REPORT

ICMI GOLD MINE RECERTIFICATION AUDIT - SUMMARY REPORT

Newmont Ghana - Akyem Gold Mine

Submitted to:

International Cyanide Management Institute (ICMI)
1400 I Street, NW, Suite 550
Washington, DC, 2005,
United States of America

Submitted by:

Golder Associates Africa (Pty) Ltd.
Building 1, Maxwell Office Park, Magwa Crescent West, Waterfall City, Midrand, 1685, South Africa
P.O. Box 6001, Halfway House, 1685

+27 11 254 4800

21455666-346834-2

July 2021

1.0 SUMMARY AUDIT REPORT FOR GOLD MINING OPERATIONS

Name of Cyanide User Facility:	Akyem Gold Mine
Name of Cyanide User Facility Owner:	Newmont Ghana
Name of Cyanide User Facility Operator:	Newmont Ghana
Name of Responsible Manager:	Daniel Egya-Mensah General Manager
Address:	Akyem Gold Mine P.O. Box 251 Nkawkaw Eastern Region, Ghana
Country:	Ghana
Telephone:	+233 (0) 50 132 3692
E-Mail:	daniel.egya-mensah@newmont.com

2.0 LOCATION DETAIL AND DESCRIPTION OF OPERATION

The Akyem Gold Mine is located within the New Abirem mining concession, which falls within latitudes 6º 25´ N and 6º 33´ N and longitudes 0º55´W and 1º 05'' W, has a total area of approximately 59 km². The mining concession is located in the Birim North and Asante Akim South Districts in the Eastern and Ashanti Regions of Ghana, respectively.

The Akyem Gold Mine can be reached by turning off the Accra-Kumasi highway at Nkawkaw onto the tarred Nkawkaw- New Abirem road and branching of through Mpintimpi, Amenam, and Adofo Krom on a good gravel road. The mine can also be reached by turning off the Accra-Kumasi highway at Asankare and traveling on a good gravel road to Dampon and then on a third-class road to Adofo Krom.

The Akyem Process Plant consists of a conventional mill and carbon-in-leach (CIL) circuit. Ore from the mine workings is transported to a crushing, grinding and milling circuit. Ore processing consists of CIL cyanidation, elution and gold recovery. Tailings material is conveyed by pipeline to a counter-current decantation (CCD)

plant where tailings are rinsed with water to reduce Weak Acid Dissociable (WAD) cyanide concentrations to less than 50ppm WAD cyanide. The tailings are pumped from the CCD circuit via a dedicated pipeline contained within a lined tailings trench, to an engineered tailings storage facility (TSF) for final disposal. Tailings water is recovered from a decant pond, and recycled back to the process plant for re-use in the milling circuit.

The Akyem Gold Mine purchases sodium cyanide from Samsung C&T Deutschland and this cyanide is manufactured by Asahi Kasei Corporation, Japan and TongSuh Petrochemical Co., Ltd. manufacturing plant in Korea. The cyanide, in solid briquette form, is packaged in one tonne flexible intermediate bulk containers (FIBC) comprising poly-woven bags inside plywood boxes. The FIBCs are transported by sea in shipping containers to the port of Tema in Ghana from where the cyanide contained in the FIBC is removed and transferred to a tank container at the Vehrad Transportation and Haulage repackaging facility in Tema. The tank containers (Isotainers) are transported by road to Akyem Gold Mine. The cyanide is delivered to the Akyem Process Plant in dry briquette form, in truck-mounted isotainers, for solid to liquid sparging by Vehrad Transportation and Haulage.

During sparging, pH adjusted water from the mixing tank is continuously passed through the isotainer in a closed circuit until the cyanide has been dissolved and the required concentration of liquid cyanide is achieved. On completion of the sparging process, the liquid cyanide is transferred from the mixing tank to a dedicated storage tank ready for delivery by pipeline to the process plant.

SUMMARY AUDIT REPORT
Auditors Findings

	☐ in full compliance with	
Newmont Akyem Gold Plant is:	☒ **in substantial compliance with***	**The International Cyanide Management Code**
	☐ not in compliance with	

Audit Company:	Golder Associates Africa (Pty) Ltd
Audit Team Leader:	Marié Schlechter, Lead Auditor and Mine Technical Specialist
Email:	mschlechter@golder.co.za

This operation was found in substantial compliance with the Cyanide Code based on the audit findings discussed in this report under Standard of Practice 2.2.

No significant cyanide incidents or cyanide exposure incidents were noted as occurring during the recertification period.

* The Corrective Action Plan (CAP), to bring an operation in substantial compliance into full compliance has been developed. The CAP must be fully implemented within one year of the date of this audit.

Name of Other Auditors

Benjamin Asiedu, Golder Ghana Signature:

Dates of Audit

The Re-certification Audit was undertaken between 28 June 2021 and 1 July 2021.

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 Mining Operations Verification Protocol and using standard and accepted practices for health, safety and environmental audits.

Newmont Akyem Gold Mine
Name of Facility

Signature of Lead Auditor

July 2021
Date

PRINCIPLE 1 – PRODUCTION

Encourage Responsible Cyanide Manufacturing by Purchasing from Manufacturers that Operate in a Safe and Environmentally Protective Manner

Standard of Practice 1.1: **Purchase cyanide from manufacturers employing appropriate practices and procedures to limit exposure of their workforce to cyanide, and to prevent releases of cyanide to the environment.**

☒ **in full compliance with**

The operation is ☐ in substantial compliance with **Standard of Practice 1.1**

☐ not in compliance with

Summarise the basis for this Finding/Deficiencies Identified:

The operation is in FULL COMPLIANCE with Standard of Practice 1.1; to purchase cyanide from manufacturers employing appropriate practices and procedures to limit exposure of their workforce to cyanide, and to prevent releases of cyanide to the environment.

Newmont Ghana Gold Limited has a contract with Samsung C&T Deutschland GmbH for the supply of solid cyanide to the Akyem Gold Mine.

Prior to the current contract with Samsung, a contract was held with Orica International PTE LTD for the supply of sodium cyanide.

The operation's contract with the cyanide supplier, Samsung C&T Deutschland as well as the preceding contract with Orica requires that the cyanide be produced at a facility that has been certified as being in compliance with the Code.

Orica's Yarwun production facility was recertified on 17 September 2020.

Samsung C and T Deutschland supplied Akyem Gold Mine with sodium cyanide from the Asahi Kasei Corporation production facility in Japan and the Tongsuh Petrochemical Corporation., Ltd production facility in Korea.

The Asahi Kasei Corporation production facility is certified as being in full compliance with the Code on 26 October 2018.

The Tongsuh Petrochemical Corporation., Ltd production facility is certified as being in full compliance with the Code on 9 March 2020 with the prior recertification being dated March 2017.

The cyanide is repackaged in Ghana prior to delivery to the site at the Vehrad Transport & Haulage Repackaging Plant #2. The Vehrad Transport & Haulage Repackaging Plant #2 is certified as being in full compliance with the Code on 15 September 2021 with the prior recertification being dated January 2018.

PRINCIPLE 2 – TRANSPORTATION

Protect Communities and the Environment during Cyanide Transport

Standard of Practice 2.1: Establish clear lines of responsibility for safety, security release prevention, training and emergency response in written agreements with producers, distributors and transporters.

The operation is

☒ **in full compliance with**

☐ in substantial compliance with **Standard of Practice 2.1**

☐ not in compliance with

Summarise the basis for this Finding/Deficiencies Identified:

The operation is in FULL COMPLIANCE with Standard of Practice 2.1 to establish clear lines of responsibility for safety, security release prevention, training and emergency response in written agreements with producers, distributors and transporters.

There is a written agreement between the cyanide producer (Samsung C&T Deutschland GmbH) and the operation (Newmont Akyem Gold Mine).

Forward Purchase Agreement, Agreement Number: MA-00067-2020, between Newmont Golden Ridge Limited and Samsung C&T Deutschland GMBH, for the supply and delivery of Sodium Cyanide, effective date: 1 January 2020, termination date: 31 December 2024.

The current contract with Samsung includes the following:

a) Packaging as required by the United Nations requirements for international shipments and Ghanaian regulatory requirements

b) Labelling in languages necessary to identify the material in the governmental jurisdiction

c) Addition of colorant dye to high strength liquid cyanide –The Principal (the site) is responsible for the handling, storage and transport of the cyanide after the point at which the risk transfers to the Principal from the Supplier, being the delivery of the cyanide to site. The addition of the dye is the responsibility supplier and is added to the isotainers by Vehrad Transporters at their transfer facility in Tema.

d) Storage prior to shipment

e) Evaluation and selection of routes, including community involvement

f) Storage and security at ports of entry

g) Interim loading, storage and unloading during shipment

h) Transport to the operation

i) Unloading at the operation

j) Safety and maintenance of the means of transportation throughout transport

k) Task and safety training for transporters and handlers throughout transport

l) Security throughout transport

m) Emergency response throughout transport

The contract also extends to sub-contractors and states that the purchaser reserves the right to conduct inspections at any level of work at the Supplier and its sub-suppliers facilities to ensure compliance to the contract requirements.

It is also stated that the supplier and all its sub-suppliers shall exercise a degree of care, skill and judgement in performing the supply in an environmentally conscious nature and that they should comply with all the Purchaser's policies and procedures.

The contract with Samsung includes transport and delivery of the cyanide to the mine site. Samsung uses subcontractors for the transportation of Cyanide from the port of Tema to the mine. Currently Vehrad Transport and Haulage (re-certified 23 September 2021) is used for the transportation of the cyanide to site.

Standard of Practice 2.2: **Require that cyanide transporters implement appropriate emergency response plans and capabilities and employ adequate measures for cyanide management.**

☐ **in full compliance with**

The operation is ☒ in substantial compliance with **Standard of Practice 2.2**

☐ not in compliance with

Summarise the basis for this Finding/Deficiencies Identified:

The operation is in SUBSTANTIAL COMPLIANCE with Standard of Practice 2.2 that require that cyanide transporters implement appropriate emergency response plans and capabilities and employ adequate measures for cyanide management.

Newmont Ghana Limited currently obtains its solid cyanide from Samsung C&T Deutschland GmbH.

The contract for the Supply of Cyanide was observed. It is stated in Attachment A that the Supplier and Newmont will together develop a detailed procedure for transportation and delivery of the product from port to site in full compliance with the International Cyanide Management Code (ICMC) and the ICMI Cyanide Transportation Protocol and applicable Legal requirements, System requirements and Newmont Policies.

The contract with Samsung includes transport and delivery of the cyanide to the mine site. Samsung uses subcontractors for the transportation of Cyanide from the manufacturers to the Port of Tema to the mine. Currently Vehrad Transport and Haulage is used to repackage and transport the sodium cyanide from Tema to Akyem Gold Mine.

Prior to the current contract with Samsung, a contract was held with Orica International PTE LTD for the supply of sodium cyanide.
The contract with Orica included transport and delivery of the cyanide to the mine site. Orica used a subcontractor for the transportation of cyanide from the port of Takoradi to the mine.

Cyanide previously ordered from Orica was delivered to Akyem Gold Mine via the Orica West Africa Supply Chain. The Orica West Africa Supply Chain includes ocean transport of cyanide by the Mediterranean Shipping Company, management of cyanide shipments at the Ports of Tema and Takoradi (Ghana) (amongst others) and road transportation in West Africa by Stellar Logistics and Allship Logistics. The Orica West Africa Supply Chain was recertified against the Code on 03 April 2018.
Stellar Logistics is a certified transported under the Code, which includes transporting cyanide from the Port of Takoradi to the mines in Ghana. Stellar Logistics was recertified against the Code on 22 November 2021.

The Samsung Africa Supply Chain (re-certified 15 June 2021) includes transport from manufacturers in Korea, TaeKwang Industrial Co., Ltd. and TongSuh Petrochemical Co., Ltd, using certified carriers SAM IK Logistics Co. Ltd. and Hae Dong Logistics to Pusan New Port, South Korea, followed by ocean transport by shipping companies MSC, Maersk and Safmarine to the Port of Tema (amongst others), followed by road transportation by, amongst others, Vehrad Transport and Haulage Ltd.

Samsung uses subcontractors for the transportation of cyanide from the manufacturers to the Port of Tema to the mine. Currently Vehrad Transport and Haulage (re-certified 23 September 2021) is used to transport the sodium cyanide from the Port of Tema to Akeym Gold Mine.

Vehrad Transport and Haulage is a certified transporter under the Code, which includes repackaging the cyanide at the Vehrad Transport & Haulage Repackaging Plant #2 in Tema and transporting cyanide from this facility to mines in Ghana. Vehrad Transportation and Haulage Ltd. was recertified against the code on 23 September 2021.

Samsung C&T Deutschland, the main cyanide supply contractor for Akyem Gold Mine, also ordered cyanide, in addition to the cyanide delivered via the Samsung Africa Supply Chain, from July 2020 to date directly from Asahi Kasei Corporation in Japan to ensure a stable supply of cyanide to the mine.
The sodium cyanide purchased from Asahi Kasei Corporation in Japan is transported inland by the production facility itself, which is not certified against the Code (either as a signatory or via a third-party audit in terms of Code requirements), to the Port of Mizuzhima from where it is transported further by either Hapag-Lloyd or MSC to the port of Tema in Ghana. The cyanide is transported by Vehrad Transport and Haulage Ltd. from the port of Tema to Akyem Gold Mine. There are currently no certified transporters in Japan.

The following actions have been agreed on between Akyem Gold Mine and Samsung C&T Deutschland to ensure that all transportation entities used in transportation of cyanide to the mining operation be certified, either individually or as part of a certified transportation supply chain:

- Samsung has stopped all deliveries from Japan until the supply chain becomes ICMC compliant.
- Last shipment from Japan to Newmont was on 16 September 2021.
- Samsung has engaged Asahi Kasei Corporation in Japan to obtain ICMC certification.
- Samsung assured Newmont that the Korea plants, supplying cyanide via the certified Africa Supply Chain, has the capacity to support Akyem Gold Mine.
- Samsung will compile all shipping documents per batch/consignment and send to Akyem Gold Mine as evidence per the Corrective Action Plan (CAR).

The site is found in substantial compliance with the requirements of this question based on the consideration that the deficiency can be rectified with immediate effect by only procuring cyanide either via the certified Samsung Africa Supply Chain or via certified transporters or supply chains. This will be implemented in accordance with the actions agreed on between the lead auditor and the mine, as stated in the Corrective Action Plan (CAR).

The operation has chain of custody records identifying all the elements of the supply chain that handle the cyanide brought to Akyem Gold Mine.

PRINCIPLE 3 – HANDLING AND STORAGE

Protect Workers and the Environment during Handling and Storage

Standard of Practice 3.1: **Design and construct unloading, storage and mixing facilities consistent with sound, accepted engineering practices, quality control/quality assurance procedures, spill prevention and spill containment measures.**

☒ **in full compliance with**

The operation is ☐ in substantial compliance with **Standard of Practice 3.1**

☐ not in compliance with

Summarise the basis for this Finding/Deficiencies Identified:

The operation is in FULL COMPLIANCE with Standard of Practice 3.1; design and construct unloading, storage and mixing facilities consistent with sound accepted engineering practices, quality control/quality assurance procedures, spill prevention, and spill containment measures.

The facilities for unloading, storing and mixing cyanide have been designed and constructed in accordance with cyanide producers' guidelines, applicable jurisdictional rules and/or other sound and accepted engineering practices for these facilities.

The cyanide reagent facility consists of:

- cyanide offloading area
- cyanide sparge tank
- cyanide mixing tank

During the site inspection, the auditors verified that both the cyanide offloading area, cyanide sparging tank and storage tank are located; away from people and located within the fenced, locked and guarded perimeter of the plant at a distance adequate to prevent exposure or a risk to people; and away from surface water. No surface water is present in the vicinity of these areas.

The cyanide sparge and storge tanks are located inside the concreted area equipped with a bund, sump and sump pump.
The cyanide off-loading area consists of concrete area with humps and a bund on three sides. Any spillage from this area will drain directly into the cyanide sparge and storage tank bund.

Level indicators are present at both the cyanide sparge, and the cyanide storage tanks. The levels can be observed in the control room by the Control Room Operator. Communication between operators and/or control room by mean of two-way radio. The tanks levels are recorded on a daily basis in real time by the Control Room Operator. The level sensors and warning sirens at the cyanide sparge tank and cyanide storage tank are inspected as part of the planned maintenance programme.

Solid cyanide is received in an Isotainer. After sparging, the liquid cyanide is pumped via the cyanide sparge tank to the cyanide storage tank. Both the cyanide sparge and storage tanks have ventilation pipes at the top to prevent the build-up of HCN gas.

During the site inspection, it was verified that the cyanide sparge and storage tanks are located within the fenced, locked and guarded area of the plant. The cyanide is stored separately from incompatible materials. Drainage from the area is also prevented from mixing with incompatible materials.

Standard of Practice 3.2: **Operate unloading storage and mixing facilities using inspections, preventative maintenance and contingency plans to prevent or contain releases and control and respond to worker exposures.**

The operation is

☒ **in full compliance with**

☐ in substantial compliance with **Standard of Practice 3.2**

☐ not in compliance with

Summarise the basis for this Finding/Deficiencies Identified:

The operation is in FULL COMPLIANCE with Standard of Practice 3.2 requiring unloading storage and mixing facilities be operated using inspections, preventative maintenance and contingency plans to prevent or contain releases and control and respond to worker exposures.

Cyanide is received in the isotainers. The isotainers are returned to the Vehrad Transportation and Haulage facility in Tema.

The Isotainer, hoses and off-loading area is rinsed after the sparging process has been completed. The rinse water reports to the cyanide storage area sump from where it is returned to the process.

Procedures are in place that detail:

- The operation and sequencing of feed and discharge valves during and after sparging and transferring of the cyanide.
- Timely clean-up of solid or liquid cyanide spills during mixing.
- The role and responsibilities of an additional individual to observe from a safe distance in order to be able to respond to any emergency.

All of the procedures include the specifications of PPE to be used.

A sparging event was observed, checking implementation of the procedures by the operators performing the sparging task.

Newmont Akyem Gold Mine
Name of Facility

Signature of Lead Auditor

July 2021
Date

PRINCIPLE 4 – OPERATIONS

Manage Cyanide Process Solutions and Waste Streams to Protect Human Health and the Environment

Standard of Practice 4.1: **Implement management and operating systems designed to protect human health and the environment including contingency planning and inspection and preventative maintenance procedures.**

☒ **in full compliance with**

The operation is

☐ in substantial compliance with **Standard of Practice 4.1**

☐ not in compliance with

Summarise the basis for this Finding/Deficiencies Identified:

The operation is in FULL COMPLIANCE with Standard of Practice 4.1; implement management and operating systems designed to protect human health and the environment including contingency planning and inspection and preventative maintenance procedures.

Written management and operating plans or procedures have been developed for cyanide facilities including unloading, mixing and storage facilities, grinding, leach and tailings impoundments

The current cyanide facilities at the Akyem Gold Mine are:

- Cyanide offloading area;
- Cyanide sparge and storage tanks;
- Grinding circuit (Ball Mill and Semi-autogenous Grinding (SAG) Mill);
- CIL tanks;
- CCD, including tails tank
- TSF and tailings delivery pipelines.

The operation currently has cyanide related standard operating procedures describing how cyanide-related tasks such as unloading, sparging, plant operations, and equipment decontamination prior to maintenance should be conducted to minimize worker exposure.

The operation has plans and procedures that identify the assumptions and parameters on which the facility design was based and any applicable regulatory requirements (e.g., freeboard required for safe pond and impoundment operation; the cyanide concentrations in tailings on which the facility's wildlife protection measures were based) as necessary to prevent or control cyanide releases and exposures consistent with applicable requirements.

The mine undertakes a number of operational inspections as well as health and safety inspections to ensure the facilities are operated in a safe and environmentally sound manner, conducted at predetermined frequencies.

The plant uses SAP, a computerised maintenance system to plan and schedule inspection and maintenance activities at varying frequencies. Work orders are issued on SAP and stored electronically on the system. The maintenance planning department also keeps hard copies of the records of maintenance activities. Job cards

are raised where ad hoc maintenance is required by the plant inspections or observations from plant employees.

The operation implements a Change Management Guideline and a Management of Change Standard. The guideline provides a recommended and systematic approach to ensure changes that impact safety, health, environment, external relations or productivity are identified, assessed, managed and appropriately communicated to all affected personnel. The standard aims to ensure effective management of changes to Newmont facilities, equipment, processes, materials resources or programs which could introduce new risk to people, the environment, stakeholders and the business. It ensures that changes are identified, reviewed by appropriate stakeholders and managed effectively prior to being implemented. This is intended to minimise the introduction of adverse impact to our business and stakeholders and to optimise opportunities for business improvement. The Management of Change Tool, an electronic system used to capture and guide the change management process, requires the relevant stakeholders, including the Health Safety and Environmental Department, to review and sign-off on all changes, including cyanide-related process changes and modifications, prior to implementation of the changes and modifications.

The operation has developed a number of procedures for contingencies and non-standard operating conditions, including upset in water balance, corrective action, and either planned or emergency shutdowns. In addition the SAP system records the corrective actions and corrective maintenance that is being undertaken when inspections or monitoring identifies a problem. Additional potential upset conditions are covered in the site Emergency Management Plans.

The operation inspects cyanide facilities on an established frequency sufficient to assure and document that they are functioning within design parameters. Operational inspections are carried out on a shift or daily basis at the reagent area, grinding circuit, CIL, CCD, TSF and Water Storage Facility (WSF) areas, Event Pond and Process Water Pond while additional weekly, monthly and quarterly inspections are conducted at the TSF. Preventative maintenance inspections are conducted on frequencies ranging from daily, weekly, monthly, 6-monthly and annually, in accordance with the manufacturers' requirements for the specific piece of equipment. The records are kept by the Process Maintenance Department.

It is concluded that the inspection frequency is adequate to assure that the facility operates within design parameters.

Inspections are documented, including the date of the inspection, the name of the inspector, and any observed deficiencies. The nature and date of corrective actions are documented, and records are maintained.

The operation has the necessary emergency power resources to operate pumps and other equipment to prevent unintentional releases and exposures in the event its primary source of power is interrupted. The back-up generating equipment is maintained and tested.

Newmont Akyem Gold Mine
Name of Facility

Signature of Lead Auditor

July 2021
Date

Standard of Practice 4.2: Introduce management and operating systems to minimise cyanide use, thereby limiting concentrations of cyanide in mill tailings.

	☒ **in full compliance with**	
The operation is	☐ in substantial compliance with	**Standard of Practice 4.2**
	☐ not in compliance with	

Summarise the basis for this Finding/Deficiencies Identified:

The operation is in FULL COMPLIANCE with Standard of Practice 4.2; introduce management and operating systems to minimize cyanide use, thereby limiting concentrations of cyanide in mill tailings.

The operation conducts a program to determine appropriate cyanide addition rates in the mill and evaluate and adjust addition rates as necessary when ore types or processing practices change cyanide requirements.

Internal and external optimization test works which include the following are undertaken:

- In-house test work – bottle roll test for cyanide recovery – weekly conducted – indicates cyanide consumption and optimal cyanide setpoint.
- Corporate test work conducted by the Metallurgical Department in conjunction with the Newmont Technical Services Facility in Colorado, on representative ore samples of areas to be mined and processed in the next year, to determine optimal setpoint while still maintaining the WAD cyanide level below 50 ppm at the TSF spigot discharge.

The plant uses an automatic cyanide dosing system, a TAC 1000 online analyser. Manual samples are taken at the tailings spigot discharge, twice per shift.

To ensure minimum use of cyanide addition, the pre-leach thickener density is controlled. The operation uses the CCD as part of the control strategies for cyanide addition and control by returning cyanide containing process water to the CIL.

Standard of Practice 4.3: Implement a comprehensive water management programme to protect against unintentional releases.

The operation is

☒ **in full compliance with**

☐ in substantial compliance with **Standard of Practice 4.3**

☐ not in compliance with

Summarise the basis for this Finding/Deficiencies Identified:

The operation is in FULL COMPLIANCE with Standard of Practice 4.3 to implement a comprehensive water management programme to protect against unintentional releases.

The operation developed a comprehensive, probabilistic water balance.

The latest revision of the Water Balance Model Report was reviewed and confirmed that the water balance modelling is using the Goldsim software which is comprehensive and probabilistic, as it includes all parameters required including:

- Tailings deposition rates;
- Precipitation, evaporation and seepage rates;
- Un-diverted runoff from external catchment areas;
- Potential power outages, and
- The accumulation of tailings solids deposited in the TSF, as well as the discharge and reclamation of supernatant water from the pond.

The operating procedures incorporate inspection and monitoring activities to implement the water balance and prevent overtopping of ponds and impoundments and unplanned discharge of cyanide solutions to the environment.

Routine monitoring of solution levels is conducted in the Event Pond, Process Pond, Raw Water Pond and the TSF Decant Pond.

Ponds and impoundments are designed and operated with adequate freeboard above the maximum design storage capacity determined to be necessary from water balance calculations.

On-site data is collected daily and the model is updated every 6 months with the monthly data provided by the mine. Any changes to the mine infrastructure are communicated to the consultant to effect changes in the water balance.

Standard of Practice 4.4: **Implement measures to protect birds, other wildlife and livestock from adverse effects of cyanide process solutions.**

The operation is

☒ **in full compliance with**

☐ in substantial compliance with **Standard of Practice 4.4**

☐ not in compliance with

Summarise the basis for this Finding/Deficiencies Identified:

The operation is in FULL COMPLIANCE with Standard of Practice 4.4 to implement measures to protect birds, other wildlife and livestock from adverse effects of cyanide process solutions.

There are no open waters where WAD cyanide exceeds 50 mg/L WAD cyanide during normal operating conditions therefore the operation has not needed to implement measures to restrict access by wildlife and livestock.

WAD sampling is conducted at the final CIL tank, spigot, process water pond, TSF supernatant pond, underdrain sump, leachate collection recovery sump. Samples at the spigot are taken twice a shift, TSF supernatant pond once a shift and at the process water pond four samples per day per shift.

No wildlife mortalities have been observed in the past three years.

Newmont Akyem Gold Mine
Name of Facility

Signature of Lead Auditor

July 2021
Date

Standard of Practice 4.5: **Implement measures to protect fish and wildlife from direct and indirect discharges of cyanide process solutions to surface water.**

☒ **in full compliance with**

The operation is ☐ in substantial compliance with **Standard of Practice 4.5**

☐ not in compliance with

Summarise the basis for this Finding/Deficiencies Identified:

The operation is in FULL COMPLIANCE with Standard of Practice 4.5 to implement a comprehensive water management programme to protect against unintentional releases.

The operation does not have a direct discharge to surface water.

During the site inspection, it was verified that there is no direct discharge to surface water from Akyem Gold Mine.

The nearest surface water feature is the Mamang River, approximately 5 km from the TSF.

The operation does not have an indirect discharge to surface water.

Groundwater monitoring is conducted monthly at 18 boreholes around the TSF. None of the results were equal to or above 0.022 mg/l free cyanide. The auditor observed monthly groundwater sampling results for 2018 to 2021.

Surface water monitoring is conducted monthly at points upstream and downstream of the operation. None of the results were equal to or above 0.022 mg/l free cyanide. The auditor observed surface water monitoring results for 2018 to 2021.

Newmont Akyem Gold Mine
Name of Facility

Signature of Lead Auditor

July 2021
Date

Standard of Practice 4.6: **Implement measures designed to manage seepage from cyanide facilities to protect the beneficial uses of groundwater.**

The operation is

☒ **in full compliance with**

☐ in substantial compliance with **Standard of Practice 4.6**

☐ not in compliance with

Summarise the basis for this Finding/Deficiencies Identified:

The operation is in FULL COMPLIANCE with Standard of Practice 4.6 to implement measures designed to manage seepage from cyanide facilities to protect the beneficial uses of groundwater.

The operation implements specific water management measures to manage seepage to protect the beneficial uses of groundwater down-gradient of the operation. Specific water management measures have been put in place to protect groundwater including the following: double lining at the two TSF cells, under drainage and leachate sump system at the TSF, HDPE lined pipeline channel from the plant to the TSF, groundwater around the TSF, HDPE lining of the Process Water Pond and the Event Pond, leak detection and recovery systems at the ponds, concrete bunds at the cyanide facilities.

WAD cyanide concentrations (or other species of cyanide for which there is a numerical standard established by the applicable jurisdiction) in groundwater at compliance point below or down-gradient of the facility are below levels that are protective of identified beneficial use, namely the use of groundwater for domestic use, of groundwater.

The numerical standard for WAD Cyanide in Effluent Discharge (liquid waste or water discharged into the environment) is 0.6 mg/l WAD as detailed in Ghana Standards Authority, Ghana Standard GS 1212:2019 – Environmental Protection Requirements for Effluent Discharge.

Akyem Gold Mine does not use mill tailings as underground backfill.

Seepage from the operation has not caused cyanide concentrations of groundwater to rise above levels protective of beneficial use.

Standard of Practice 4.7: **Provide spill prevention or containment measures for process tanks and pipelines**.

☒ **in full compliance with**

The operation is ☐ in substantial compliance with **Standard of Practice 4.7**

☐ not in compliance with

Summarise the basis for this Finding/Deficiencies Identified:

The operation is in FULL COMPLIANCE with Standard of Practice 4.7; provide spill prevention or containment measures for process tanks and pipelines.

The sparging tank and cyanide storage tank are positioned on concrete ring beams with an HDPE liner between the tank bottom and the top of the ring beam. The concrete secondary containment floor continues beneath the base of both ring beams. Leak detection system have been installed on the ring beams. The tanks are contained within a dedicated concrete bund. CIL tanks are also installed on ring beams with a HDPE line and leak detection systems. The tanks are contained within a concrete bund. The grinding circuit and CCD tanks are installed within a concrete bund.

Secondary containments for cyanide storage, mixing, milling section and process tanks are sized to hold a volume greater than that of the largest tank within the containment and any piping draining back to the tank, and with additional capacity for the design storm event.

All bund areas are equipped with sump pumps, returning solutions / spillages to process tanks. Six GenSets are available on site to provide electricity during a power failure. The GenSets will provide electricity to operate the entire plant process except for the mills.

In the event that any of the secondary bunds overflow, the material will flow to the Event Ponds from where it will be pumped back to the process.

Reagent strength pipelines are of the pipe in pipe design and equipped with leak detection system. A take-off pipe will route any spillage into a bund. The pipes are routed over concrete trenches draining into the event pond, which is additional secondary containment. Flanges are equipped with flange covers to prevent spraying of the cyanide solution. Cyanide process solution pipelines are located over concrete bunded areas equipped with sump pumps and concrete bunded areas draining to the Events Pond. Tailings pipelines are placed inside an HDPE lined trench, draining to the Events Pond or back to the TSF.

A planned maintenance program is in place, supported by daily inspections and operational procedures to ensure that detected and cleaned up timely.

It was verified during the site visit that all cyanide tanks and pipelines and associated equipment are constructed of material that are compatible with cyanide and high pH environment i.e., mild steel for the reagent strength cyanide storage and pipelines and HDPE for the tailings pipeline.

Newmont Akyem Gold Mine
Name of Facility

Signature of Lead Auditor

July 2021
Date

Standard of Practice 4.8: **Implement quality control/quality assurance procedures to confirm that cyanide facilities are constructed according to accepted engineering standards and specifications.**

The operation is

☒ **in full compliance with**

☐ in substantial compliance with **Standard of Practice 4.8**

☐ not in compliance with

Summarise the basis for this Finding/Deficiencies Identified:

The operation is in FULL COMPLIANCE with Standard of Practice 4.8; implement quality control/quality assurance procedures to confirm that cyanide facilities are constructed according to accepted engineering standards and specifications.

Quality control and quality assurance (QCQA) programs were implemented during construction of all new cyanide facilities and modifications to existing facilities, including cyanide unloading, storage, mixing facilities and other cyanide facilities. The QCQA for the operation's cyanide facilities were addressed in the original ICMC certification audit and subsequent recertification audits.

Since the 2018 recertification audit the TSF Cell 2 was designed (January 2018) and commissioned in March 2019. Construction completion reports were available for review. The reports indicated Supervision, Quality Control and Quality Assurance processes.

Control and record testing of various materials was completed by the Contractor and all test results reviewed and compiled for record by the design engineer. The results, sign off sheets, checklists and other were lodged with the contractor's QC department for submission to Newmont Golden Ridge Limited (NGRL), a subsidiary of Newmont Mining Corporation, as part of the handing over package.

The quality control and quality assurance programs address the suitability of materials and adequacy of soil compaction for earthworks. This included soil testing geomembrane installation.

Quality control and quality assurance records have been retained for cyanide facilities.

Appropriately qualified personnel have reviewed cyanide facility construction and provided documentation that the facility has been built as proposed and approved.

It was stated by the Engineer of Record that the Cell 2 Stage 1 TSF was constructed to satisfactory standards, in accordance with the design intent and technical specifications requirements. The facility is expected to provide safe storage of mine tailings and should have a minimal impact on the environment, if the facility is operated with the design intent as presented in the Final Design Report and Operating Maintenance and Surveillance Manual of the facility.

Where there is no available quality control and quality assurance documentation or as-built certification for cyanide facility construction, an appropriately qualified person has inspected those elements of the facility involving cyanide and issued a report concluding that its continued operation within established parameters will protect against cyanide exposures and releases.

The TSF and tailings pipeline undergo quarterly inspections via an independent third party.

Newmont Akyem Gold Mine
Name of Facility

Signature of Lead Auditor

July 2021
Date

Quarterly thickness testing is conducted on the TSF pipelines. The auditor observed the most recent thickness testing results for the TSF pipelines. The results provide a colour system that indicates if the loss of thickness is acceptable, requires close monitoring or action.

Newmont Akyem Gold Mine
Name of Facility

Signature of Lead Auditor

July 2021
Date

Standard of Practice 4.9: **Implement monitoring programs to evaluate the effects of cyanide use on wildlife, surface and groundwater quality.**

The operation is

☒ **in full compliance with**

☐ in substantial compliance with **Standard of Practice 4.9**

☐ not in compliance with

Summarise the basis for this Finding/Deficiencies Identified:

The operation is in FULL COMPLIANCE with Standard of Practice 4.9 to implement monitoring programs to evaluate the effects

The operation has developed written standard procedures for monitoring activities.

The procedures were developed internally by the Environmental Department under the Snr Environmental Supervisor who is appropriately qualified.

The procedures include how and where samples should be taken with reference to field sampling sheets, sample preservation techniques, chain of custody procedures and which cyanide species are to be analysed. Sampling points are identified on a sampling map.

Sampling conditions and procedures are documented in writing on the Water Sample Field Sheet.
There are no discharges of process water to surface water. However, the operation does undertake surface and groundwater monitoring upstream and downstream of the operation. The operation monitors for cyanide in surface and groundwater down-gradient of the site.

During tailings and water storage facilities inspections as well as sampling activities it is recorded on the inspection sheets and sampling log sheets whether any wildlife mortalities were observed. No wildlife mortalities have been observed in the past 3 years.

Monitoring is conducted at frequencies adequate to characterise the medium being monitored and to identify changes in a timely manner. Surface and groundwater sampling is conducted on a monthly and quarterly basis. TSF and water storage facilities are inspected on a daily basis.

PRINCIPLE 5 – DECOMMISSIONING

Manage Cyanide Process Solutions and Waste Streams to Protect Human Health and the Environment

Standard of Practice 5.1: **Plan and implement procedures for effective decommissioning of cyanide facilities to protect human health, wildlife and livestock.**

☒ **in full compliance with**

The operation is

☐ in substantial compliance with **Emergency Response Practice 5.1**

☐ not in compliance with

Summarise the basis for this Finding/Deficiencies Identified:

The operation is in FULL COMPLIANCE with Standard of Practice 5.1 to plan and implement procedures for effective decommissioning of cyanide facilities to protect human health, wildlife and livestock.

Akyem Gold Mine has developed a Closure and Reclamation Plan.

The Reclamation and Closure Plan for the Akyem Gold Mine states that decommissioning procedures will be initiated once ore processing has ceased at the mill complex. Process solutions will continue to circulate through the plant and CCD circuit until gold recovery has concluded.

A conceptual decommissioning schedule for the mill and process plant components is included in the Akyem Sustainable Closure and Reclamation Plan. The plan indicates the weekly activities of a period of approximately 5 months to decommission the mill and process plant.

The Akyem Sustainable Closure and Reclamation Plan is reviewed every 3 years.

Standard of Practice 5.2: **Establish an assurance mechanism capable of fully funding cyanide related decommissioning activities.**

The operation is

☒ **in full compliance with**

☐ in substantial compliance with **Standard of Practice 5.2**

☐ not in compliance with

Summarise the basis for this Finding/Deficiencies Identified:

The operation is in FULL COMPLIANCE with Standard of Practice 5.2 to establish an assurance mechanism capable of fully funding cyanide related decommissioning activities.

The operation has developed an estimate of the cost to fully fund third party implementation of the cyanide-related decommissioning measures as identified in its site decommissioning or closure plan.

The costs estimate is reviewed on an annual basis.

The operation has established a financial mechanism approved by the applicable jurisdiction to cover the estimated costs for cyanide-related decommissioning activities as identified in its decommissioning and closure strategy. It is a legal requirement in Ghana to have a cash deposit and a bank guarantee.

The auditors reviewed two Guarantees and an account statement for a cash deposit.

The cash deposits and bank guarantees are sufficient to cover the cyanide related decommissioning measures as identified in the site reclamation plan.

PRINCIPLE 6 – WORKER SAFETY

Protect Workers' Health and Safety from Exposure to Cyanide

Standard of Practice 6.1: Identify potential cyanide exposure scenarios and take measure as necessary to eliminate, reduce and control them.

☒ **in full compliance with**

The operation is

☐ in substantial compliance with **Standard of Practice 6.1**

☐ not in compliance with

Summarise the basis for this Finding/Deficiencies Identified:

The operation is in FULL COMPLIANCE with the Standard of Practice 6.1 requiring the operation to identify potential cyanide exposure scenarios and take measures as necessary to eliminate, reduce, and control them.

The operation has developed procedures describing how cyanide-related tasks such as unloading, mixing plant, operations, entry into confined spaces, and equipment decontamination prior to maintenance should be conducted to minimise worker exposure.

There are a series of procedures for unloading and sparge mixing operations and the process is partially automated. There is a procedure for equipment decontamination prior to releasing the equipment to maintenance.

The operation runs a permit system which includes entry into confined spaces and requires atmospheric testing.

The operational procedures include the following, as applicable:

- Scope
- Licencing and permit requirements
- Training pre-requisites
- References
- H&S and Sustainability and External Relations (S&ER) hazards
- Risk management identifier
- Mandatory PPE
- Pre-task checklist
- Perform job procedure.

The operation implements a Change Management Procedure. This procedure helps to ensure that the relevant risks are captured, evaluated and controlled before changes to facilities, equipment, processes, and/or resources and equipment are implemented.

Changes may be identified via external regulations, drills, day-to-day operational activities, incidents/accidents, audits, change to corporate standards.

All changes will be reviewed and approved by authorized personnel from various impacted areas including Health and Safety and Environment. Before final implementation, management personnel will sign-off on the change. The level of reviews and approvals is driven by the level of risk associated with the change.

The operation solicits and actively considers worker input in developing and evaluating health and safety procedures.

Workers at the operation are given the opportunity to provide input to procedures via a variety of mechanisms including pre-shift and regular monthly meetings where employees are able to raise safety issues.

Newmont Akyem Gold Mine
Name of Facility

Signature of Lead Auditor

July 2021
Date

Standard of Practice 6.2: **Operate and monitor cyanide facilities to protect worker health and safety and periodically evaluate the effectiveness of health and safety measures.**

The operation is

☒ **in full compliance with**

☐ in substantial compliance with **Standard of Practice 6.2**

☐ not in compliance with

Summarise the basis for this Finding/Deficiencies Identified:

The operation is in FULL COMPLIANCE with Standard of Practice 6.2; operate and monitor cyanide facilities to protect worker health and safety and periodically evaluate the effectiveness of health and safety measures.

The operation has determined that the optimal pH control for process solutions is 10.5 to prevent the evolution of HCN gas. To help control pH, caustic solution is mixed with the sodium cyanide and lime is added to maintain pH in the CIL circuits. The pH probes in the CIL circuit are used to monitor the pH of the solution in CIL tanks 1, 2 and 3. The inline pH controller communicates with the lime control valve to feed lime to the mill. The pH controller adjust the quicklime feed to maintain optimal pH level control. Citect alarms are activated in the control room when the pH drops so that the operator can be notified about the possible presence of elevated HCN gas levels whilst necessary actions to increase lime feed can be undertaken. The inline pH controller in the Cyanide Sparge Tank will not allow sparging to take place if the pH is not at the correct level. It prevents the pump from starting.

The operation uses ambient or personal monitoring devices to confirm that controls are adequate to limit worker exposure to HCN gas and sodium, calcium or potassium cyanide dust to 10 ppm on an instantaneous basis and 4.7 ppm continuously over an 8-hour period, as cyanide where the potential exists for significant cyanide exposure. In the event of hydrogen cyanide gas levels triggering the 4.7 ppm and 10 ppm alarm levels, the area will be evacuated. The cause of the event will be investigated by the designated employees wearing the required PPE and personal HCN monitors once the alarm has stopped.

Fixed HCN monitors (10) have been installed in the following areas:

- Sparge tank
- CIL (2)
- Milling Area
- Cyclones
- Carbon recovery screen
- Acid wash column
- CCD feed hopper area
- CCD 1
- Tails Tank

Fifteen (15) personal monitors are available for use at any time on the plant and TSF.

A baseline survey was conducted to measure the HCN gas, by means of a personal gas monitor, to determine the placement of fixed HCN monitors and the required used of personal monitors.

Newmont Akyem Gold Mine
Name of Facility

Signature of Lead Auditor

July 2021
Date

There is signage in place in the plant indicating when monitoring and use of PPE is required. These requirements are also covered in procedures and in the training modules for the plant areas.

Personal HCN monitors are required when entering the:

- CIL
- Cyanide sparge area
- Elution

Personal and fixed monitors are calibrated every month by the Industrial Hygienist. The fixed monitors are calibrated by in independent consultant on a six monthly basis.

Warning signs, in areas where cyanide is used advising workers that cyanide is present, have been placed at the cyanide sparge and storage tank, grinding area, CIL, CCD which are the locations where reagent strength cyanide is present, as well as at the TSF and pipelines and WSF, advising workers that cyanide is present, that smoking, open flames and eating and drinking are not allowed, and what personal protective equipment must be worn, as applicable.

Carmosine dye is added to the sparge tank by Vehrad Transport and Haulage at the sparging facility in Tema.

Showers, low-pressure eye wash stations and dry powder or non-acidic sodium bi-carbonate fire extinguishers are located at strategic locations throughout the operation where cyanide is used. This includes the cyanide sparging and storage tank area, grinding area, top of the CIL, CCD, tails tank area. An eyewash station is available at the TSF. Fire extinguishers are checked monthly. Safety showers are checked daily as part of the reagent area inspection.

Reagent strength cyanide tanks and distribution pipes are colour coded purple. Process solution tanks and pipelines are labelled and colour in accordance with the plant colour code system. The auditors observed the flow direction and identification on the TSF pipelines and the reagents strength pipelines inside the plant.

The Safety Data Sheet (SDS) for sodium cyanide is available at the cyanide sparging and storage tank, CIL, emergency spill cabin and CCD. The SDS, first aid procedures or other informational materials on cyanide safety is in the language of the workforce and available in areas where cyanide is managed. The operational language for the mine and plant is English in written and verbal communications.
Akyem Gold Mine has implemented the Event Reporting and Investigation Management Procedure to ensure a consistent approach to classifying, reporting and investigating incidents, determining underlying causes, and communicating lessons learned to prevent recurrences across the organisation. This procedure will also be used in the event of a cyanide procedure.

Standard of Practice 6.3: **Develop and implement emergency response plans and procedures to respond to worker exposure to cyanide.**

The operation is

☒ **in full compliance with**

☐ in substantial compliance with **Standard of Practice 6.3**

☐ not in compliance with

Summarise the basis for this Finding/Deficiencies Identified:

The operation is in FULL COMPLIANCE with the Standard of Practice 6.3; develop and implement emergency response plans and procedures to respond to worker exposure to cyanide.

It was verified during the site inspection that water and emergency showers are available throughout the plant. The cyanide antidote kits (Cyanokit), and resuscitator are kept at the clinic. The cyanide antidote will be administered by the on-site medical doctor in the event of a cyanide exposure. Portable medical oxygen with a valved mouthpiece is available at the top of the CIL and in the control room, in the Emergency Response Team (ERT) fire truck. Radios and cell phones are used for communication throughout the plant and at the TSF.

There are procedures in place to check the first aid equipment in the clinic (operated by International SOS), the fire truck that has the emergency equipment used by the ERT and the spill response cabin in the plant. The cyanide antidotes were observed to be in date and stored at the clinic in accordance with manufacturer recommendations.

The operation has developed cyanide exposure emergency response procedures to respond to cyanide exposures. In addition, the process induction and cyanide training cover the response requirements for emergency cyanide first aid.

The operation has a 24/7 on-site clinic approximately 300 m from the Plant. The clinic is staffed by two doctors (rotational basis), one paramedic, one occupational health nurse, one general nurse, one laboratory technician, one pharmacist, one radiographer, one occupational health doctor (every 5 weeks). The mine employs a full-time and fully trained ERT and International SOS medical team to effectively respond to cyanide and other incidents at the mine. The ERT Team will respond to cyanide related incidents and transport the patient to the Clinic.

Any exposed workers will be transported to the onsite clinic next to the plant. If subsequently the patient(s) require specialist treatment, after being stabilised, they will be transferred to the Komfo Anokye Hospital in Kumasi. The Akyem Emergency Management Plan details the process to follow in the event that a patient needs to be evacuated to advanced off-site medical facility.

Mock cyanide drills are conducted periodically as part of the Emergency Response Plan evaluation process. Cyanide related mock drills are conducted twice a year. Drills are conducted for both man-down scenarios and spills. Mock drills involve ERT and the clinic. Plant employees are not involved in the mock drills and are evacuated. Drill reports are prepared following all drills and include feedback from the drill including positive feedback and areas of improvement. Feedback provided in the drill report and during the debriefing meeting are incorporated in response planning and training.

Newmont Akyem Gold Mine
Name of Facility

Signature of Lead Auditor

July 2021
Date

PRINCIPLE 7 – EMERGENCY RESPONSE

Protect Communities and the Environment through the Development of Emergency Response Strategies and Capabilities

Standard of Practice 7.1: Prepare detailed emergency response plans for potential cyanide releases.

The operation is

☒ **in full compliance with**

☐ in substantial compliance with **Standard of Practice 7.1**

☐ not in compliance with

Summarise the basis for this Finding/Deficiencies Identified:

The operation is in FULL COMPLIANCE with Standard of Practice 7.1; protect communities and the environment through the development of emergency response strategies and capabilities.

The operation has developed an Emergency Response Plan to address potential accidental releases of cyanide.
The site has developed and implemented the following procedures:

- Akyem Emergency Management Plan.
- Cyanide Spill Emergency Procedure

These documents outline the various credible event scenarios for the operation and the responsibilities, actions, and notifications required to ensure an effective and efficient response.

The following potential failure scenarios appropriate for its site-specific environmental and operating circumstances are considered in the various emergency response and standard operating procedures:

- Catastrophic release of hydrogen cyanide from storage or process facilities.
- Transportation accidents.
- Releases during unloading and mixing.
- Releases during fires and explosions.
- Pipe, valve or tank ruptures
- Overtopping ponds and impoundments
- Power outages and pump failures: Backup power generation plant available at the plant that can run the plant except for the mills.
- Uncontrolled seepage.
- Failure of tailings impoundments and other cyanide facilities.

Transport related emergencies outside the mine are the responsibility of supplier as manager of the supply chain as detailed in 2.1, which have considered the transportation route, physical and chemical form of the cyanide, method of transport (e.g., rail, truck), the condition of the road or railway, and the design of the transport vehicle.

The emergency plans describe specific response actions (as appropriate for the anticipated emergency situations) such as clearing site personnel and potentially affected communities from the area of exposure, use of cyanide antidotes and first aid measures for cyanide exposure, control of releases at their source, and containment, assessment, mitigation and future prevention of releases.

Newmont Akyem Gold Mine
Name of Facility

Signature of Lead Auditor

July 2021
Date

Standard of Practice 7.2: Involve site personnel and stakeholders in the planning process.

The operation is

☒ **in full compliance with**

☐ in substantial compliance with **Standard of Practice 7.2**

☐ not in compliance with

Summarise the basis for this Finding/Deficiencies Identified:

The operation is in FULL COMPLIANCE with Standard of Practice 7.2; involve site personnel and stakeholders in the planning process.

The operation involves its workforce in the emergency planning process through monthly safety meetings where procedures and updates, including emergency response, are presented and through mock emergency drills that are conducted periodically to test response procedures for various cyanide exposure scenarios.

External stakeholders do not have a direct involvement in emergency preparedness and response planning; however, the community relations team maintains contact with community figures and utilises community liaison officers to share relevant information with affected peoples with regards to emergency response planning.

Due to the location and response capacities of local agencies, Akyem Gold Mine would maintain responsibility for emergency response activities within the communities. However, emergency preparedness and response plans are made available to and shared with the Inspectorate Division of the Ghana Minerals Commission, Ghana Environmental Protection Agency (EPA) as part of their routine site reviews.

Local agencies (e.g., Fire and Police) have a statutory responsibility to assist with notification and mobilization of people under direction from Newmont. In addition, Newmont has standing contracts with transport companies and other community service providers to help with mobilization and evacuation of personnel if required under direction from Akyem ERT.

The workforce is included in the emergency response planning process through the following:

- Induction and refresher training where they are trained on the use of the emergency response process.
- Through the monthly meetings.
- Through the testing of the emergency responses by undertaking the mock emergency drills.

Standard of Practice 7.3: **Designate appropriate personnel and commit necessary equipment and resources for emergency response.**

☒ **in full compliance with**

The operation is ☐ in substantial compliance with **Standard of Practice 7.3**

☐ not in compliance with

Summarise the basis for this Finding/Deficiencies Identified:

The operation is in FULL COMPLIANCE with Standard of Practice 7.3; designate appropriate personnel and commit necessary equipment and resources for emergency response.

The cyanide related elements of the Emergency Response Plan designate appropriate personnel and commit necessary equipment and resources.

The Akyem Emergency Management Plan details the roles and responsibilities for the Site Response Leader and Team. The ERT Crew Teams are identified by name and pictures displayed at the ERT Centre. The ERT consists of 3 crews and the ERT Coordinator. The requirement to have a trained ERT and training requirements are stipulated in the Emergency Management Plan. Duties and the responsibilities of the co-ordinators and the team members are specified in the Akyem Emergency Management Plan and the Cyanide Spill Emergency Procedure.

The Security Control Center (SCC) is in place to receive calls and notify ERT of emergency situations as reported via phone, radio or other means.

The available emergency response equipment is listed in the Akyem Emergency Management Plan. The ERT equipment for cyanide response is stored on the fire truck. The Cyanide Spill Emergency Procedure details the contents of the spill kits and their location. Emergency response equipment is inspected to ensure availability.

Local agencies such as Fire and Police will be mobilised under direction of Newmont in the event of an emergency. Akyem Emergency Management Plan includes contact numbers for local police and the National Disaster Management Organisation (NADMO).

A Memorandum of Understanding has been signed with the Ghana National Fire Service (GNFS) in the Birim North District in order to effectively respond together in a major emergency situation that need collaborative efforts of both agencies without undue delays.

The auditors where informed that the local Police is aware of their possible involvement in the event of an emergency, the magnitude of the emergency require it.

The Gold Mine has an on-site clinic that are aware of the potential need to treat patients for cyanide exposure and the operation has assured that the medical facility has adequate, qualified staff and equipment and expertise to respond to cyanide exposures. This was confirmed during an interview with the Doctor on duty at the Clinic. The clinic is involved in full chain mock drills.

Newmont Akyem Gold Mine
Name of Facility

Signature of Lead Auditor

July 2021
Date

Standard of Practice 7.4: **Develop procedures for internal and external emergency notification and reporting.**

The operation is

☒ **in full compliance with**

☐ in substantial compliance with **Standard of Practice 7.4**

☐ not in compliance with

Summarise the basis for this Finding/Deficiencies Identified:

The operation is in FULL COMPLIANCE with Standard of Practice 7.4; develop procedures for internal and external emergency notification and reporting.

The Akyem Emergency Management Plan contains the contact details required to notify management, regulatory agencies, outside response providers and medical facilities of the cyanide emergency.

It is stated in the Akyem Emergency Management Plan that the Environmental Manager will arrange for notification of regulators (Ghana Environmental Protection Agency, Minerals Commission) and community leaders (chiefs, District Assembly, Youth Group Leaders).

It is further stated in the Cyanide Management Plan that the Sustainability and External Relations Team (S&ER Team) is responsible for the communication with the affected communities in the event of an emergency. The S&ER Team has a stakeholder map and contact details for the host communities that will be used to contact affected communities in the event of an emergency.

Any and all media enquiries directly related to Newmont's Akyem operations, its business and or associated companies, including the safety and wellbeing of people working for Akyem Gold Mine must be referred directly to the Site Response Team (SRT) Leader. The SRT Leader is responsible for ensuring that the enquiry is dealt with as per the Media Management Plan template available in rapid response.

Standard of Practice 7.5: **Incorporate into response plans and remediation measures monitoring elements that account for the additional hazards of using cyanide treatment chemicals.**

The operation is

☒ **in full compliance with**

☐ in substantial compliance with **Standard of Practice 7.5**

☐ not in compliance with

Summarise the basis for this Finding/Deficiencies Identified:

The operation is in FULL COMPLIANCE with Standard of Practice 7.5; incorporate into response plans and remediation measures monitoring elements that account for the additional hazards of using cyanide treatment chemicals.

The plans and procedures describe specific remediation measures as appropriate for the likely cyanide release scenarios.

- Recovery or neutralisation of solutions or solids - Ferrous sulphate will be used to neutralise CN spills as per the Cyanide Management Plan and the procedure Neutralization of Cyanide-bearing solution and slurry using Ferrous Sulphate. The ferrous sulphate is stored in the reagent storage shed located opposite the cyanide off-loading and storage area.
- Decontamination of soils or other contaminated media - Contaminated tools and other equipment used in incident response are required to be washed in an area where water will enter the process plant circuit, as per the procedure Neutralization of Cyanide-bearing solution and slurry using Ferrous Sulphate.
- Management and/or disposal of spill clean-up debris - Cleaned up spillage can be reintroduced into the mill circuit or TSF for proper disposal as per the Cyanide Management Plan and the procedure Cyanide Spill Emergency Procedure.
- Provision of an alternate drinking water supply: It is stated in the Akyem Emergency Management Plan that Akyem Gold Mine will provide alternate drinking water if required in the event that a release has impacted water supplies.

It is stated in the procedure Neutralization of cyanide-bearing solution and slurry using Ferrous Sulphate and the Cyanide Spill Emergency Procedure that Ferrous Sulphate must never be applied directly to or near areas where it has the potential to enter water courses (storm water drains, unlined ponds, etc.).

Environmental monitoring required as a result of a cyanide spill will be done in accordance with the requirements of the surface and groundwater sampling procedures and at locations indicated on the Surface-Groundwater Monitoring Locations Map.

It is stated in the Akyem Emergency Management Plan that process personnel will remediate the impacted area until cyanide sample results show no detectable WAD cyanide or less than 0.01 ppm.

Standard of Practice 7.6: **Periodically evaluate response procedures and capabilities and revise them as needed.**

The operation is

☒ **in full compliance with**

☐ in substantial compliance with **Standard of Practice 7.6**

☐ not in compliance with

Summarise the basis for this Finding/Deficiencies Identified:

The operation is in FULL COMPLIANCE with Standard of Practice 7.6; periodically evaluate response procedures and capabilities and revise them as needed.

Akyem Emergency Management Plan states that the plan shall be reviewed every year, in the event of a major change, or as a result of a drill or occurrence. The section further states required actions to responsible managers to keep certain elements of the emergency management plan up to date. It was confirmed that the Emergency Management Plan has been reviewed as per the stipulated frequency.

Mock cyanide drills are conducted periodically as part of the Emergency Response Plan evaluation process. Cyanide related mock drills are conducted twice a year. Drills are conducted for both man-down scenarios and spills. Mock drills involve ERT, Clinic. Plant employees participate in the evacuation portion of the drills but have no role in an emergency.

Akyem Emergency Management Plan states that the plan shall be updated and reviewed as a minimum on an annual basis or when there is a significant change, shift, risk or expansion within the operation as outlined in the scope of this plan.

PRINCIPLE 8 – TRAINING

Train Workers and Emergency Response Personnel to Manage Cyanide in a Safe and Environmentally Protective Manner

Standard of Practice 8.1: Train workers to understand the hazards associated with cyanide use.

The operation is

☒ **in full compliance with**

☐ in substantial compliance with **Standard of Practice 8.1**

☐ not in compliance with

Summarise the basis for this Finding/Deficiencies Identified:

The operation is in FULL COMPLIANCE with Standard of Practice 8.1 to train workers to understand the hazards associated with cyanide use.

The operation trains all personnel who may encounter cyanide in cyanide hazard recognition. The Akyem Learning and Development (L&D) department is responsible for the development and presentation of training programmes at the mine. All persons entering the plant receive process plant induction training, including cyanide awareness and cyanide hazard recognition and emergency response.

The Process Plant Induction Module is presented to all new plant and TSF personnel prior to working at the plant and the TSF. The auditors observed a copy of the induction model. The presentation includes the following:

- General information on cyanide
- Response alarm levels
- Areas where cyanide is found on the plant
- Characteristics of cyanide gas
- Early warning signs / symptoms
- Management of cyanide risks (required PPE)
- Emergency response and first aid procedures.

The Process Safety Annual Refresher programme is presented to plant and TSF employees working in the process plant, upon return from annual leave and includes the Cyanide Refresher Training module.

The card access control system prevents personnel, contractors and visitors from entering the plant if the induction was not completed and signed off by Training Department, Security and Process Department.

Training records for active employee are retained on site for the duration of employment. Training records for resigned / retired / trenched employees are archived and kept for 7 years.

Standard of Practice 8.2: **Train appropriate personnel to operate the facility according to systems and procedures that protect human health, the community and the environment.**

The operation is

☒ **in full compliance with**

☐ in substantial compliance with **Standard of Practice 8.2**

☐ not in compliance with

Summarise the basis for this Finding/Deficiencies Identified:

The operation is in FULL COMPLIANCE with Standard of Practice 8.2 to train appropriate personnel to operate the facility according to systems and procedures that protect human health, the community and the environment.

The operation trains workers to perform their normal production tasks, including unloading, mixing, production and maintenance with minimum risk to worker health and safety and in a manner that prevents unplanned cyanide releases. This includes undertaking formal training in specific Standard Task Procedures (STPs) applicable to an employee's work area. Auditors observed the Akyem Training Matrix. The Matrix stipulates training needs as identified per occupation per section of the plant, such as Process Operations, Process Maintenance. The matrix compiled for all employees.

Personnel undertaking work within cyanide areas must complete the mandatory inductions and training prior to entering the areas. Once these have been completed, Newmont provides a peer-to-peer training system for employees supported by training modules and formalised competency assessment. Workers need to be assessed as competent prior to working without direct supervision.

The training elements necessary for each job involving cyanide management are identified in training materials. The Training Matrix identifies the training needs and tracks completion for specific employees. Training elements specific to the Process area are identified within area-specific training sessions and plans.

Appropriately qualified personnel provide task training related to cyanide management activities. The Process Trainer and Process Training Coordinator are appropriately qualified in the subject matter and have the necessary training credentials.

Workers are trained prior to working with cyanide. All personnel on the plant are trained in cyanide awareness, cyanide hazard recognition and emergency response through the initial induction for the plant. More detailed cyanide training is provided for those individuals who are likely to encounter cyanide and work in specific sections.

Process Plant Induction Training, Cyanide Awareness and Chemical Awareness Training are refreshed annually. Reagent management and tailings operations are refreshed every 5 years.

Newmont has a structured competency assessment process that includes knowledge assessment of theory elements and workplace assessment for demonstration of practical elements. This training is provided prior to working on the plant. Supervisors complete the Planned Task Observations (PTOs) at regular intervals to confirm that the trainee is remains competent, and results are kept at the Process Plant with the supervisors.

Records are retained throughout an individual's employment documenting the training received. The records include the names of the employee and the trainer, the date of training, the topics covered, and if the employee demonstrated and understanding of the training materials. The PTOs stipulate the name of the

employee assessed, the observer's name, the date of the assessment, the task observed, and the result of the assessment.

Newmont Akyem Gold Mine
Name of Facility

Signature of Lead Auditor

July 2021
Date

Standard of Practice 8.3: **Train appropriate workers and personnel to respond to worker exposures and environmental releases of cyanide.**

The operation is

☒ **in full compliance with**

☐ in substantial compliance with **Standard of Practice 8.3**

☐ not in compliance with

Summarise the basis for this Finding/Deficiencies Identified:

The operation is in FULL COMPLIANCE with Standard of Practice 8.3 to train appropriate workers and personnel to respond to worker exposures and environmental releases of cyanide.

All cyanide unloading, mixing, production and maintenance personnel are trained in the procedures to be followed if cyanide is to be released. Three levels of Cyanide Awareness training are presented at Akyem Gold Mine:

- General Plant Induction is presented to all employees, contractors and visitors. The induction presentation includes general information on cyanide identification and use as well as basic emergency response and first aid measures.
- Orica Cyanide Safety training and refresher is presented to all employees, long term contractors and ERT members. The training includes detailed information on cyanide identification, emergency response and First Aid treatment.
- This training is further reinforced through undertaking mock emergency drills.

Only the ERT Team, with the assistance of the Clinic paramedic responds to worker exposures. The rest of the plant employees are evacuated during an incident. Employees evacuate to a muster point from where the drill is observed. A debriefing session is held after the drill to provide feedback on positive and negative observations made during the drill. The feedback is incorporated in the annual Cyanide refresher training material to provide the information to all employees who might not have been present on the day of the drill.

Emergency Response Co-ordinators and members of the ERT are trained in the procedures included in the Emergency Response Plan regarding cyanide, including the use of necessary response equipment. No community members, local responders or off-site medical providers will respond to emergencies related to cyanide.

The following Cyanide specific First Aid and Emergency training is provided to the Emergency Response Team and the Clinic personnel:

- Orica Cyanide Safety training and refresher is presented to all employees, long term contractors and ERT members.
- A module on Cyanide First Aid Response has been included in the Emergency First Responders training presentation presented to all on-site ERT team members. The module includes identification of cyanide and Cyanide emergency response and first aid.
- Annual Cyanide refresher training is presented by the Akyem L&D Department to the Clinic personnel.

Refresher training for response to cyanide exposures and releases is conducted annually as part of the Plant Induction Training Refresher and Orica Cyanide Safety Training for plant employees and ERT. Annual Cyanide refresher training is presented to the clinic personnel.

Newmont Akyem Gold Mine
Name of Facility

Signature of Lead Auditor

July 2021
Date

Simulated cyanide emergency drills are periodically conducted for training purposes covering both worker exposures and environmental releases. ERT and the clinic personnel takes part in mock drills to test their response to emergency situations. All other employees are evacuated.

Plant employees observes from the muster point. Mock drills are conducted annually for either worker exposures or environmental releases.

Records are retained documenting the cyanide training, including the names of the employee and the trainer, the date of training, the topics covered, and how the employee demonstrated an understanding of the training materials.

PRINCIPLE 9 – DIALOGUE

Engage in Public Consultation and Disclosure

Standard of Practice 9.1: Provide stakeholders with the opportunity to communicate issues of concern.

☒ **in full compliance with**

The operation is ☐ in substantial compliance with **Standard of Practice 9.1**

☐ not in compliance with

Summarise the basis for this Finding/Deficiencies Identified:

The operation is in FULL COMPLIANCE with Standard of Practice 9.1 to provide stakeholders with the opportunity to communicate issues of concern.

The operation provides the opportunity for stakeholders to communicate issues of concern regarding the management of cyanide. Quarterly Stakeholder Engagement Meetings are held during which operational issues and cyanide management measures are discussed with the attendees. The meeting provides an open forum for the attendees to ask questions. Stakeholder groups consists of community leaders, youth associates, religious leaders, women groups, local authorities. Although some of the meetings were not specifically about cyanide, these meetings provide stakeholders with the opportunity to communicate issues of concern regarding the management of cyanide. No meetings were held in 2020 and 2021 due to Covid pandemic.

An Annual Stakeholder Engagement Plan is compiled that stipulates the quarterly planned with stakeholders groups. The stakeholder engagement schedule provides detail on the number of invitees, topics for discussion, engagement frequency, venue and proposed month of engagement. Cyanide management updates are listed with all these groups as a topic of discussion.

Akyem Gold Mine has implemented a Complaint and Grievance System. Stakeholders can lodge complaints or request information at the community centres. They can obtain information about Akyem Gold Mine and the mining process. All complaints are captured in a database. There are three levels of resolving complaints. The first level is dealt with and resolved by Newmont personnel, the second by a third party like a traditional leader, and the third tier is by a legal route such as the courts. It was confirmed to the auditors that no cyanide related complaints had been received in the past three years.

Standard of Practice 9.2: Initiate dialogue describing cyanide management procedures and responsively address identified concerns.

The operation is

☒ **in full compliance with**

☐ in substantial compliance with **Standard of Practice 9.2**

☐ not in compliance with

Summarise the basis for this Finding/Deficiencies Identified:

The operation is in FULL COMPLIANCE with Standard of Practice 9.2 to initiate dialogue describing cyanide management procedures and responsively address identified concerns.

The operation provides the opportunity for stakeholders to communicate issues of concern regarding the management of cyanide.

Quarterly Stakeholder Engagement Meetings are held during which operational issues and cyanide management measures are discussed with the attendees. The meeting provides an open forum for the attendees to ask questions and for Akyem Gold Mine to provide information regarding cyanide management practices and procedures.

The auditors observed examples of the external stakeholder engagement meetings held during 2019. No meetings were held in 2020 and 2021 due to Covid pandemic.

The Cyanide Transportation Communication Plan details the objectives of the communication plan in order to provide stakeholders with the necessary information to support public disclosure and meaningful consultations to address issues of concern on the cyanide transportation process.

The Community Relations Department identified 12 communities and hamlets along the Abirem / Nkawkaw cyanide transportation route that require periodic engagement.

Akyem Gold Mine held cyanide transportation and usage safety education sessions with potentially affected communities along the cyanide transportation route and close to the mine during September and October 2019.

The focus of the meetings was to provide information on cyanide and chemical awareness:

- Transportation process
- General information about cyanide
- Akyem cyanide management process
- Transportation and safety measures

Standard of Practice 9.3: Make appropriate operational and environmental information regarding cyanide available to stakeholders.

The operation is

☒ **in full compliance with**

☐ in substantial compliance with **Standard of Practice 9.3**

☐ not in compliance with

Summarise the basis for this Finding/Deficiencies Identified:

The operation is in FULL COMPLIANCE with Standard of Practice 9.3 to make appropriate operational and environmental information, regarding cyanide, available to stakeholders.

The operation has developed written descriptions of how their activities are conducted and how cyanide is managed. These descriptions are available to communities and other stakeholders. A presentation for cyanide and chemical awareness, including information on transportation and properties of cyanide, was presented to the communities during education sessions held in 2019. The presentation is in English but was presented to the communities in the local language. Copies of posters with an emergency contact number was distributed to the communities and are available at the local community centres.

Newmont reports on cyanide management, at all operations, publicly in the Newmont Sustainability Report available on the company website. Cyanide exposure or release related incidents, if any, will be reported on in detail internally, to affected communities and to the relevant Regulators.

There have been no incidents of cyanide exposure in the last 3 years. There have been no cyanide releases from the mine site in the past 3 years.

Newmont Akyem Gold Mine
Name of Facility

Signature of Lead Auditor

July 2021
Date

Signature Page

Golder Associates Africa (Pty) Ltd.

Marié Schlechter
ICMI Lead and Mine Technical Expert Auditor

MS/EC/ms

https://golderassociates.sharepoint.com/sites/142286/project files/6 deliverables/drafts/reports for internal review/21455666_newmont akyem_icmirecertaudit_summary_draft_20august2021_for internal review.docx

APPENDIX A

Document Limitations

DOCUMENT LIMITATIONS

This document has been provided by Golder Associates Africa Pty Ltd ("Golder") subject to the following limitations:

i) This Document has been prepared for the particular purpose outlined in Golder's proposal and no responsibility is accepted for the use of this Document, in whole or in part, in other contexts or for any other purpose.

ii) The scope and the period of Golder's Services are as described in Golder's proposal, and are subject to restrictions and limitations. Golder did not perform a complete assessment of all possible conditions or circumstances that may exist at the site referenced in the Document. If a service is not expressly indicated, do not assume it has been provided. If a matter is not addressed, do not assume that any determination has been made by Golder in regard to it.

iii) Conditions may exist which were undetectable given the limited nature of the enquiry Golder was retained to undertake with respect to the site. Variations in conditions may occur between investigatory locations, and there may be special conditions pertaining to the site which have not been revealed by the investigation and which have not therefore been taken into account in the Document. Accordingly, additional studies and actions may be required.

iv) In addition, it is recognised that the passage of time affects the information and assessment provided in this Document. Golder's opinions are based upon information that existed at the time of the production of the Document. It is understood that the Services provided allowed Golder to form no more than an opinion of the actual conditions of the site at the time the site was visited and cannot be used to assess the effect of any subsequent changes in the quality of the site, or its surroundings, or any laws or regulations.

v) Any assessments made in this Document are based on the conditions indicated from published sources and the investigation described. No warranty is included, either express or implied, that the actual conditions will conform exactly to the assessments contained in this Document.

vi) Where data supplied by the client or other external sources, including previous site investigation data, have been used, it has been assumed that the information is correct unless otherwise stated. No responsibility is accepted by Golder for incomplete or inaccurate data supplied by others.

vii) The Client acknowledges that Golder may have retained sub-consultants affiliated with Golder to provide Services for the benefit of Golder. Golder will be fully responsible to the Client for the Services and work done by all its sub-consultants and subcontractors. The Client agrees that it will only assert claims against and seek to recover losses, damages or other liabilities from Golder and not Golder's affiliated companies. To the maximum extent allowed by law, the Client acknowledges and agrees it will not have any legal recourse, and waives any expense, loss, claim, demand, or cause of action, against Golder's affiliated companies, and their employees, officers and directors.

viii) This Document is provided for sole use by the Client and is confidential to it and its professional advisers. No responsibility whatsoever for the contents of this Document will be accepted to any person other than the Client. Any use which a third party makes of this Document, or any reliance on or decisions to be made based on it, is the responsibility of such third parties. Golder accepts no responsibility for damages, if any, suffered by any third party because of decisions made or actions based on this Document.

GOLDER ASSOCIATES AFRICA (PTY) LTD

golder.com