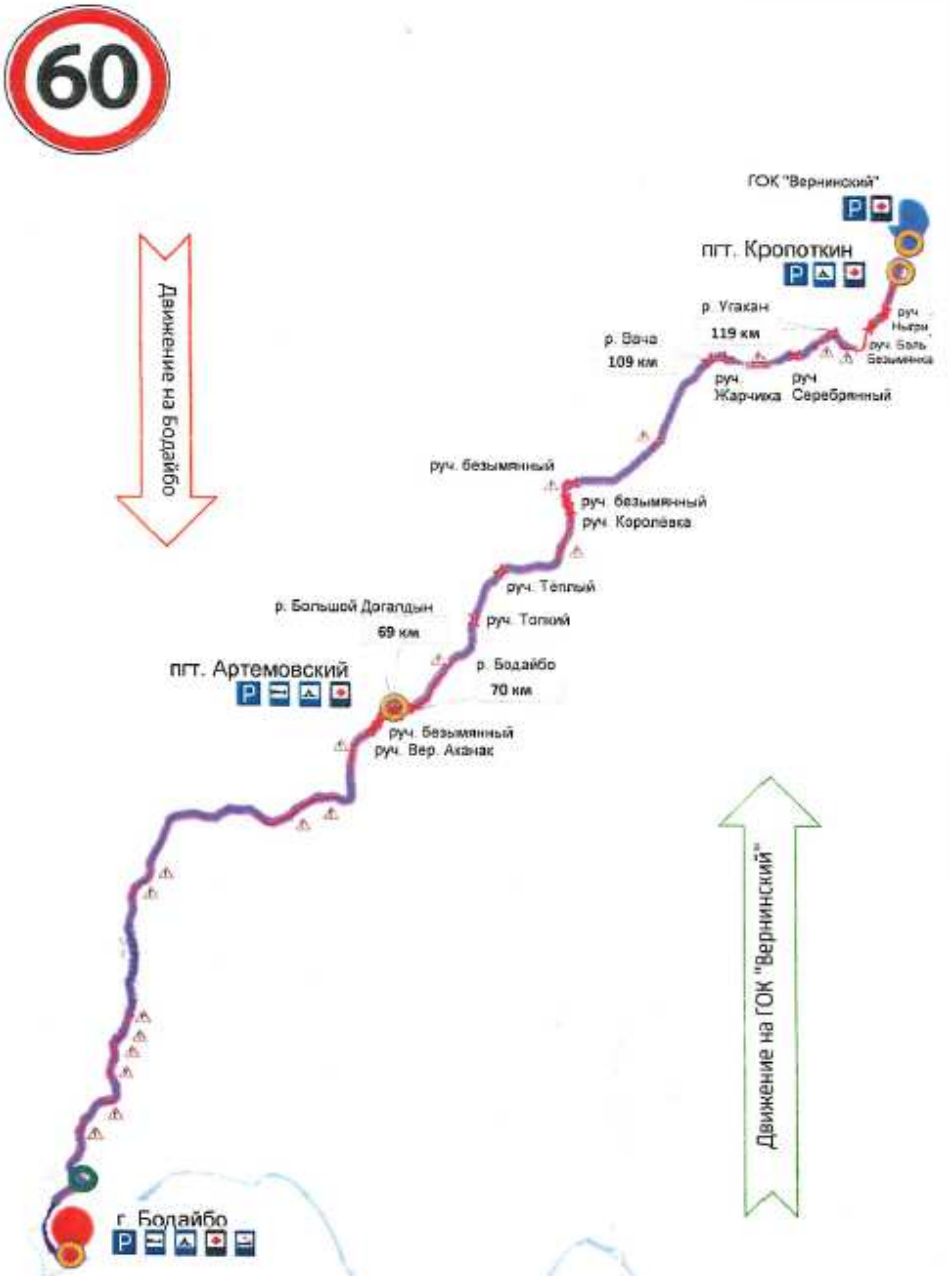

Figure 4: Route Takismo to Verninskoye

Mining is by conventional shovel-and-truck methods with the process plant utilising gravity concentration, flotation and carbon-in-leach (CIL) method to produce a gold dore. Annual gold production are a result of several ongoing development projects, including various improvements to the crushing, grinding, flotation and hydrometallurgy circuits. Polyus continue to work toward expanding throughput to 3.5Mt/a. The process plant operates as per the illustrative flow sheet (Figure 5). Tailings produced from the gold recovery process are sent to a purpose-built Tailings Storage Facility (TSF).

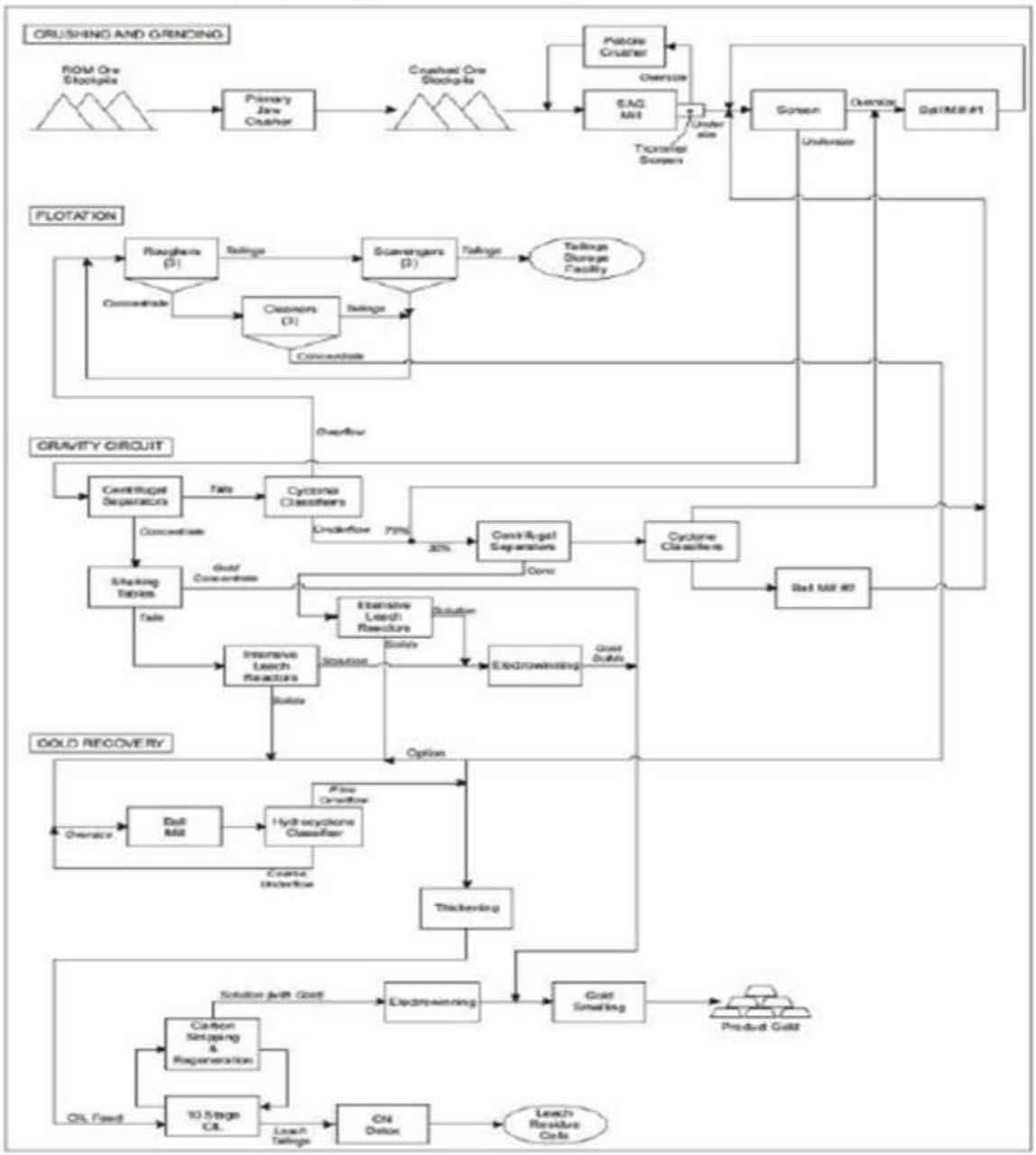

Figure 5: Verninskoye Block Flow Diagram

SUMMARY AUDIT REPORT

Auditor's Finding

This operation is

☒ in full compliance
☐ in substantial compliance *(see below)
☐ not in compliance

with the International Cyanide Management Code.

Audit Company: Wardell Armstrong International (WAI Ltd)

Audit Team Leader: Christine Blackmore

E-mail: cblackmore@wardell-armstrong.com

Names and Signatures of Other Auditors:

Date(s) of Audit: Site visit 3-8 February 2019

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

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

The Auditor has been provided with all supporting documentation to accompany the audit. During the site visit a photographic record was made. This information remains with the Auditor at WAI and if needed provided to ICMI.

Verninskoye Mine		November 2020
Polyus Logistics Verninskoye Supply Chain		March 2021

SUMMARY AUDIT REPORT

1. TRANSPORT: Transport cyanide in a manner that minimizes the potential for accidents and releases.

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

The operation is
- ☒ in full compliance with
- ☐ in substantial compliance with Transport Practice 1.1
- ☐ not in compliance with

Summarize the basis for this Finding/Deficiencies Identified:

There is only one cyanide transportation route available. This has been approved by the Russian Federation Authorities (RFA), from Taksimo village, Buryat Republic to the Verninskiy Mine of Polyus Verninkoye, Irkutskaya Oblast. Polyus Logistics has its own spur line from Taksimo station's points, approximately 2km, but the train and railcars are operated by Russian Rail (RZD). PL have their own unloading yard and cranes.

Each cyanide shipment times are assessed with the aim to minimize risks to the population and the environment and considers the natural terrain and weather conditions at all times.

Distance between PL Taksimo railway branch and the Verninskiy Mine of Polyus Verninskoye is 380km in the summer/autumn and 400km in the winter. The difference resulting from the use of a ferry to cross the Vitim River which is possible during the summer months.

A due diligence (DD) audit has been undertaken for the ferry (SP-9), and forms part of this submission.

Biannually, PL obtains a Permit from the Transport Police in the form of a Dangerous Cargo Transportation Certificate. The Auditor has been provided with the date stamped certificate, valid to 26 November 2020.

Cyanide is delivered monthly except during the impassable months (April-May, November-December) with every shipment varying between 60-80 tonnes.

PL implements necessary procedures to evaluate the risks and takes the necessary measures to manage these risks. The measures include obtaining a RFA approval for the selected route, vehicle maintenance, personnel training in emergency response (ER), ER equipment on each vehicle, communications and trackers etc.

PL has prepared an internal procedure to evaluate the transportation routes and seeks RFA approval to undertake transportation of cyanide. Renewal of the approval is every six months.

PL documents the measures taken to address risks identified with the approved cyanide transportation routes. The process was discussed and demonstrated and documents presented to the satisfaction of the Auditor.

Polyus Logistics Verninskoye
Supply Chain

March 2021

In the selection of the cyanide transportation routes, PL seeks input and official approval from the RFA. The cyanide transportation vehicles are only driven by the *International Agreement for the transportation of Dangerous Goods by Road* (ADR) certified drivers who strictly observe the established protocols.

Due to weather conditions no cyanide transportation is made in the following months: April-May and November-December. When transporting cyanide PL uses security escorts (SpetsSvyaz LLC) at all times and also has an agreement with TSASO company to provide rescue and other emergency response services if needed.

Transport Practice 1.2: *Ensure that personnel operating cyanide handling and transport equipment can perform their jobs with minimum risk to communities and the environment.*

The operation is
- ☒ in full compliance with
- ☐ in substantial compliance with Transport Practice 1.2
- ☐ not in compliance with

Summarize the basis for this Finding/Deficiencies Identified:

PL uses only trained and qualified personnel to operate its transport vehicles. The vehicle operators are in possession of the ADR Driver Training Certificates. Copies were provided to the Auditor.

The Auditor has witnessed relevant certificates in the PL Bodaybo office as well as in the Taksimo transhipment office of the transporter and is satisfied that they are valid and compliant with national and international requirements.

PL Managers (transportation and logistics) undertake regular training and must take exams in Irkutsk every 5 years. The training is given by RFA Rostechnadzor (Eniseisky Branch) every 5 years and Drivers and crane operators receive necessary training every 3 years enabling them all to perform their jobs to the required standard.

Procedures and task instructions are in place to support continuous learning and refresher training for the existing and new employees. Each employee have their own training record.

Polyus Verninskoye has a division at the site that conducts internal refresher training and inductions. Training takes place every 3 months. If an employee fails the exam they are given one month to improve but are detached for the recovery period apropos the internal procedure.

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

The operation is
- ☒ in full compliance with
- ☐ in substantial compliance with Transport Practice 1.3
- ☐ not in compliance with

Summarize the basis for this Finding/Deficiencies Identified:

PL only uses the equipment designed and maintained to operate within the loads it is handling. When cyanide is delivered by RZD to the Taksimo Station, it is moved onto the non-public railway spur which is maintained by PL. Overhead crane used for handling the cargo has been approved for operation by the RFA and undergoes maintenance in accordance with the repair and maintenance programme.

At PL Taksimo unloading yard the major industrial equipment is on a rolling maintenance programme which is approval by the RFA. At Bodaybo office, there is a designated engineer who is responsible for checking adequacy of the vehicles apropos the established procedures. The engineer is also responsible for checking the documents that must accompany dangerous cargo to the point of destination. The Auditor confirms that procedures are in place and is satisfied they are appropriate.

Cyanide is transported by railway on flatbed railcars between Kokurino and Taksimo. Each flatbed is designed to carry two or three 20-foot containers at a time. Each container has a unique seal and is labelled with nomenclature, reflecting its Gross and Net weight, which is also reflected in the consignment notes.

When a container arrives at Taksimo depot the integrity of seals and the containers are checked by PL before acceptance and loading on to the road vehicles. Cyanide containers are not opened until it reaches the site. The containers are non-returnable.

Procedures to prevent overloading are in place and commence with the cross checking of the consignment note for each container with the relevant Waybill, which specifies the container tare weight and unique number. The driver of each vehicle also double checks the consignment note of the container with the specified vehicle, before leaving the depot.

PL does not use subcontractors for the purposes of cyanide transportation.

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

The operation is
- ☒ in full compliance with
- ☐ in substantial compliance with Transport Practice 1.4
- ☐ not in compliance with

Summarize the basis for this Finding/Deficiencies Identified:

PL implements a number of procedures to ensure the integrity of the original packaging while it travels across Russia.

1. A manufacturer (Saratovorgsintez) originates consignment notes which reflect a seal number and other nomenclature IDs for the cyanide cargo that stays intact while transportation by rail.

2. PL ensures that the container is transported without delays and under the maximum security by the ADR-licenced drivers.

3. PL practices a zero-tolerance alcohol, drug, mind-altering substances and their precursors abuse policy and ensures that its drivers are checked before and after each trip. Finally, it keeps highest level of emergency preparedness through both internal polices and procedures as well as agreements with external stakeholders which include specialised emergency response companies.

PL owns 22 vehicles, 2-4 vehicles are used for cyanide transportation to Polyus Verninskoye gold recovery plant. All vehicles carry relevant cards and placards. UN 1689 classification 6 is seen on the placards on vehicles and trailers. Placards are also used on the walls and a roof of a 20-foot container as well relevant nomenclature as required by international standards.

PL has adopted and implements a safety programme for cyanide transport to ensure cargo integrity and to minimise risks to people and the environment.

Prior to each shipment, A "Trip Ticket" is raised. Vehicle inspections are then undertaken by the mechanic in accordance with the internal procedures and relevant notes are made in a designated Journal where the technical condition of each vehicle is assessed as well as the completeness of necessary equipment, including emergency response kit. Vehicle inspections are also the responsibility of the driver.

Preventive maintenance programme includes technical maintenance and repair of the vehicles which is done on all 22 vehicles and semi-trailers at least twice a year based on the mileage and hours served. Major handling equipment is maintained based on the internal programme as well as the requirements of the RFA.

Limitations on drivers' hours are set out in the procedures and the Trip Ticket. There is a set work limit of 10 hours. Thus they drive for 4 hours continuously, stops for a 40-minute break, and during each following 2 hours the take 15 minute breaks. This is monitored by the tachograph available in each vehicle.

Container fixing mechanisms are provided on each vehicle and PL also expect additional ropes and/or belts to be used, as per their internal procedures.

Procedures are available in place, for such as bad weather conditions the driver stops in a designated layby and awaits the weather to improve after informing relevant persons of such a circumstance. Transporting cyanide at below -35°C is not permitted. Operating major equipment such as the crane is not permitted at below -40°C.

Every driver receives medical checks prior to and post each trip, as stipulated by the company protocol. Checks include breathalyser, behavioural adequacy, blood pressure, pupillary reflex and are conducted in a modern medical centre at Polyus Verninskoye as well as Bodaybo hospital with which PL has a formal agreement. Records of medical checks were provided to the Auditor.

Medical records and logs were provided to the Auditor for review. A Safety Programme was also provided to the Auditor.

PL does not use subcontractors for the purposes of cyanide transportation.

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

The operation is
- ☒ in full compliance with
- ☐ in substantial compliance with Transport Practice 1.5
- ☐ not in compliance with

Summarize the basis for this Finding/Deficiencies Identified:

Not applicable, Polyus Verninskoye purchases cyanide from within Russia.

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

The operation is
- ☒ in full compliance with
- ☐ in substantial compliance with Transport Practice 1.6
- ☐ not in compliance with

Summarize the basis for this Finding/Deficiencies Identified:

PL ensures that necessary means are available to support uninterrupted communications between the cyanide truck driver and the necessary point of contact, including emergency responders. These include a satellite phone, mobile phone and a GPS.

Communication equipment available to the driver includes a mobile phone and a satellite phone with a charger. These are checked before each trip to ensure the equipment functions properly. When on the ferry, radio communication is available.

Communication blackout areas along the transport route have been identified by PL and are checked frequently. Satellite phones and chargers are given out to the drivers to ensure continuous communication is possible. This is registered in the Logbook.

Each truck is equipped with a GPS. And a satellite phone Polyus Logistics tracks the cyanide shipment in BS-MTS AUTOGRAPH electronic system.

Inventory controls and chain of custody documentation is well maintained at PL. Polyus' base in Taksimo is a transhipment terminal where cyanide containers do not stop for storage, only for trans-loading. Inventory control at the base is tracked via a Railcar Supply and Removal Sheet. Containers are sealed and do not get opened until cyanide is required for the process at the cargo owner's site itself.

Cyanide containers are accompanied by the shipping records indicating the amount of cyanide in transit. Material Safety Data Sheets are available during transport. When documents are handed to PL, they are reconciled with the Trip Ticket data and the consignment notes.

Polyus Logistics does not use subcontractors for the purposes of cyanide transportation.

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

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

The operation is
- ☒ in full compliance with
- ☐ in substantial compliance with Transport Practice 2.1
- ☐ not in compliance with

Summarize the basis for this Finding/Deficiencies Identified:

Signage alerts workers to danger and other required warning signs on the containers, trucks, unloading yard and the Cyanide Storehouse at the site are present and were evidenced by the Lead Auditor during the visit.

Since July 2018, Polyus Logistics manages the Cyanide Storehouse and must ensure that all permits are in place. PL therefore is responsible for the necessary approvals and maintenance of the Storehouse. Total allowed capacity of the cyanide storehouse is 224 tonnes. Storehouse is located 800m off the processing plant, and has an area 30x48m which is fenced along the perimeter, operates 24-hour security and CCTV and has necessary warning signs.

Necessary security measures are in place to prevent unauthorised access to the containers with cyanide while in transit and when on the railway branch and the Storehouse. These include high level of security and warning signage. Cyanide transportation process deploys a security convoy to ensure maximum safety. There is limited access and no unauthorised access to the cyanide storage area.

The site cyanide storage area is a fenced compound with security gated entrance, CCTV and padlocked. This is within the confines of the site boundary fence, which is patrolled.

During transit, cyanide is separated from incompatible materials and is transported by PL in sealed 20-ft containers in accordance with the relevant procedures and Dangerous Cargo Transportation Rules.

Cyanide is not stored at the railway branch or unloading yard. After transportation from Taksimo Station cyanide is stored at the PL storage facility until the request for issue. The sealed cyanide containers are unloaded from the RZD railcars and loaded directly on to the PL road vehicles.

The Cyanide site compound is designed and constructed in such a way as to minimize prevent water ingress. The Auditor visited the compound and can confirm the integrity of the design and its suitability for preventing water ingress.

Cyanide is transported in 20ft sealed shipping containers and kept outdoors, the containers are not opened until the cyanide is required. Containers are monitored for HCN gas using a static gas analyser. The doors are left open for a period of time before cyanide boxes are moved.

Polyus Logistics implements systems and procedures with regard to potential cyanide spillages and other emergencies. During transportation, ultimate responsibility for the emergency clean-up is in the hands of the Civil Defence (MCHS). Cyanide compound is equipped with the emergency drainage sumps which would collect any spillages and runoff waters thereby eliminating potential detriment to the environment.

*3. EMERGENCY RESPONSE: **Protect communities and environment through the development of emergency response strategies and capabilities***

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

The operation is
- ☒ in full compliance with
- ☐ in substantial compliance with Transport Practice 3.1
- ☐ not in compliance with

Summarize the basis for this Finding/Deficiencies Identified:

PL has an Emergency Response Plan (ERP) which is comprehensive and is appended to the emergency kit with every driver.

The ERP is appropriate for the selected transportation route, including the transhipping depot in Taksimo and considers the physical and chemical form of the cyanide.

The ERP is specific to the method of vehicular transport and considers relevant emergency response actions and all aspects of the transport infrastructure and emergency situation scenarios.

The ERP considers the design of the semi-trailer vehicles which are operational at Polyus Logistics. There is a separate Emergency Response Plan for the mining and processing operations which covers the cyanide storage facility at the site.

The ERP and the Emergency Card contain a set of response actions to respond to different scenarios applicable to vehicular transportation.

Roles of outside responders are identified in the emergency response procedures and contact numbers are provided therein.

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

The operation is
- ☒ in full compliance with
- ☐ in substantial compliance with Transport Practice 3.2
- ☐ not in compliance with

Summarize the basis for this Finding/Deficiencies Identified:

PL provides regular emergency response training of its drivers and operators and only uses drivers who obtained internationally recognised ADR Certificate. The ARD training involves emergency response for dangerous goods.

Descriptions of specific emergency response duties and responsibilities of the drivers and operators are available in the Emergency Response Plan, Emergency Card and Health & Safety Induction documents.

Agreements between PL and specialised emergency response organisations are in place as required by RFA law. These organisations include “Centre of Rescue Operations”.

The "Technological Map" witnessed by the Lead Auditor is a pre-trip checklist developed by PL and outlines necessary equipment and documents which must accompany each type of dangerous cargo.

Necessary emergency response and H&S equipment, including PPE, is available during transport and is compliant with international ADR rules (Appendix 3.2.2). Emergency response equipment and PPE includes an ADR Box, mask, 2 fire extinguishers, spade, warning signs, flasher, stop sign and others.

PL provides refresher training in emergency response procedures every quarter and an upgrade in professional qualification every three years in addition to the regular H&S inductions.

Procedures are in place to inspect emergency response equipment and assure its availability and operational adequacy before each departure.

PL does not use subcontractors for the purposes of cyanide transportation.

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

The operation is
- ☒ in full compliance with
- ☐ in substantial compliance with Transport Practice 3.3
- ☐ not in compliance with

Summarize the basis for this Finding/Deficiencies Identified:

Procedures for notifying the stakeholders are contained in the ERP and Emergency Cards. In case of an emergency, a driver acts apropos the Emergency Plan which has contact numbers for the Police, RFA Civil Defence (MCHS), an ambulance, dispatcher and others, based on the scenario of emergency (crash, fire, etc.).

Internal and external emergency notification and reporting procedures are kept current and are reviewed for updated annually. Telephone numbers of relevant stakeholders are tested every 2 months.

In case of an emergency PL is obliged to inform relevant RFA, MIA and Public Procurator within 24 hours. Investigation is managed by the State. Financial and material reserves are set aside to cover the potential costs associated with the emergency response.

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

The operation is
- ☒ in full compliance with
- ☐ in substantial compliance with Transport Practice 3.4
- ☐ not in compliance with

Summarize the basis for this Finding/Deficiencies Identified:

Procedures for remediation are available at PL. In case of an emergency, the RFA Civil Defence (known as MCHS or EMERCOM) takes control over the management of remediation and mitigation of spillages.

Agreements between PL and specialised emergency response organisations are in place as an additional measure. These organisations include “Centre of Rescue Operations”.

Procedures at PL prohibit the use of chemicals such as sodium hypochlorite, ferrous sulphate and hydrogen peroxide to treat cyanide released into surface water.

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

The operation is
- ☒ in full compliance with
- ☐ in substantial compliance with Transport Practice 3.5
- ☐ not in compliance with

Summarize the basis for this Finding/Deficiencies Identified:

Provisions for periodically reviewing and evaluating the Emergency Plan's adequacy are in place and implemented by PL on an annual basis. The procedures are updated in line with new legislation or updated based on the latest emergency situation scenarios.

PL conducts mock emergency drills based on the internal programme with appropriate records and reporting in place.

Performance of the Emergency Plan is revised by PL in accordance with the internal policies and procedures.

APPENDIX A

Our ref: CAB/RU10169 *Date*: 7 September 2020

Introduction

JSC Polyus Logistics (PL) is a specialized logistics company owned by the Polyus Group. PL organises and undertakes the transportation of goods, including hazardous goods, handling, storage and warehousing of goods for Polyus Verninskoye Mine (Verninskoye) and associated facilities.

During May-October, vehicles including Heavy Goods Vehicles (HGVs) are transported across the Vitim River on Ferry SP-9 (SP-9), owned by the Irkutsk branch of JSC Polyus Logistics (see Figure 1). SP-9 crosses the River Vitim in the Bodaibo region, Irkutsk region. The crossing is less than 350m and takes approximately 7-10 min.

Figure 1: SP-9 Ferry owned by the Irkutsk branch of JSC Polyus Logistics

Description of Vessel and Characteristics

SP-9 is a roll-on/roll-off small ferry, designed for the transportation of vehicles including HGVs. SP-9 is designated for use on inland waterways category "+ P 1.2". SP-9 is licensed to carry dangerous goods (DGs) including sodium cyanide. The ferry carries the HGVs, and any re-handling of containers is prohibited. The containers remain sealed during transit. Only one container per HGV is allowed and is fully compliant with ADR (International Agreement for the carriage of Dangerous Goods by Road). The operation of SP-9 is governed by ADN (International Agreement for the Carriage of Dangerous Goods by Inland Waterways).

A block diagram showing the steps involved in the ferry operation is presented in Figure 2 below.

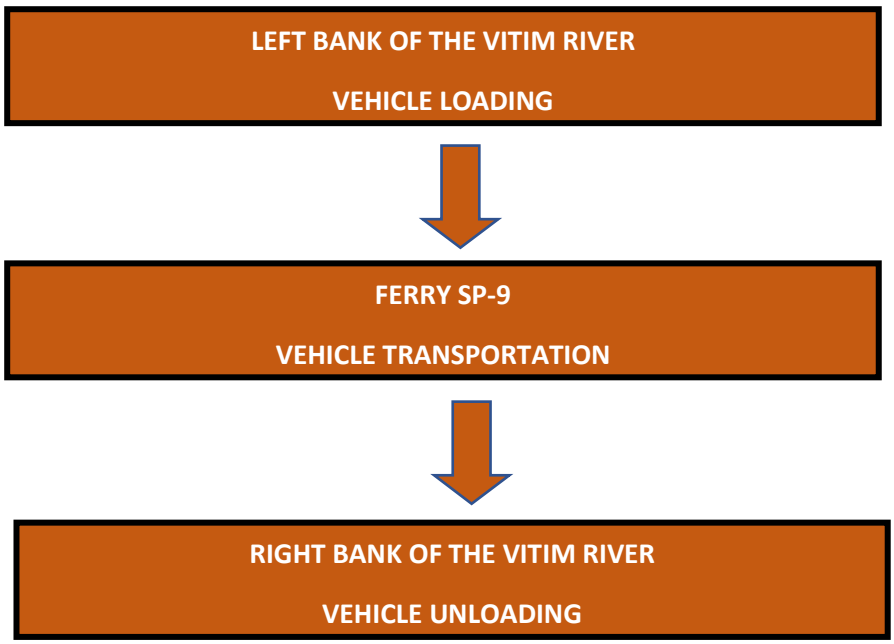

Figure 2: Block Diagram of Main Steps involved in Ferry Operation

Legislation - Licences and Permits to Operate

The Auditor was provided with copies of the following documents with regard to SP-9, see **Error! Reference source not found.** below.

Table 1: Summary of Licenses and Permits Held by PL			
Licensing Authority	**Description of License/Permit**	**Valid from**	**Valid to**
Russian River Register	Certificate for Vessel Fitness for Carrying Hazardous Goods No.08.19.008.038770	08 October 2019	01 October 2024
Ministry of Transport of Russia	License MR-1 00093 dated 12 May 2012 For carriage of hazardous goods of 1, 3, 4, 5, 6, 8, 9 Class by inland water transport, including small vessels Issued to Polyus Logistics	Valid though – indefinitely	
Federal Government Institution 'Administration of the Lena basin's inland waterways'	Certificate for Ownership No. LN 002411 for Ferry SP-9 Owned by JC Pervenets issued based on the data from the Russian Federation National Ship Register No. 3620 dated 25 Jan 2011.	Issued on 26 Apr 2017	
Lenskiy Branch, Russian River Register	Certificate of Vessel Fitness for Carriage of Hazardous Goods – Attachment to Navigation Certificate No.24	22 August 2017	30 August 2019
Polyus Logistics Operational instruction	Occupational safety regulation of Steering-Engine Operator (IOT PL-064-2017). Developed by the Head of River Fleet Operations Office, Polyus Logistics	Approved on 26 September 2017	

Loading and Unloading

The landing stages on the left bank of River Vitim are located in the small district of Bisyaga and the landing stage on the right bank is the beginning of Stoyanovich Street; both facilities are within the city of Bodaybo (see Figure 3).

Figure 3: Right hand side bank of River Vitim, ferry landing stage

Procedures are in place for the positioning, loading and unloading of HGVs carrying cyanide. When loading and unloading SP-9 with HGVs carrying cyanide, no other vehicles or unauthorized persons are allowed within 200m. Loading is only carried out providing that SP-9 has been designated as being in a technically sound condition and the daily (service) checks have been performed.

The following documents are checked by the Watch Officer in order to avoid exceeding the load capacity of the Ferry:

- certificate of registration of the tractor truck - the curb weight of the tractor;
- certificate of registration of the semi-trailer - the curb weight of the semi-trailer; and
- bill of lading for cargo (container with sodium cyanide) - gross cargo weight.

It is the responsibility of the Watch Officer to ascertain and confirm that the total weight of the HGV with sodium cyanide does not exceed the rated capacity. On approval from the Watch Officer loading commences. It is also the Watch Officer's remit to check the stability of the container for each vehicle before allowing the HGV to load onto the ferry so as to ensure there is no opportunity for movement.

Figure 4: Roll-on/roll-off ramps of SP-9

Health and Safety
The following safety measures are implemented for SP-9:

- No other vehicles are transported with cyanide HGVs; and
- Wheel chocks (at least 2) must be installed under the wheels and parking brake applied.

Protocols are in place for SP-9 crew, drivers and any accompanying persons to familiarise themselves with the following prior to boarding:

- the use and location of all rescue and firefighting equipment on board;
- no smoking on open decks, open fire, gas appliances (a galley), and welding are prohibited during loading and unloading by any persons;
- 3m stand off from cyanide HGVs for the use of electrical appliances and power tools are prohibited;
- the spark arresters of all exhaust pipes of the pusher vessel must be in good condition;
- access to SP-9 of unauthorized persons and the approach of other watercraft (with the exception of cases related to the emergency management) is prohibited; and
- during movement and parking of the HGV carrying cyanide, continuous visual monitoring aboard is arranged.

Procedures are in place and in accordance with the measures contained in "Card 61" as prepared by RFA Civil Defence.

Cyanide leakage, smell of characteristic odour (bitter almond), proceed in accordance with the transport emergency card (Card 61):

- announce the “GENERAL” alarm aboard, the Captain of the ferry shall organise the actions of the crew in accordance with these measures;

- crew and PL driver will put on PPE as required for the emergency;
- share information in accordance with the Emergency situations communication chart in the Irkutsk branch of JSC Polyus Logistics;
- take Ferry to a safe place, at least 100 metres from the closest residential buildings, deploy the ferry as far as possible downwind downstream, so as to prevent swelling of the substance towards the superstructure of the vessel, where the crew and accompanying persons are located;
- use VHF communicate to warn any passing and close vessels;
- isolate the danger zone with a radius of at least 50m;
- enclose the spills with sand, collect the leaks in dry containers protected from corrosion, seal tightly, and prevent the substance from entering the water;
- enter the danger zone only when using the appropriate PPE;
- in case of fire, extinguish with finely-atomised water and powders from as far away as possible. The produced gases shall be dissipated down with finely atomised water; and
- In the event of a life threat, the captain takes all possible measures to ensure the safety of the crew, drivers and accompanying persons.

Emergency Response

An Emergency Response Plan dedicated to SP-9 has been provided to the Auditor. The ERP was prepared by JSC Polyus Logistics on the basis of paragraph 2 of Art. 10 of Russian Federal Law No. 116-ФЗ "On Industrial Safety of Hazardous Production Facilities" dated July 21, 1997 and in accordance with the requirements of Decree of the Government of the Russian Federation dated August 26, 2013 No. 730 "On the development of emergency response plans at hazardous industrial facilities".

Prevention of Accidents

The following actions provided in the ERP are undertaken to prevent accidents.

- Prior to loading the cyanide HGV, the deck is thoroughly cleaned and washed if necessary. No oil stains are allowed:
  - SP-9 will only carry one cyanide HGV at any one time;
  - when transporting dangerous goods (cyanide HGV), the day and night signalling is checked and tested in accordance with the "Rules for the GDP of the Russian Federation"; and
  - when transporting dangerous goods (cyanide HGV), fire hoses shall be deployed and connected to the SP-9 mobile water/foam extinguishing system.

SP-9 is equipped Firefighting equipment (the Auditor has been provided with a list), see below:

- fire shield with a tool kit (crowbar, hook, ax) - 1 set;
- fire buckets - 4 pcs;
- equipment for firefighters - 2 sets;
- blanket for extinguishing a fire - 3 pcs (1.5x2 m);
- fire hoses, L = 20 m – at least 2 pcs;
- Combined fire barrel - at least 2 pcs;
- barrel air-foam SVP - 2 pcs;
- powder fire extinguishers OP-8 (h) ABCE with a charge mass of 8 kg - 4 pcs;
- mobile carbon dioxide extinguishing unit OU-20 (CO_2 volume – 20L - 1 piece; and
- a box with sand - 1 pcs.

SP-9 is equipped PPE (the Auditor has been provided with a list), see below:

- gas mask IP-4M - 2 pcs;
- respirator RPG-67 - 2 pcs;
- rubber gloves - 2 pairs; and
- protective field-protective suit L-1 (or OZK) - 2 pcs.

SP-9 is equipped with life-saving equipment in accordance with the requirements of the Rules of the Russian River Register, each person aboard shall be provided with a life jacket. The number of lifebuoys is at least 4, one of the circles with a life line and one with a self-igniting buoy. The number of inflatable life rafts of PSN-6 type shall be at least 2 and additionally SP-9 is equipped with a boat with a Kazanka-5 engine for emergency evacuation.

The Captain of SP-9 is responsible for all the emergency response equipment and to ensure that it is available and kept in good condition and ready for immediate use. No later than 1 month before the beginning of the navigation season, a commission consisting of:

- Deputy Director for Production JSC Polyus Logistics Irkutsk Branch;
- Head of VERT of Polyus Logistics JC Irkutsk Branch;
- Mechanical Captain at the vessel; and
- Chief safety manager of Polyus Logistics JC Irkutsk Branch.

Undertakes an inspection of the authorized emergency-rescue equipment on board SP-9 in terms of good condition, operational readiness, useful life and verification, and storage procedures. On completion of the inspection a report is prepared. A copy of the report was provided to the Auditor, the Auditor noted from the comments provided that the emergency response equipment log was maintained and that in some cases there was 50% extra equipment aboard.

Ployus Logistics Verninskoye Supply Chain
Russian Railways

MARCH 2021

Prepared by

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SUMMARY AUDIT REPORT

Name of Mine: Verninskoye Mine
Name of Mine Owner: Polyus and Polyus Logistics
Name of Operation: Polyus Logistics Verninskoye Supply Chain – Russian Railways
Name of Responsible Manager: Daria Grigoreva
Address: Bodaybo
State/Province: Irkutsk Region
Country: Russia
E-Mail: GrigorevaDK@polyus.com

The Auditor has been provided with all supporting documentation to accompany the audit. During the site visit a photographic record was made. This information remains with the Auditor at WAI and if needed provided to ICMI.

Summary

1.1 Background and Location

Verninskoye mine is located close to Bodaybo in the Irkutsk region, Eastern Siberia, Russia (see Figure 1). Polyus and Polyus Logistics both have offices in Bodaybo. Bodaybo is 1,135km by road (900km by air) away from the city of Irkutsk and c 400km from Tamisko (major rail link). Bodaybo has a wharf (used by Polyus Logistics) on the right bank of the Vitim River and close to where the Bodaybo River flows into the Vitim River. Bodaybo is a major base of the Lena-Vitim gold industry region. Bodaybo traces its history back to 1864 as a location for warehouses for the storage of provisions for the gold industry for the region and steadily grew. Bodaybo was made a city in 1925 and is an established community of approximately 22,000 people. Verninskoye lies 130 km to the north of the Bodaybo city district centre in the northern part of the Bodaybo Administrative District, Irkutsk Region (see Figure 1), Russia. The nearest village, Kropotkin, to the mine is 6 km.

Figure 1: Irkutsk Region, Eastern Siberia, Russia

Polyus acquired Verninskoye mine in 2005, and the process plant was commissioned in December 2011. The operation currently has an estimated remaining life of 33 years. Polyus Logistics is the logistical supply and transport company for the Polyus group. The ICMI cyanide audit was undertaken on Verninskoye process plant and Polyus Logistics Bodaybo in February 2019 by Lead Cyanide Auditor, Christine Blackmore.

Overview of Project

Polyus purchases its sodium cyanide for Verninskoye mine from Saratovorgsontez JSC, Russia (Saratov). Saratov became a signatory to the ICMI Code in March 2015 and was fully accredited in April 2017.

The cyanide is uploaded to rail cars by Saratov and transported by Russian Rail (RZD) through Russia by train (5,200 km) to Taksimo station where it is diverted on to Polyus`s own spur rail line to their good receiving depot. The Auditor visited both Taksimo station and Polyus rail depot in order to fulfil segments of the audit.

Polyus Logistics (PL). PL are responsible for the rail spur and off-loading cranes, road haulage and the small roll on roll off (SP-9) used in the summer months to cross the Vitim river at Bodaido. All of the facilities were audited and visited by the Auditor except for SP-9 Ferry. A remote Due Diligence (DD) was undertaken on the ferry. See Figures 2 and 3. Cyanide is delivered to Verninskoye four times a year by these routes. The PL ferry is only used in Summer and Autumn Figure 3 shows the logistical supply chain. There is only one road route to Verninskoye from Taksimo, this is through the mountains, however the road is adequate and has been approved by the Russian Federation Authorities (RFA). Procedures and risk assessments have been undertaken to ensure the safe transportation of Cyanide to site.

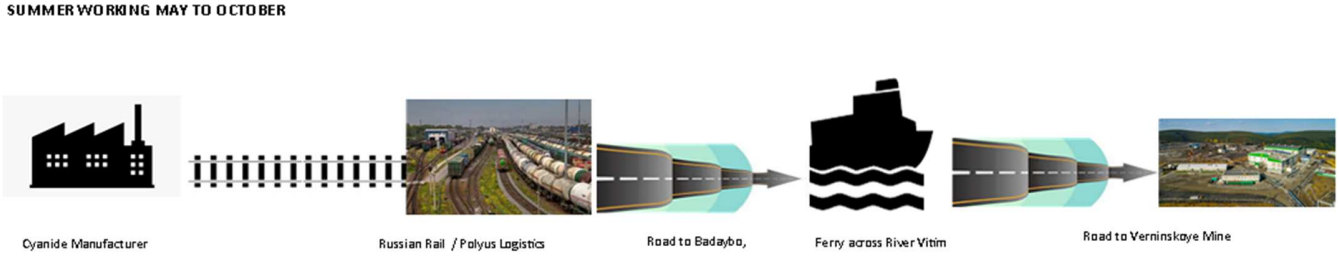


Figure 2: Winter Working, Figure 3: Summer Working

Figure 4 shows the route map from Taksimo to Verninskoye. The Auditor travelled the route during the site visit for the audit, in order to visit the Taksimo facilities and confirm segments of the audit.

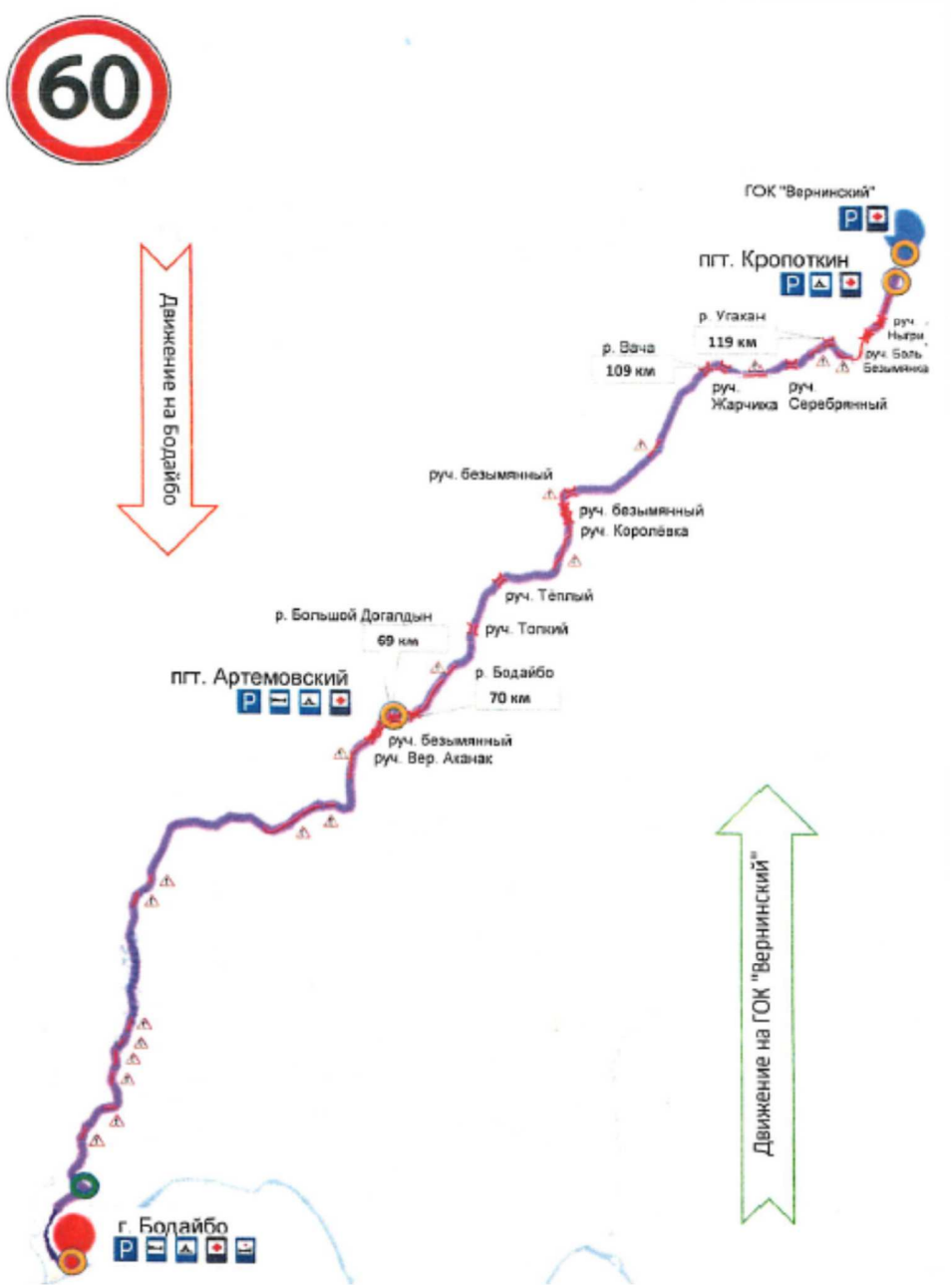


Figure 4: Route Takismo to Verninskoye

Mining is by conventional shovel-and-truck methods with the process plant utilising gravity concentration, flotation and carbon-in-leach (CIL) method to produce a gold dore. Annual gold production are a result of several ongoing development projects, including various improvements to the crushing, grinding, flotation and hydrometallurgy circuits. Polyus continue to work toward expanding throughput to 3.5Mt/a. The process plant operates as per the illustrative flow sheet (Figure 5). Tailings produced from the gold recovery process are sent to a purpose-built Tailings Storage Facility (TSF).

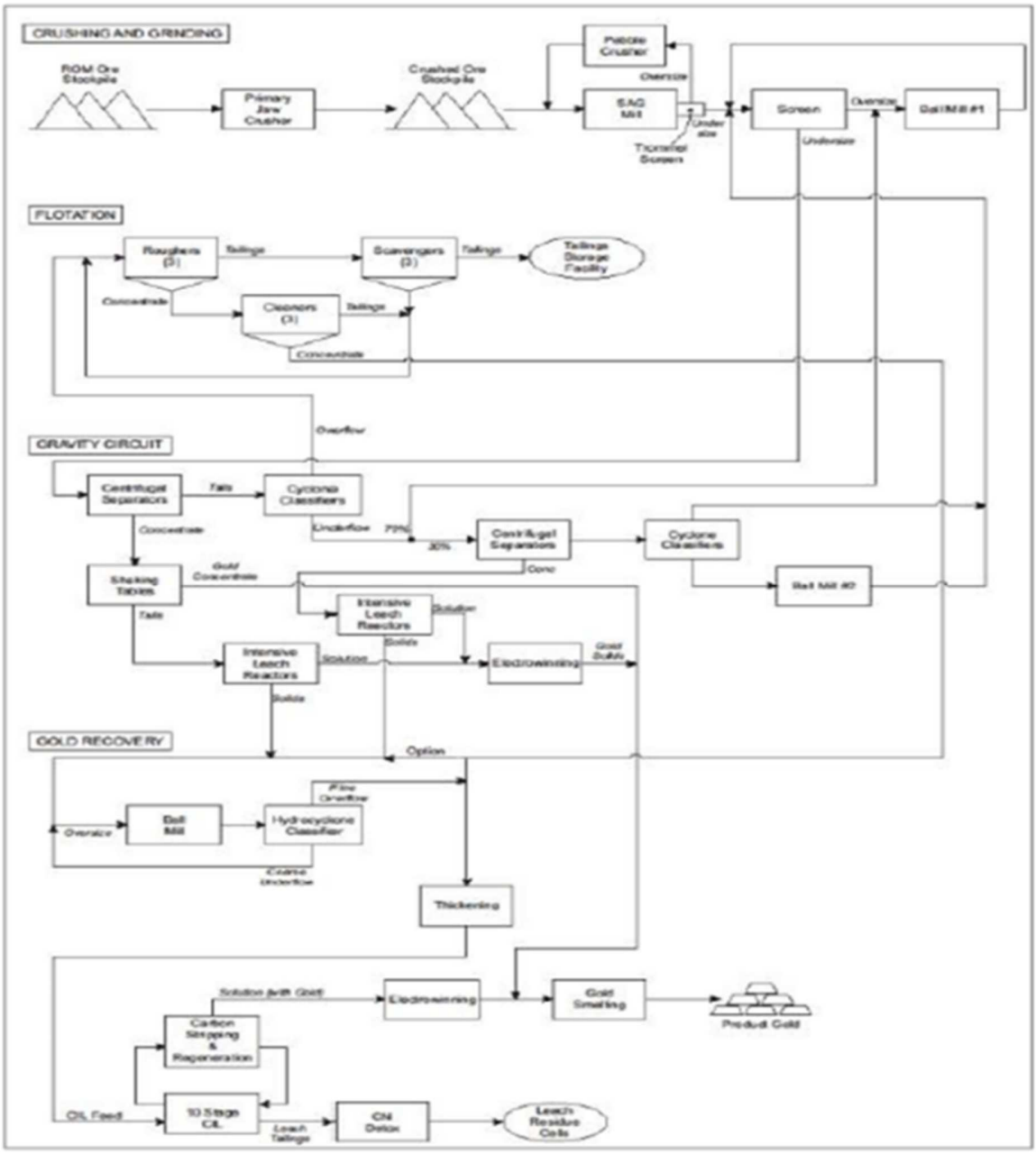


Figure 5: Verninskoye Block Flow Diagram

SUMMARY AUDIT REPORT

Auditor's Finding

This operation is

☒ in full compliance
☐ in substantial compliance *(see below)
☐ not in compliance

with the International Cyanide Management Code.

Audit Company: Wardell Armstrong International (WAI Ltd)

Audit Team Leader: Christine Blackmore

E-mail: cblackmore@wardell-armstrong.com

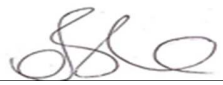
Names and Signatures of Other Auditors:

Date(s) of Audit: Site visit 3-8 February 2019

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

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

The Auditor has been provided with all supporting documentation to accompany the audit. During the site visit a photographic record was made. This information remains with the Auditor at WAI and if needed provided to ICMI.

Verninskoye Mine		November 2020
Polyus Logistics Verninskoye Supply Chain – Russian Railways		March 2021

1. TRANSPORT: Transport cyanide in a manner that minimizes the potential for accidents and releases.

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

The operation is
- ☒ in full compliance with
- ☐ in substantial compliance with Transport Practice 1.1
- ☐ not in compliance with

Summarize the basis for this Finding/Deficiencies Identified:

Russian Railways (RZD) transports cyanide by rail from Kokurino Station in Saratov to Taksimo Station in Buryatiya (from where cyanide is transported to the mine site by Polyus Logistics with its own vehicles). The Shipper, Saratovorgsintez LLC, has an agreement with RZD to undertake the transportation. The transportation process is managed by PL that involves a forwarding agent to provide a shipping container and arrange a railway delivery. Responsibility of RZD in the custody chain begins after the signing of the shipping documents and loading cyanide containers at Kokurino for transportation to Taksimo.

It takes approximately 10 days for the cyanide to be transported from Kokurino to Taksimo; however, the travel time depends on how many stations the train stops en route and for how long. During these stops, containers with cyanide do not get offloaded.

RZD is the only recognised railway transporter and operates to the highest national and international safety standards. Cyanide Transport Route from Kokurino Station in Saratov to Taksimo Station has been approved by the Russian State. RZD implements procedures to minimize the potential for cyanide related accidents and potential damage to population and environmental media.

Infrastructure and weather conditions are taken into account by RZD when developing both the safety procedures and the transportation of cyanide.

RZD uses a specialised security company VOHR to escort the dangerous cargo and also implements the mandatory Safety measures as required by the Rules of Dangerous Goods Transportation, which cyanide falls under. Buffer empty rail cars are placed between each cyanide carrying rail car.

RZD implements procedures to re-evaluate the route periodically to take into account weather conditions and any changes in the transportation route. RZD operators report on the railway condition at each station and upon each cargo delivery. Feeback data are recoded and analysed at the end of each shift by the shift manager.

RZD documents the measures taken to address risks identified with the designated cyanide transportation routes where necessary in accordance with the set procedures.

RZD seeks input from applicable state agenices of Russia and undergoes regular formal inpections. RZD strictly implements necessary risk management and anti-terrorist measures. Cyanide containers are inspected by RZD personnel at each interim station during transport to ensure integrity and safety of the cargo. Cyanide transportation route is regulated by the authorities of the Russian Federation through the legislative rules and regulations and recommended by RZD arrangements to secure safe and unhindered carriage of dangerous goods.

RZD uses security escort throughout the entire transportation route from Kokurino to Taksimo. Security guards from VOHR (paramilitary secutiry service) are deployed to ensure safe delivery of dangerous cargo and have necessary emergency response equipment and satellite phones.

RZD has advised external responders and relevant stakeholders of their roles during an emergency response. Russian Civil Defence (hereinafter "MCHS" or "EMERCOM") is ultimately responsible for handling the emergencies and a cleanup.

In addition, RZD has a signed contract with a specialised emergency response organisation which undertakes to provide services in case of an emergency situation.

RZD does not use subcontractors.

Transport Practice 1.2: *Ensure that personnel operating cyanide handling and transport equipment can perform their jobs with minimum risk to communities and the environment.*

The operation is
- ☒ in full compliance with
- ☐ in substantial compliance with Transport Practice 1.2
- ☐ not in compliance with

Summarize the basis for this Finding/Deficiencies Identified:

RZD only uses trained personnel who obtain qualifications and attestation to operate its railcars and railway infrastructure. Training and certification of personnel handling specialized special-purpose railcars and containers designed for transportation of dangerous goods is conducted at special organizations with training courses specifically created by those organizations based on the programmes agreed with the regional inspectorate responsible for the supervision of railway transport of Gosgortekhnadzor of Russia and the management of the railway.

Training on handling dangerous cargo is mandatory at RZD with every operator having to obtain certification. Certificates were presented to the Auditor.

Personnel involved with cyanide transportation and handling recieve relevant training on first aid measures and emergency response measures relevant to cyanide.

Handling of specialized railcars and containers for the transportation of dangerous goods is only possible for personnel above 21 years old who have undergone medical examination, have been trained under the relevant programme and are certified.

Security personnel (paramilitary guards of the Ministry of Railways) escorting cyanide and guarding it at the interim stations are to comply with the "Regulations and procedures for the protection of goods and objects in railway transport" in which they are fully trained.

RZD does not use subcontractors.

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

The operation is
- ☒ in full compliance with
- ☐ in substantial compliance with Transport Practice 1.3
- ☐ not in compliance with

Summarize the basis for this Finding/Deficiencies Identified:

To ensure compliance with regard to the permissible loads, all equipment at RZD meets the requirements of the Rules for the Technical Operation of Russian Railways (PTE).

RZD being a railway transporter of dangerous goods is in possession of a Technical Passport for its railway facilities which pass a periodic instrumental testing in accordance with the Rules for the Technical Operation of Russian Railways.

Procedures for loading and unloading of dangerous cargo on open-type flatbeds is carried out in accordance with the “Rules for the transport of dangerous goods by railways”, “Safety rules for the transport of dangerous goods by rail”, and “Sanitary Rules for the Organization of Cargo Transportation by Railway Transport” which specify the alowable loads.

Placement and fastening of dangerous cargo in wagons, flatbed railcars and containers is carried out in accordance with the “Technical conditions for the placement and securing of goods in wagons and containers”, approved by the Ministry of Railways of Russia.

To ensure safe transport of dangerous cargo and prevent overloading or the use of unsuitable flatbeds, stricts departmental control is carried out by RZD regarding the set procedures. Compliance is audited by the Ministry of Railways of Russia.

RZD does not use subcontractors.

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

The operation is	☒ in full compliance with ☐ in substantial compliance with Transport Practice 1.4 ☐ not in compliance with

Summarize the basis for this Finding/Deficiencies Identified:

Cyanide is transported in 20ft sealed containers in such a way as to maximise their integrity. At dispatch, the number of a railway car, container, cargo type, UN classification, an Emergency card number (619) are attached to the rail truck by the Shipper. Placards are placed on the 4 walls of the container and the rooftop is labelled with relevant signage.

The design parameters for cyanide containers comply with the requirements of the standards or technical specifications for this product to ensure safety of transportation. Loading of dangerous goods with different categories, as well as dangerous goods with non-dangerous goods is not allowed.

Railcars and containers used for transportation of dangerous goods are labeled specifically to identify the cargo as dangerous in accordance with the Rules for the Carriage of Goods and have distinctive coloring according to regulatory and technical documentation. The procedure for applying danger placards on cars and containers is established by the Ministry of Railways of Russia.

At dispatch, UN classification placards are placed on the 4 walls of the container and the rooftop is labelled with relevant signage in accordance with international standards. Danger signage and labels on containers and packaging is also compliant with Russian GOST 14192-96 “Marking of cargo” and GOST 19433-88 “Dangerous goods. Classification and labelling”.

Loading and unloading operations of dangerous cargo in case of non-compliance of packaging with the requirements of the standards or technical specifications for such cargo or in the event of a container failure, as well as in the absence of marking and danger signs, is not allowed.

Suitability of specialized containers for the transport of dangerous cargo, both technically and commercially, is determined by the Shipper. The Shipper is obliged to load only those dangerous goods into the specialized containers for which they are intended.

RZD implements “Industrial Safety Management System at Russian Railways” as required by the Russian State. Transportation, loading and unloading of dangerous cargo in covered wagons and universal containers, as well as containers with dangerous cargo on flatbeds is carried out in accordance with the “Rules for the transport of dangerous goods by railways”, “Safety rules for the transport of dangerous goods by rail” and the Sanitary Rules for the Organization of Freight Carriage by Railway Transport”, approved by the Russian State.

Placement and fastening of dangerous goods in railcars and containers is carried out in accordance with the "Technical conditions for placement and securing of goods in wagons and containers", approved by the Ministry of Railways of Russia.

Multilevel inspection control is maintained at RZD with designated departments responsible for different sections. Each flatbed car is inspected before the dispatch at Kokurino Station as well as the interim stations throughout the cyanide transport route. Technical condition and a seal of each flatbed are inspected and subsequently an acceptance certificate is produced and signed.

Responsibilities for undertaking interim inspections are provided in the Job Description of an inspector. Railcar inspectors sign off on the flatbed readiness and usability, including the mounted wheels, main coupler units, fittings and other equipment. Railway tracks are inspected and serviced by the railway department (PCH), flatbeds are serviced by the maintenance department (VCHDE) prior to each shipment.

Each year a Written Order is raised specifying the names of those staff who are granted an access to the railcars. Responsibility for the good condition and safe operation of specialized railcars and containers is assigned to the specialists in charge. Their last name, first name, patronymic, number and date of the appointment order is communicated to the regional state authority of Gosgortekhnadzor of Russia.

Planned maintenance and repair of railcars is based on mileage whose average varies between 15,000 to 20,000

Workers of the railway transport are obliged to carry out the established types of preventive maintenance and repair of railcars, including planned routine repair and maintenance, depot repair and capital repair.

Each train operator has a set limit in their shift hours as set out by the written instructions of RZD and individual job descriptions.

Placement of containers on the flatbeds is carried out in accordance with "Technical conditions for the placement and securing of cargo in wagons and containers" approved by the Russian State Authorities, local technical procedures for the placement and securing of cargo and the provisions of the Agreement on International Carriage by Rail (RID).

Containers are installed on the platforms in such a way that the stop heads located on the flatbeds are brought into the working (vertical) position and enter the opening of the fittings located beneath the containers. Upon the loading of the containers, a worker responsible for loading checks the correct positioning of the stop heads in the working position through the side openings in the fittings.

Container fixing procedures are provided in the Technological Instructions of RZD. Foreman or a manager performs an additional inspection of the flatbed to check the correctness of the loads and compliance with the technical specifications or the technical manual.

According to the technical specifications for the loading of the containers onto flatbeds, permissible gross weight of a container must be observed. Control of compliance with the layout schemes to prevent loads from shifting is also performed using internal electronic system.

Procedures are available at RZD allowing to modify the transportation process should Force Majeure occurs. In case of such Force Majeure conditions, flatbed cars with containers would be parked temporarily in a designated area apropos the Safety Rules (TRA) until the offloading is permitted.

RZD employees, including cane operators, locomotive shunter operators and other relevant employees involved into cyanide cargo handling, undergo medical examination (including blood pressure, breathalyser, drug test, etc.) every shift.

In their daily work, the persons responsible for documenting the above activities are guided by the Rules, Instructions, inductions and orders of Russian Railways of the Russian Federation, as approved by the Russian State Authority Rostechnadzor.

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

The operation is
- ☒ in full compliance with
- ☐ in substantial compliance with Transport Practice 1.5
- ☐ not in compliance with

Summarize the basis for this Finding/Deficiencies Identified:

Shipments of cyanide by railway are in compliance with Regulation concerning the International Carriage of Dangerous Goods by Rail (RID).

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

The operation is
- ☒ in full compliance with
- ☐ in substantial compliance with Transport Practice 1.6
- ☐ not in compliance with

Summarize the basis for this Finding/Deficiencies Identified:

Operators have radio communication and report to the dispactcher on the cargo delivery progress at every station. This is a necessary condition when transporting Class 1 Dangerous Goods, such as cyanide. Each dispacther registers a Written Order to pass the trains with dangerous cargo in a matter of priority without any delays. In addition, cyanide cargo security escort are equipped with mobile and satellite phones.

Operators and security personnel are equipped with necessary means of communication as well as personal protective equipment and a set of portable radio stations. All equipment is tested when necessary.

In case of emergency situations en route, the locomotive driver immediately informs the controlling station for that section of rail as per the established procedure using radio communication or any other type of communication available.

Possible communication blackouts along the transport route have been identified by RZD. Radio communication is used to ensure continuous communication.

ETRAN and SIRIUS systems are used to monitor the status of any cargo, including cyanide transportation. When the cargo arrives at Taksimo station, Polyus Logistics is notified, following which a cargo release process begins. RZD moves the flatebeds with the cyanide containers on them on to the non-public tracks for further direct offloading by Polyus Logisitics onto its vehicles. At no point does cyanide get offloaded from the vehicles until it reaches final destination at Polyus Verninskoye mines site.

RZD implements strict inventory controls over the cyaide cargo transportation. Chain of custody documentation is originated by the Shipper in Saratov and is handed over to Polyus Logistcs upon the subsequent issuance of the containers in Taksimo.

Shipping records are originated by the Shipper and are available during transport throuhout the cyanide transportation process. Material Safety Data Sheets available during transport and have been witnessed by the Lead Auditor.

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

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

The operation is
- ☒ in full compliance with
- ☐ in substantial compliance with Transport Practice 2.1
- ☐ not in compliance with

Summarize the basis for this Finding/Deficiencies Identified:

Signage alerting workers of danger is posted at Taksimo Station. Relevant signage can be seen on the containers also and was evidenced by the Lead Auditor during the visit.

Necessary security measures are in place and have been witnessed during the visit. Cyanide transportation by RZD is carried out without long stops and therefore does not require interim storage. During these short stops, containers with cyanide do not get offloaded but are inspected for safety and integrity. Interim stations en route operate a regime of a restricted access. At Taksimo Station, the cars are put to the points and non-public railways.

Cyanide is transported in sealed containers separately from incompatible materials. Dangerous Cargo Transportation Rules prohibit transport dangerous cargo with any different type of cargo in one container.

In accordance with RZD's Emergency Card, cyanide becomes dangerous when it comes into contact with water. If a container's integrity is undisturbed, risk of danger related to cyanide spillage is minimum.

Cyanide is not stored at Taksimo Station at any time. No storage is involved at any of the stations en route. Cyanide containers arrive on flatbeds by railway and are shunted to the private railway spur to be transloaded on to the Polyus Logistics vehicles for further transportation.

Cyanide is kept and transported in 20ft sealed shipping containers outdoors. No interim storage is involved at this section of cyanide transportation route.

RZD implements systems and procedures, including Emergency Response Plan with regard to cyanide spillages and other emergencies involving cyanide scenarios. Ultimate responsibility for the clean up is in the hands of the Civil Defence (MCHS).

3. EMERGENCY RESPONSE: Protect communities and environment through the development of emergency response strategies and capabilities

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

The operation is
- ☒ in full compliance with
- ☐ in substantial compliance with Transport Practice 3.1
- ☐ not in compliance with

Summarize the basis for this Finding/Deficiencies Identified:

Emergency Response Plan at RZD is impelement by RZD and is uniform for every branch on the territory of the Russian Federation. Emergency Cards are also available and are compliant with the international requirements. Sodium cyanide related card is number 619.

Emergency card contains:

- instructions on the use of personal protective equipment;
- necessary instructions for emergency response:
  - general nature;
  - in case of leakage, spill and placer;
  - in case of fire;
  - neutralization guidelines;
  - instructions for first aid measures.
- procedures for implementation of mandatory general measures in case of accidents entailing dangerous goods;
- emergency response actions;
- first aid instructions;
- instructions for medical care.

The Emergency Response Plan is appropriate for the selected transportation route, including interim stations and sorting stations.

Emergency Response Plan and Emergency Cards consider the physical and chemical form of cyanide and outline appropriate emergency response actions.

The plan is specific to the method of railway transport and considers emergency response actions associated with potential emergency scenarious pertinent to this method of transport.

The Plan considers all aspects of the transport infrastructure and weather conditions in full.

The plan considers the design of the railcars, the fittings and the containers. RZD is responsible for assessing the integrity of the flatbeds and the containers during transport and upon arrival at Taksimo Station.

Emergency cards and Emergency Response Plan contain a set of response actions based on an emergency scenario. Emergency cards for each profession are contained in the Emergency Response Reference Book. These cards adhere to international standards, in the case of cyanide the card number is 619.

In the event of an emergency involving dangerous cargo, assigned personnel are to take necessary measures to prevent threat to people, railcars and the environment, stop movement of trains and shunters and prevent unauthorized persons from entering the danger zone. When at the emergency site, the emergency and firefighting departments should inform their managers of the condition of the cargo and the flatbeds and follow safety measures when conducting emergency and rescue operations.

Roles of outside responders are identified in the emergency response procedures. All emergency response measures (fire, leakage, spillage of a hazardous substance, damage to containers or flatbeds) with dangerous cargo must be carried out in accordance with the instructions of the work supervisor, taking into account the properties and toxicity of the cargo and compliance with the safety requirements specified in the Emergency Card for a specific dangerous cargo and in accordance with the requirements of the “Safety Rules and

Procedures for Emergency Situations with Dangerous Goods during Transportation by Rail" as well as other Company standards.

RZD has an agreement with a specialised organization which will provide emergency response measures should these be required.

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

The operation is
- ☒ in full compliance with
- ☐ in substantial compliance with Transport Practice 3.2
- ☐ not in compliance with

Summarize the basis for this Finding/Deficiencies Identified:

Emergency Response Training is received by all relevant personnel at RZD. All stations handling dangerous cargo are to conduct personnel training and produce emergency response instructions which are appended to the technical distribution certificates, named "the procedure of working with cars loaded with dangerous cargo" and approved by the managers.

Certification of the operators is carried out by the commission prior to the appointment with the subsequent exam frequency every two years.

Actions and duties of the railway workers in the event of an emergency are set out in RZD's Emergency Response Plan and international rules for the transport of dangerous cargo, must be rapid, correspond to the nature and scale of the emergency and be carried out taking into account the toxic properties of the cargo. Job descriptions specific to each profession include relevant safety duties and responsibilities.

In addition, instructions are developed on how to deal with emergency situations with dangerous cargo, with response measures indicated in the emergency cards. The written instructions include:

- procedures for emergency situations;
- procedures for interaction with rescue units;
- safety measures for the extreme weather conditions (fog, blizzard, heavy rain, hurricane, snow drifts, failure of technical equipment, etc.);
- procedures for notifying employees of the stations, maintenance, depots, militarized security of the Ministry of Railways on the forthcoming reception and departure of trains, shunting operations and other operations with railcars;
- procedures for admission and preparation of trains for the departure and shunting operations;

- procedures for the use of automatic brakes during shunting operations;
- order of maintenance and commercial inspection of trains and cars;
- the procedure for fulfilling verbal orders in the production of shunting work;
- procedure for documenting the issuance of diesel locomotives and shunter locomotives with serviceable spark arresters and spark detection devices; and
- maintenance of tracks for temporary cargo.
- Security staff escorting the cyanide containers are provided with necessary personal protective equipment, a set of tools, necessary spare materials, plugs and written instructions.

At the station, emergency response equipment is compiled based on the approved list, it includes a SPI-20 gas mask which is provided to all workers, a first-aid kit and a set of portable radio stations. The Emergency Card provides instructions on the use of personal protective equipment.

In case of emergency situations on the stretch, the locomotive driver immediately informs about the established procedure for radio communication or any other type of communication possible in the created situation for the train dispatcher and the duty personnel at the nearest stations limiting hauling. Spillage would be collected apropos the Emergency Card.

RZD has the necessary equipment to handle any emergencies during the transportation of cyanide at each station and during transport.

In accordance with RZD standards refresher training is conducted every quarter and covers aspects pertaining to the handling of dangerous cargo. Training for each profession is also conducted based on the Emergency Response Plan.

The emergency response equipment includes a gas mask and protective overalls which are inspected regularly in accordance with the set procedures and written instructions.

RZD does not use subcontractors.

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

The operation is
- ☒ in full compliance with
- ☐ in substantial compliance with Transport Practice 3.3
- ☐ not in compliance with

Summarize the basis for this Finding/Deficiencies Identified:

Safety Rules For The Transport Of Dangerous Cargo By Rail contains the main set of H&S procedures at RZD. Railways management within each region determine with the regional bodies of Russian Civil Defence (MCHS) a list of organisations which have emergency services or relevant specialists that can take part in the emergency response. The list of such organisations is approved by the local administration at the suggestion of the Railway.

Depending on the severity of consequences, the on-duty railway personnel dealing with the incident should inform the Shipper, consignee or the nearest enterprise located near the emergency site and a rescue group to eliminate the consequences of an emergency.

If the emergency zone may represent a threat to the population, or contamination of the area, the duty officer is obliged to inform the emergency commission and other relevant organizations about such emergency.

The Emergency Response team is guided by a special instruction approved by the head of the company. Shift personnel inform the duty officer of the railway department about an emergency during the transportation of dangerous cargo. The operative-administrative department of the transportation service should immediately inform the regional bodies of Gosgortekhnadzor of Russia about an accident.

The message should contain information about the circumstances of an emergency, the name of the cargo and the number of the emergency card, the quantity of dangerous goods, and their location.

RZD management submits monthly report on the state of safety, emergencies and incidents pertaining to dangerous cargo to the local state authorities. Russian governmental authority undertakes regular audits of RZD to ensure compliance.

Internal and external emergency notification procedures are updated when and as needed at each branch of the railway including Taksimo.

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

The operation is
- ☒ in full compliance with
- ☐ in substantial compliance with Transport Practice 3.4
- ☐ not in compliance with

Summarize the basis for this Finding/Deficiencies Identified:

The restoration work by the Ministry of Railways of Russia can begin after the special forces have eliminated the threat to life and health of the people in the emergency zone.

In case of detection of leakages (spill) of dangerous goods along the transportation route, the emergency car shall be uncoupled and set aside on a special track on which the measures specified in the emergency card would be performed. Emergency response manager is to ensure compliance of remediation work in line with the safety requirements of RZD.

In an emergency, all first aid measures should be carried out taking into account the properties of sodium cyanide and the relevant precautions as specified in the emergency card. The emergency card (619) does not allow release of substance into water bodies, basements or sewers.

The possibility of resuming the movement of trains through the zone in which the accident may have occurred is determined by the employees of the emergency response organisations that eliminate the consequences of accidents after analysis to assess the state of the environment have been conducted.

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

The operation is
- ☒ in full compliance with
- ☐ in substantial compliance with Transport Practice 3.5
- ☐ not in compliance with

Summarize the basis for this Finding/Deficiencies Identified:

Provisions for periodically reviewing and evaluating the adequacy of the Emergency Plan are in place and are being implemented by RZD as and when needed, and always at least once a year.

Mock emergency drills are undertaken each year in accordance with the internal programme. The Plan is compiled annually, is comprehensive and stipulates for periodic mock emergency drills of different scale and different purpose.

RZD adheres to the requirements of the Russian law and has developed regulations on the organization of training in the field of civil defense and emergency response and training programme.

RZD implements control over the conduct of the drills and personnel training with appropriate records and reporting.