



Investor Solutions Limited

P.O Box 67562

Nairobi

Kenya

ICMI PRE-OPERATIONAL AUDIT – SUMMARY REPORT

1.0 INTRODUCTION

1.1 Operational information.

Name of production facility	:	Greenline Logistics Limited
Name of facility owner	:	Greenline Logistics Limited
Name of facility operator.	:	Greenline Logistics Limited
Name of responsible manager	:	Soroya Anglow
Address	:	Greenline Logistics Limited Greenline Building 7 Papa Gyaesayor Street Harbour Business Area
	:	
State / Province	:	Takoradi
Country.	:	Ghana
Telephone.	:	+233312026063
E-mail.	:	s.anglow@greenlinelogistics.com.gh
Website	:	www.greenline.com.gh



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1.2 Description of Operation

1.2.1 Company Profile.

Greenline Logistics Limited (GLL) is a 100% Ghanaian owned and ISO certified company with solid solutions across a diverse number of industries worldwide, especially in Ghana. Since its year of establishment, it has invested in quality logistics and business team members with enthusiasm for excellence, to develop and encourage growth that assures innovative skill and experience in the field. Currently, the company offers solutions to customers from the following industries: Chemical, Energy, Oil & Gas, Mining, and Pharmaceuticals.

Hazardous Chemical Transportation

Greenline Logistics is involved in the transportation of hazardous chemicals such as explosives and ammonia nitrate from Orica Australia for some mines in Ghana. It is also involved in the transportation of other HAZMAT in Ghana. The company delivers explosive and ammonium nitrate to Mensin Gold Bibiani mine, Perseus Mining and Asanko Gold mine all based in Ghana. The company is currently not doing transportation of cyanide but has committed and implemented process and procedures to commence cyanide transportation. The company is hoping to secure transportation contract from cyanide producers or mine(s) to deliver sodium cyanide to the aforementioned mines which they deliver explosives to. Currently, the company has developed procedures for implementation when it secures cyanide transportation contract.

The company intends to secure cyanide transportation contract to transport solid sodium cyanide from the port of Takoradi in Ghana to the three mining companies.

The distances from the Takoradi port to Mensin Gold mine, Perseus Mining and Asanko mine are 234.9Km, 179Km and 304.1Km respectively.

Greenline Logistics has secured a permit for transportation of cyanide from the Ghana Environmental Protection Agency. EPA License number EPA/WR/LHCT-174/23 which is dated 7th February 2023 expires on 6th February 2024.

1.2.2 Audit scope.

The audit covers the proposed transportation of cyanide from the port of Takoradi, Ghana to mining companies in Ghana. The ICMI protocols were used as guidelines in conducting this audit.



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SUMMARY AUDIT REPORT AUDITORS' FINDINGS

Greenline Logistics Ltd is:

in full compliance with

in substantial compliance with

not in compliance with

THE INTERNATIONAL CYANIDE MANAGEMENT CODE

Audit Company: Investor Solutions Limited - Kenya
Audit Team Leader: Kuldip Singh Degon, Lead Auditor
Email: kuldip@isglobal.net

NAME OF OTHER AUDITORS

Benjamin Amoo Mensah – Technical Auditor: Transportation.

DATES OF AUDIT

The pre-operational audit of the Greenline Logistics Limited was conducted 11th to 13th October 2023

I attest that I meet the criteria for knowledge, experience, and conflict of interest for Cyanide Code Verification Audit Lead Auditor, 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 Detailed Audit Report accurately describes the findings of the certification audit. I further attest that the verification audit was conducted in a professional manner in accordance with the International Cyanide Management Code Cyanide Transportation Verification Protocol and using standard and accepted practices for health, safety and environmental audits.



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

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

The operation is **X in full compliance with** Transport Practice 1.1

Summarize the basis for this Finding/Deficiencies Identified:

GLL is committed to implement a process or procedure for selecting transport routes that minimizes the potential for accidents and releases or the potential impacts of accidents and releases. The company has developed a Route Selection procedure document GLL-IMS-QHSE-PR019 Revision 04 which takes into consideration the population density(i.e. number of towns and villages) on the selected routes to the 3 mining companies. The population in these areas along the route were noted. Consideration is also given to the infrastructure of the road such as rail way crossings, height structures such bridges, toll boots, construction, markets along the road and general road condition.

Also, considered in the procedure are pitch and grade(Clause 2.1.3 of TMP) and proximity to waters bodies such as rivers, streams, dams and water fog. In selecting the route the QHSE manager and the escort leader travels on the route to identify ~~and~~ risks, count the number of bridges, railway crossings , rivers and streams and the mileage from the port to the mine site destinations.

GLL has developed a Risk Assessment Procedure and is committed to evaluating the risks on the selected transport routes.

Journey Route Risk Assessments (RRA's) were conducted in May 2023 on the road to Asanko mine, Mensin Gold Bibiani mine and Perseus Mining.

The distance from the port of Takoradi in the Western part of Ghana to Asanko mine a distance of 304.1Km, Takoradi port to Perseus Mine a distance of 179Km and Takoradi port to Mensin Gold Bibiani mine is 234.9Km. Risk Hazards identified on the road during routes surveys have been risk assessed and specific control measures have been put in place to address them. Precautionary measures have been recommended and implemented. The Route Selection procedure(GLL-IMS-QHSE-PR019) states that the risk on the route is evaluated annually and controls put in place. The route is the same route that the company uses to transport explosives and other HAZMAT to the three mining companies.

Prior to departure of a convoy, a tool box meeting are held with drivers and the escort team and hazards identified in previous journeys discussed. A Trip Plan Sheet(doc.# GLL-IMS-QHSE-FM003) is completed before a trip. ~~The Attendance registers~~ ~~has~~ have the names of all the drivers, ~~and~~ escort team and each participants have signed it against their names a proof as having attended the toolbox meeting.

Route Risk Assessments reports on the road from the port of Takoradi to the three mining destinations were sighted and noted by auditors.

The transporter documents the risks on the transport routes. The hazards identified on the route are documented and risk assessed and controls put in place to either eliminate or minimize the risk. The QHSE Manager is responsible for ~~doing~~ conducting the risk assessment. These were verified by auditors.

GLL is committed to annually reviewing the routes when there is significant changes in the transport route to a mine. GLL liaises with Ghana EPA and Ghana Highway Authority on any changes to the designated cyanide transport route and update the Transport Management Plan accordingly. Route Surveys are conducted annually by both the Transport Supervisor and the QHSE Manager to identify any new risk on the route.



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Feedback reports are issued after each trip to the mine sites. Copies of Feedback Reports(GLL-IMS-QHSE-FM060) were verified and noted by auditors. Feedback on the road conditions during a previous trip of explosives and other HAZMAT are also noted on the Trip Plan Sheet(GLL-IMS-QHSE-FM003) prior to departure. The feedback reports are discussed with the drivers in Tool box meetings. The transporter is committed to continue with getting feedbacks on the road during cyanide transportation.

GLL is committed to seeking input from communities, stakeholder and applicable government agencies. The company has sought input from the Ghana Environmental Protection Agency, Ghana Fire Service, Ghana Police, NADMO, Water Resources Commission, Ghana Roads and Ghana Highway Authority and Ministry of Interior. Copies of notifications to the stakeholders and government agencies were verified and noted.

There is no direct input sought by the transporter as the Ghana Environmental Protection Agency is responsible for the environment and community consultation. The Route Selection Procedure states that " The EPA is responsible for community consultation as per the permit granted to GLL by the agency.

GLL's TMP requires the deliveries of all HAZMAT products including sodium cyanide to be done in convoy with escorts. Not more than 8 trucks will be allowed in one convoy transporting cyanide. The use of escorts for convoys are addressed in detail in- the transporter's Transport Management Plan.

The TMP mentions the composition of the convoy as follows:

- Minimum of 3 trucks in convoy will be accompanied by 1 Escort vehicle, 1 police officer, 1 escort driver and 1 escort leader
- Maximum 8 trucks with will be accompanied by 2 escort vehicles, 2 police officers, 2 escort drivers and 1 escort leader.
- The maximum number of trucks in a single convoy will be 8 trucks. More than 8 trucks in a convoy must be authorized by the supplier or the mining client.

GLL has committed to advise external responders and medical facilities. Communities ~~do not~~ will not have any direct role to play in case of a cyanide but the move away from the incident site. Ghana EPA will handle community consultations and advise them to move away from the incident site and not touch or use any contaminated water. Letters of notification to Water Resource Commission received and stamped by the commission, Ghana National Fire Service received by the service were the sighted and noted. A letter of notification to National Disaster Management Organisation(NADMO) was acknowledged and received and stamped by NADMO official. The notifications to the aforementioned external responders advising them of their roles and/or mutual aid were sighted by auditors.

Acknowledgement letter from the Director General of Ghana Health Service stamped and dated 22rd September 2023 was verified and noted. Medical facilities namely Effia Nkwanta Government hospital and Tarkwa Government hospital have been advised that in case of an incident resulting in a cyanide poisoned victim the person, the person will be sent to them with cyanide antidote for treatment as noted in the company's TMP.

GLL will not subcontract any of the transportation of cyanide business and ~~does not subcontract~~ other Hazmat goods to a third party.

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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 **X in full compliance with** Transport Practice 1.2

Summarize the basis for this Finding/Deficiencies Identified:

GLL is committed to using trained and qualified employees namely drivers, escort personnel and other staff. A training plan (GLL-IMS-HRADM-FM041 Version 003) mentions the following mandatory training requirements.

- Defensive Driving Training - Organized biennially
- Basic First Aid Training- Every 4 years
- Safe Transport of Dangerous Goods- Annually
- Fire Safety Training - Annually
- Cyanide Awareness - Semi Annually
- Fatigue Management - Annually
- General Emergency response and PPE training - Annually
- Hazard Identification and Risk Assessment - Annually
- Simulations(Mock) - Annually

GLL has a Human Resource and Administration Standard Operating procedure. The procedure states the following processing of employing qualified persons:

- Vacancies are declared when there is an opening for recruitment
- Application letters are received
- Selection of qualified applicants
- Shortlisted applicants are interviewed
- Drivers are taken through practical driving test
- Selected applicants are issued with appointments letters
- Selected applicants then undergo induction and training.

A driver is expected to have a valid License " F " driving license. Copies of driving licenses "F" for selected drivers were verified.

Records of Defensive driving training organized by OSA Association Ghana were sighted. Cyanide Awareness and Emergency response training were organized by an external consultant. Fire Safety Training and Evacuation drill was organized by Ghana National Fire Service. The training details were reviewed during the audit. All proofs showing that the employees are trained were sighted. Mock drill attendance sheets dated 10th October 2023 was noted.

Selected employees whose names were on selected the-training attendance registers were interviewed and were found to be knowledgeable in issues about cyanide and emergency response. Copies of certificates for cyanide training and certificates for First Aid Training were sighted. First Aid training was organized by St. Johns Ambulance Service.

The transporter is committed to train all personnel operating cyanide handling equipment and transport equipment to perform their jobs in a safe manner to prevent or minimize cyanide releases and exposures. The transporter has a training matrix (Doc number GLL-IMS-HRADMF036 dated 25/04/22 Version 002). The training plan and the training matrix cover Cyanide Awareness, Defensive Driving Training, Basic First Aid, Fire Fighting, Emergency Response training, Fatigue Management and Personal Protective Equipment training. PPE Records of training attendance register records for all the training programs were sighted by auditors.



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PPE training was organized by the QHSE Manager. Sampled copies of defensive driving certificates and cyanide awareness training given to the employees were sighted. Drivers and escort personnel were interviewed and were found to be knowledgeable in operating cyanide handling equipment and transport equipment. Training records for drivers and escort team were duly noted.

Greenline Logistics does not subcontract Transport practice 1.2 →

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

The operation is **in full compliance with** Transport Practice 1.3

Summarize the basis for this Finding/Deficiencies Identified:

GLL is committed to using four brands of trucks designed and maintained to operate within the loads it will be handling. The brand of trucks are MAN diesel, Shacman, Foton and Howo having Horse Powers of 480HP, 400HP, 400HP and 420HP respectively with trailers having triple axles. The TMP describes the design of the vehicle that will be used for deliveries. The vehicle used are 6x4 configurations with triaxle trailers. The equipment used are designed and maintained in accordance with the manufacturers specifications and they carry load in accordance with the legal requirements. The MAN diesel trucks can load a maximum of 56.8t, Shacman 65t, Howo 57.5t, and Foton 65t. Each of the truck's configurations can load 2x20ft containers of cyanide. The gross weight of the two containers of cyanide is approximately 46m. The weight per axle of GLL trucks both 6x4 and 4x2 vehicle configuration when loaded with cyanide is 10.3/axle which is lower than the ECOWAS maximum axle load of 11.5mt.

The operation has a maintenance procedure. (document No. GLL-IMS-QHSE-SOP002 dated 11th March 2023).

Preventive Maintenance procedure states the following:

- Preventive maintenance is conducted by using the manufacturers recommended approved maintenance plan.
- Vehicles are serviced using categories A, B and C.

Service A: 10,000Km

Service B: 15,000Km

Service C: 15,000Km

- The transport coordinator informs the workshop team about a vehicle to be serviced using a Mechanic workshop work order form number GLL-IMS-QHSE-FM075
- The mechanic then advises the transport coordinator of the parts/services they may require to carry out the preventive maintenance.
- Work on the trucks are executed by the company's workshop team of mechanics.
- The workshop team, the transport supervisor and the driver then sign the Mechanic workshop work order form after the problem is fixed and the vehicle tested.

Unplanned / Corrective Maintenance address a process of rectifying faults on vehicle when they arise.

- A driver alerts the transport coordinator of a fault encountered during his daily truck inspection.
- The Transport Coordinator then issues a work order form.
- All trucks undergoing maintenance are tagged "Out of service."
- A mechanic is assigned to commence and completes work on the vehicle.
- The vehicle is tested, and the transport supervisor signs off the issued work order and files the records on his shelf.



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Maintenance records for both preventive and corrective actions selected vehicles were noted by the auditors.

Fourteen (14) trucks have been approved by the EPA for cyanide transportation which is enough to carry out deliveries to the mines. Each truck will carry 2x20ft containers of cyanide.

The weight of the containers are stated in the Bill of Lading of the consignment. The trucks and trailers of the trucks are designed as per manufacturers specification to carry a maximum weight of 60t. There are government weighing bridges along the transportation route. Trucks are weighed at government approved weighing bridges along the route to the mines. Copies of weigh bridge tickets for other mining items were verified and noted. The transporter is committed to ensure that trucks are not overloaded. The same process will be followed for cyanide shipment to ensure that trucks are not overloaded.

Auditors noted from evidence provided that GLL trucks are not overloaded.

GLL will not subcontract any of the above activities.

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

The operation is **X in full compliance with** Transport Practice 1.4

Summarize the basis for this Finding/Deficiencies Identified:

The transporter is committed to ensure that cyanide is transported in a manner that maintains the integrity of the producers packaging. GLL's has developed a TMP that describes the sodium cyanide as solid briquettes which is packed in Intermediate Bulk Containers (plywood box) with each containing 1000kg or 1100kg of product having purity of between 96% - 98%. The briquettes are stored within a woven polypropylene bag, sealed with a PVC plastic liner, within a wooden crate. The packaging conforms to the IMDG code. The IBCs are packed in 20ft standard shipping containers and are tagged with security seal throughout the duration of their transportation to the mine sites.

Copies of container interchanges issued by Ghana Ports Authority have the container numbers, waybill and general comments on the conditions of the containers. Copies of interchange for some mining reagents were sighted. The seals on the containers will be broken at the mine site when the IBCs are about to be offloaded. Waybills will be signed by the mine site personnel and stamped indicating the goods are received in good condition. The location of the cyanide convoys will be communicated to the mine and the supplier after every 1hr.

The transporter is committed to the use of placards and other signage to identify shipment as cyanide. The manufacturer will have placards on all four sides of the container as required by the IMDG Code. Toxic 6 labels and Marine Pollutant labels are used. Besides the required placards, the transporter has fixed placards in front and in the rear of the trucks as per international regulations. Clause 8.3 of the TMP(GLL-IMS-QHSE-PR0034) mentions the placarding of the containers and trucks.

GLL has committed to implement a safety program for cyanide transportation activity which includes the following.

- Vehicle Inspections and Emergency response equipment inspections
- Preventive and Corrective Maintenance program
- Alcohol, Drug and No smoking policy
- Fatigue management policy
- QHSE Policy document number
- Integrated Management Systems Policy Statement
- Employees Engagement (process of participation and consultation of employees in decision making processes to promote harmonious working relations).

The transporters Transport Management Plan requires inspections be carried out on daily and also prior to the departure from the port. Vehicle predeparture checklist details what is to be inspected. Records of inspections carried out selected trucks were verified and noted. The checklist includes twist locks, top light, trafficator lights, reverse alarm, overall condition of the truck, tyres, electricals and fluid and leakages.

A "Fault Rectification Process" in existence whereby defects noted during routine inspections are rectified. After each trip vehicles are inspected and should any defect be noted it gets fixed. Maintenance records of the vehicles are properly filed and also kept electronically. For defects reported, auditors noted that work order forms were generated, and defects attended to by transporter's mechanic.

Faults picked up during the inspections are rectified by the company's mechanic before-a convoy departs the port to the mine site destination. A fault rectification form is then completed and signed off by the mechanic and the Transport coordinator. Inspection checklist records were sighted as evidence.

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The operation has a maintenance procedure consisting of both preventive and corrective maintenance. The following is the process of carrying a job on a vehicle.

Preventive maintenance is conducted by using the manufacturers recommended approved maintenance plan. Vehicles are serviced as follows:

- 10,000Km - Service A
- 15,000Km - Service B
- 15,000Km - Service C.

The company has arrangement with Rana Motors (agents of Good Year brand of tyres) to inspect and perform servicing on the company's vehicles tires. A memorandum of understanding between the two companies signed and dated 16th February 2021 was sighted and noted during the audit.

Rana Motors visits the company's premises to check on all the tires on all the vehicles. GLL has a policy of replacing tires when the thread depth of the tires reaches a minimum of 1.6mm.

The company has a fatigue management policy-The procedure stipulates that a driver drives a maximum of 10 hours a day. The policy states that drivers drive 4hrs and take 30minutes break. The company has GPS installed in the trucks. Sampled GPS reports were verified and noted. The GPS reports show the driving hours and stopping times. Sampled GPS records gives details of the stopping times for rest breaks and the times of driving. It was evident from journey plans and GPS reports that the recommended driving hours are adhered. Records of journey plans were noted.

GLL is committed to ensuring that containers of cyanide are secured on the truck trailer and delivered safely to the mine site safely.

The Transport Management Plan indicates that containers are to be transported on road trailers and secured by twist locks to prevent the load from shifting. The pre-departure checks are to be carried out by the driver and escort leader to ensure that the containers are locked firmly with twist locks. Trip Inspection checklist are to be completed after every inspection on a vehicle. The inspection includes checking of twist locks and stabilizing the container to prevent it from shifting. A pre-departure checklist is to be completed anytime these inspections are performed. Inspections carried out on the transporter's trucks by auditors proved that the trailers fitted with eight (8) twist locks for two containers. Each 20ft container is held on the truck trailer with four (4) twist locks. During routine stops the twist locks are also to be checked to ensure that they are in the "locked" position.

The Transport Management Plan in clause 6 clearly states that in severe weather condition and civil unrest the convoy will suspend or stop moving until the situation is under control. The trucks will be parked at an appropriate and safe location. The Escort Leader takes the decision and stops or suspends movement of the convoy and informs his office about the situation. The time of stopping and resumption of the movement of the convoy are to be recorded on the journey plan by the Escort Leader. The decision to continue the journey is made with the QHSE Manager in consultation with the mining client and his head office. Communication with the Transport manager at the head office is through cell phone.

The transporter has developed and implemented an Alcohol, Drug and Smoking policy Regular alcohol tests are carried out randomly on nominated drivers and escort team. Consumption of alcohol and abuse of drugs whilst on duty is strictly prohibited and is punishable. Anyone found culpable is blacklisted and not allowed to drive. A breathalyzer (Rapid Screen and Accurate alcohol tester model number AT7200) is used for conducting the testing. The next calibration date is October 2024. Records of Alcohol tests carried out were noted.

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GLL has a Documents Retention Procedure (GLL-IMS-QHSE-PRO014) which specifies that all documents and records are retained for 4 years before being disposed. Records includes checklists, waybills and maintenance records are retained. Contents of Document Control procedure was noted.

The transporter does not subcontract above activity except tire management. GLL has an agreement with Rana Motors to service the tires as per the company's maintenance procedure. Rana Motors is to ensure that tires are all good condition as per GLL maintenance procedures.

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

The operation is **X in full compliance with** Transport Practice 1.5

Summarize the basis for this Finding/Deficiencies Identified:

Not applicable to this operation as no shipment of cyanide is done by sea.

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

The operation is **X in full compliance with** Transport Practice 1.6

Summarize the basis for this Finding/Deficiencies Identified:

The transport vehicles already have a means of communication. The TMP states that vehicles/convoy are equipped with a means of communicating quickly, efficiently and reliably with the operational base.

Communication between the drivers and Escort leader is by the use of cell phones. Cell phones are used to communicate with the head office, the mining company and external emergency responders. Vodafone mobile phone service network is used. Communication with the cyanide producer and the mine will be done using emails. Trucks drivers journey checklist has the inspection of the cell phones prior to departure of a convoy. Mobile phones are to be inspected during predeparture inspection of escort equipment and escort equipment checklist completed.

Contact phone numbers of all the emergency responders on the transport route will be made available with each of the escort vehicles. All emergency equipment are to be inspected on a regular basis apart from the predeparture inspection that is done. A public address system (megaphones) forms part of the equipment and will be used to communicate with people in case of an incident. Email communication between some mines and GLL for delivery of some other mining reagents were sighted. Communication devices (cell phones and megaphone) were inspected and noted by auditors.

GLL is committed to ensuring that all communication equipment are regularly tested. Communication equipment such as cell phones and SKYFMS GPS are installed in the trucks and are inspected prior to the departure of the convoy. The GPS device is also tested to ensure that they are functioning properly. An emergency equipment checklist is completed after inspecting the communication equipment. Records showing inspection of communication were sighted. It is the responsibility of the Convoy leader to ensure that the communication equipment's are working effectively.

As per RRA's conducted, there are no blackout areas on the road from Takoradi port to the mine site destinations. However, two mobile phone service networks (Vodafone and MTN) will be used during deliveries of cyanide in case of a disruption in network coverage of one phone service provider then the convoy can fall on the other phone service network. RRA conducted show that there are no blackout areas on road from the port to the various mines. RRA contents were scrutinized and noted by auditors.

The transporter is committed to track the progress of cyanide shipment. GLL uses the SKYFMS GPS tracking System on all its vehicles. The GPS is monitored hourly by the Transport Supervisor and the IT officer. The monitoring is recorded in a Tracking Inventory Book/Logbook. At stopping points, the escort leader informs the Transport Supervisor and the QHSE Manager about the locations of a convoy. Records of GPS for some selected vehicles with registration were noted. The TMP mentions that the convoy speed is 60Km/hour on sealed road and 30km/hour on graveled road.

GLL is committed to implementing inventory controls and chain of custody documentation. The TMP mentions chain custody documentation namely Bill of Lading, packing list, Waybills, GPS records and Pre-departure checklists which may help to prevent loss of shipment. Shipping documents namely Bill of Ladings and packing list from the supplier are sent to GLL weeks before the arrival of a shipment. These documents are shown to the shipping line as proof of ownership before the containers are released from the port. Waybill reflects the sea container numbers and seal numbers. The pre-departure checklist lists all the required documentation required for a trip. The documents will be handed over to the mine when a convoy arrives there. The Escort Leader will ensure that all the documents are intact, and copies handed over to the mine. Copies of container interchanges issued by the Ghana

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port Authority shows the condition of each container and Bill of Lading for other mining reagents delivered the Mensin Bibiani Gold were sighted. The same interchanges are issued by the shipping companies for cyanide containers.

GLL is committed to ensure that shipping records such as Bill of Ladings, waybills and packing list indicates the quantity of cyanide per shipment. A sample of the Bill of Ladings MEDUIB898826 dated 9th August 2023 for specifies the quantity of container in a shipment, date shipped, container numbers and gross weights of the containers. The company's TMP mentions that each truck and escort vehicle will have copy of MSDS from the cyanide producer. As per the transporter's predeparture checklist, MSDS forms part of the required document to be inspected before a trip.

GLL does not use sub-contractors for any of its transportation business.

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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 **X in full compliance with** Transport Practice 2.1

Summarize the basis for this Finding/Deficiencies Identified:

Greeline Logistics Ltd is in full compliance with Transport Practice 2.1, based on the finding that the transport operation will not store any cyanide. Greenline does not have a cyanide trans-shipment depot or interim storage of Sodium Cyanide.

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

The operation is considered to be in full compliance due to this Transport Practice not being applicable.



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

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

The operation is **X in full compliance with** Transport Practice 3.1

Summarize the basis for this Finding/Deficiencies Identified:

GLL has developed an Emergency Response Plan (doc. GLL-IMS-QHSE-PRO043 Revision 0.4 dated 7th September 2023).

The plan details the following.

- Procedure to response to emergency/incident
- Cyanide incident Management Strategies
- Roles and Responsibilities of emergency responders and other stakeholders
- Emergency contact information
- Description of incident scenarios
- Neutralization and decontamination processes
- PPE requirements

The contents of the ERP were found to contain all the required information to handle cyanide incidents.

The ERP is appropriate for the selected transportation route. Clause 1 of the ERP states that the transportation to the various mine site will be by road. RRA and Route Surveys has been conducted on the road from Takoradi port, Ghana to the three mine sites where the transporter also delivers explosives to.

The TMP, RRA and ERP all considered the road condition including potholes rivers, slopes, curves, bridges, fog, population density, tarred and dusty road and road surface along the selected route. The ER plan was reviewed and was found to be appropriate for the cyanide transportation. It addresses issues regarding road transportation of cyanide. The ER Plan addresses cyanide incidents on the road. Records of Route Risk Assessments for years 2021, 2022 and 2023 were verified. There is no interim storage. The transporter will do direct delivery from the port to mine sites.

The physical and chemical properties of sodium cyanide is comprehensively addressed in the company's ERP. The MSDS in the ERP also describes the physical and chemical properties of sodium cyanide. It describes the nature of cyanide and its packaging and other chemical properties. The ERP describes sodium cyanide as a white solid briquette which are in sacks and encased in plywood boxes. The ERP covers reactions when on contact with acids and other incompatible chemicals and when exposed to moisture. It has a detailed description of the physical and chemical properties of the sodium cyanide, including the required placards identifying the product as sodium cyanide. These placards are UN No. 1689, Toxic 6 and Marine pollutant labels.

The ER Plan is committed to considering road transportation of cyanide from the Takoradi port, Ghana to the three mine sites by road using trucks of the required configurations, Hose Power and load capacities. The plan was developed only for the transportation of cyanide by road. RRA's and route surveys have been conducted on the road from the port of Takoradi to the mines.

The Emergency Response Plan was developed from the Route Risk Assessments that were conducted which took into consideration all aspects of transport infrastructure. On development of the Emergency Response Plan the



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actual conditions of road, bridges, slopes, water bodies, market, slopes, untarred and tarred roads were taken into account. RRA's and Route survey reports capture-pictorial view of the infrastructure on the road. Deliveries of cyanide will be done using Schman, Man diesel and HOWO trucks of the required configurations.

Clause 4.2 of the ERP describes the design of the transport vehicles. The brand of trucks used are MAN Diesel, Howo, Foton and Schman 6x4 trucks. The configuration of trucks are 6x4 coupled with tri-axle trailers and each truck will carry 2x20ft containers of cyanide, a total weight of 46 tons. The design of the trucks was noted in the ERP and also physically inspected by auditors.

The transporter has included description of response actions for anticipated emergency situation. The ERP describes the response actions of different possible incidents which could occur while transporting cyanide. The ERP gives a vivid description of the various incident scenarios.

The ER Plan addresses the following scenarios.

- Roll of cyanide without spill on dry ground
- Roll over of cyanide container with spill on dry ground.
- Roll of cyanide container during a rainfall or on wet ground
- Rollover resulting in a spill in a water body.

Response actions for anticipated for the various scenarios have been captured in clauses 5.13, 5.14, 5.15 and 5.16 of the ERP. Scenarios and response actions were noted by auditors.

The Emergency response Plan (Responsibilities and external parties) spells out clearly the roles and responsibilities of the following emergency responders.

- Responsible civil authority for the control of the public (e.g., Ghana police service)
- Responsible combatant for managing the response to an incident (local Fire Service or specialized chemical hazards response unit).
- Responsible ambulatory care service for managing and transporting affected casualties to medical treatment (Ghana Ambulance Service)
- Public Hospital care facilities
- Responsible civil authority with responsibility for environmental matters (Ghana EPA)
- Responsible civil authority with the responsibility for local government matters (Water Resources Commission)
- Responsibility of the mine customer is to receive and supervise destuffing of containers as the IBC's may have been damaged and use product as soon as practicable.

The plan takes into consideration the roles and responsibilities of internal and outside responders. i.e. escort leader, escort team, the police, Ambulance services, hospitals, Ministry of Environment, and the mine.

The ERP mentions that in the event of an incident, the Escort Team leader will notify the various external responders for them to come and assist., supervise the cleaning of the spill and neutralization when necessary. The convoy leader will ensure the safe cleaning up of a spill and also supervise the neutralization process. The escort team will be responsible for coordinating the recovery of spilled product, recovery of container and neutralization and decontamination.

The Escort team will-cordon off the area and move people upwind. Cleaning and shoveling and sweeping of the solid sodium cyanide briquettes into a sealable container will be the responsibility of the escort team. The overall coordination of an incident is the responsibility of the Escort team leader. The Escort Team leader is responsible for administration of oxygen to a cyanide poisoned person and hand the victim over to the Ambulance when they



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Nairobi

Kenya

arrive. The role of the Fire Service is to assist in case of fire and rescue of injured person. Ambulance Service handles injured persons or possible poisoned person and transports them to the hospital. The hospital will undertake treatment of a poisoned or injured person and the administration of 100% oxygen to a victim in conjunction with cyanide antidote.

The Ghana EPA's responsibility is to give expert advice on remediation measures and supervise clean-up of spill. Water Resources Commission will give advice on possible water way contamination and prevent further contamination of water bodies and also pick samples in case of spillage into water body and also offer technical advice. The mine will be responsible for receiving the recovered container and contaminated soils and properly neutralize. The mine will be fully involved in the recovery in case the incident occurs close to the mine site. NADMO will coordinate emergencies with other security services. The supplier will offer technical advice and also communication with the mine site. These above roles and responsibilities which are clearly stated in the ERP were noted.

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

The operation is **X in full compliance with** Transport Practice 3.2

Summarize the basis for this Finding/Deficiencies Identified:

GLL is committed to providing emergency response training for its employees. The ER plan (GLL-IMS-QHSE-PRO043) mentions emergency response training which includes response to cyanide incidents, Fire training, Basic, First Aid and Mock drills. GLL has a training matrix that specifies the required ER training and the frequencies each training program are held.

Emergency response training is held annually. Records of cyanide ER Trainings held in 2022 and 2023 were verified and noted. Written assessments are conducted at the end of each training on the escort team. Marked scripts for the escort team were scrutinized. Drivers are assessed verbally by questioning and answering. The theoretical training is followed by practical training (Mock drill). Training certificates for the ER training were verified and noted by auditors.

Clause 5.4 of the Emergency response Plan (Responsibilities and external parties) spells out clearly the roles and responsibilities spell out the emergency response duties and responsibilities of personnel. The expectations and responsibilities of each of the emergency responders are spelt out. The escort leader is the incident coordinator who ensures that everyone plays a role in handling cyanide incident. The role of the police, fire service, EPA, NADMO and Water Resources Commission are all described in the ERP document.

Though the company is yet to commence cyanide transportation, the company has purchased all the required equipment for cyanide escort. A list of emergency equipment is in the ERP. The ER equipment are kept in a secured place and will be used for escorting cyanide convoys.

The list includes of escort equipment.

- Oxygen cylinder
- Oxygen regulator
- Stretcher
- First Aid Kit
- Pair of waterproof boots
- Pair of gloves
- HCN Gas detector (Honey Well BW Solo brand)
- Full face respirator and Cartridges (ABEKP3)
- Beacon and danger flags
- PVC gauntlet gloves/overalls
- Rubber boots
- Safety triangles
- Caution tape
- Cones
- Shovels
- Stretch film roll.
- Broom
- Tarpaulin
- Empty sacs
- Plastic bucket
- Spray pack
- Reflector tape

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- Ferrous sulphate monohydrate
- Danger flags (Red and Green)
- Plastic Buckets
- Torch light with spare batteries
- 6Kg and 9Kg Fire extinguishers
- Helmets
- Spray pack
- Megaphone
- Alcohol test kit

All the escort equipment were inspected by auditors and the quantities compared with the transporter's equipment inventory checklist. The company has placed an order for Cyanokit (Hydroxocobalamin) a cyanide antidote for cyanide poisoning. Email communications between the supplier in France and GLL were verified. A copy of quotation dated 29th September 2023 for the antidote was sighted. The antidote is expected to be received soon.

Oxygen gas cylinder is periodically checked for Oxygen levels. The equipment are kept at the QHSE Manager's office under lock. The escort equipment are inspected and an escort equipment checklist completed. HCN gas detector was calibrated by Fincos Resources & Services Ltd on 28th September 2023 and expires on 26th March 2024. A certificate of calibration dated 28th September 2023 was sighted. A calibration certificate number 123155 dated 28th September 2023 was sighted. The Alcotest Breathalyzer was calibrated by Ultimate Resurgence Services Ltd on 12th October 2023 with next calibration date of 13th October 2024. Calibration certificates number AJ23093 for the breathalyzer was noted.

GLL has procured the necessary emergency equipment and personal Protective Equipment which are available and ready to use should it be required. Personal Protective Equipment, namely, disposable tyvek overalls, rubber boots, gloves, full face and respirator with canisters and helmets are available. Auditors confirmed the availability of the transporter's ER equipment, cyanide first aid equipment and Personal Protective Equipment (PPE). Auditors physically inspected the emergency equipment which includes PPEs.

The training matrix makes provision for training of drivers and escort team in emergency response procedures. This forms part of the training of all drivers and other employees. The training is organized annually. Copies of training attendance register for training held on 22nd and 23rd of March 2023 and 14th and 15th June 2022 and 12th July 2023 were verified.

The ERP specifies that inspection be carried out on the Emergency Response Equipment to ensure availability, good working order and functionality. The plan states that the ER equipment will be inspected, and ER Equipment checklist completed with the findings after the inspection and checklist signed. Equipment will be inspected prior to departure of a cyanide convoy and after return from mine site. Inspection is carried out by the QHSE Manager. ER equipment will be inspected every two weeks to ensure it availability and obsolete once replaced with new ones. Emergency equipment are kept in a lock-up in the QHSE Manager's office to ensure safe keeping. Records of inspection were noted.

GLL does not sub-contract any of its transportation business and will not subcontract the activities in clause 3.2.



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

The operation is **X in full compliance with** Transport Practice 3.3

Summarize the basis for this Finding/Deficiencies Identified:

GLL has a list of Emergency contact phone numbers and email addresses in the Emergency Response procedure. It outlines the procedure for notifying the supplier, the mine, Ghana EPA and medical facilities, Ambulance Service, Police, Customs, and Ghana Fire Service. A similar list of numbers are with the Escort leader when transporting other hazardous materials. The ERP stipulates the call-out procedure to be followed in the case of an emergency. The Escort Team leader is responsible for ensuring that the emergency contact numbers are kept current. Ghana EPA contact the affected communities in case of an incident.

The transporter has procedures for validating the contacts details of internal and external emergency responders contacts. The procedure specifies the steps that is followed in ensuring that the contacts are kept current.

These steps are as follows:

- The need for updating the emergency contact information such as change in personnel, phone number, emails addresses or location will be identified.
- the company database and contact management system is accessed using authorized credentials and password.
- the record of the person or entity whose emergency contact information needs to be updated will be located.
- Old records are edited with the new information and changes saved.
- the relevant parties are notified of the updated information to ensure that the contact information are correct and consistent with other records.
- the relevant parties are notified of the update such as the person or and the customer.

The contact numbers are reviewed annually and/or as and when necessary. Telephone contact numbers are reviewed and tested regularly to ensure that the phone numbers are still active. The procedure to ensure that the internal and external notification and reporting are kept current was verified and noted.

Clause 7 of the ERP (document number GLL-IMS-QHSE-PRO043) states that in an event of a significant cyanide incident ICMI will be notified. The ERP mentions that following significant incident as defined by ICMI includes the following.

- Human exposure that requires action by an emergency response team, such as decontamination or treatment.
- An unauthorized discharge that enters natural surface waters, on or off site.
- An unauthorized release that occurs off-site or migrates off-site.
- An on-site release requiring the intervention of an emergency response team.
- A transport incident requiring an emergency response in the event of a release of cyanide.
- A multiple wildlife death event where cyanide is known or credibly suspected to be the cause of death.

The procedure for notification to ICMI in the event of a significant incident was verified by auditors and noted.

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

The operation is **X in full compliance with** Transport Practice 3.4

Summarize the basis for this Finding/Deficiencies Identified:

GLL committed to implement procedures for remediation, such as recovery or neutralization of solutions or solids, decontamination of soils or other contaminated media and management and/or disposal of spill cleanup debris. The transporter has developed a procedure for remediation, recovery and neutralization of solid sodium cyanide and cyanide solution.

The following are the details of the remediation measures in the ERP.

- Decontamination of spill of solid or dissolved cyanide in the soil
- Neutralization and disposal of recovered cyanide
- Neutralization and disposal of excavated soil
- Neutralization of solutions
- Decontamination of PPEs of people and equipment
- Appropriate use of Ferrous Sulphate Monohydrate.

The procedure states that, in containing the spill, the escort team will ensure the spill is prevented from entering water ways. In case a spill on dry ground the briquettes of cyanide will be shoveled into a sealable container. The residue will be neutralized with Ferrous sulphate monohydrate. The ERP describes the appropriate use of the neutralizing chemicals. The ERP mentions Ferrous sulphate monohydrate as the preferred neutralization chemical for cyanide but not in surface water. The initial cleanup will be the responsibility of the Escort team leader and the emergency team. In the case of a large spill, the escort leader will take the initial response and then call in the outside responders to assist. The detailed process of the aforementioned remediation measures were scrutinized and noted by auditors.

The ER Plan (in clause 5.9) states that under no circumstances should sodium hypochlorite, Ferrous sulphate and hydrogen peroxide be used to treat or neutralize cyanide that has entered surface water. The procedure strictly prohibits the action of the use of neutralizing chemicals in surface water. The relevant clause in the ERP was verified and noted by auditors.



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

The operation is **X in full compliance with** Transport Practice 3.5

Summarize the basis for this Finding/Deficiencies Identified:

GLL has made provision and have spelt out processes to evaluate the ER plan. The ER Plan makes provision for reviewing and evaluating the plan annually and as and when necessary to ensure its effectiveness and smooth implementation. In case of any transportation incident and an investigation report is issued, the QHSE Manager will review and update the emergency response procedure. The procedure reiterate that the revision and update will also be based on findings from yearly mock drills conducted by the QHSE team. The recent review and evaluation of the plan was on 7th September 2023.

Mock drills are organized twice annually as per clause 5.1.4 of the ERP. The training matrix captures the dates mock drills were held, next mock drill exercise dates and the names of all the participants. Mock drills were held on 23rd March 2023 and 4th October 2023. Records were sighted and noted. The Ghana Police Service personnel and Ghana Ambulance Service participated in the mock drills as shown in photos and videos taken. A review of mock drill reports and interviews conducted on selected participants confirmed that mock drills have been completed in accordance with the company's training commitments. Recommendations and feedback on the mock drills were all noted in mock drill report. Records of mock drill attendance registers bearing the dates, names of participants and their signatures were sighted.

Evaluation and revision of the plan will be done when there are changes to conditions along the transportation routes, lessons learnt from the mock drills and accident investigations.

After each mock drill, debriefings and discussions will be done with all the participants and ideas shared. Any useful ideas incorporated in the plan. As per the ERP evaluation will be done annually on the implementation of the plan. The plan is then updated by the QHSE Manager.

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