



REPORT

ICMI GOLD MINE RECERTIFICATION AUDIT - SUMMARY REPORT

Newmont Ghana Gold - Ahafo Gold Mine

Submitted to:

International Cyanide Management Institute

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Washington, DC 20005,
USA

Submitted by:

Golder Associates Africa (Pty) Ltd.

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1.0 SUMMARY AUDIT REPORT FOR GOLD MINING OPERATIONS

Name of Cyanide User Facility: Ahafo Gold Mine

Name of Cyanide User Facility Owner: Newmont Ghana Gold Limited

Name of Cyanide User Facility Operator: Newmont Ghana Gold Limited

Name of Responsible Manager: Daniel Egya-Mensah
Processing Manager

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2.0 LOCATION DETAIL AND DESCRIPTION OF OPERATION

Newmont's Ahafo Gold Mine is located in the Brong Ahafo region, approximately 307 km northwest from the national capital city of Accra. Commercial production at Ahafo began in 2006. Ahafo has two primary ore zones namely Ahafo South and Ahafo North. Mining is currently taking place at Ahafo South. Ahafo is primarily a surface mine with one underground portal.

The Ahafo Gold Plant consists of a conventional mill and carbon-in-leach circuit. Ore from the mine workings is transported to a crushing, grinding and milling circuit. Ore processing consists of carbon-in-leach cyanidation, elution and gold recovery. Tailings material is conveyed by pipeline to a counter-current decantation (CCD) plant where tailings are rinsed with decant return water to reduce Weak Acid Dissociable (WAD) Cyanide (CN) concentrations to less than 50ppm WAD CN before final disposal. The tailings are pumped from the CCD circuit via 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. The process plant and TSF facility are designed as a zero-discharge operation.

Ahafo Gold Mine receives sodium cyanide from Orica from the Yarwun manufacturing plant in Queensland, Australia. The cyanide, in solid briquette form, is packaged in one tonne plastic bags inside plywood boxes. The boxes are transported by sea to the port of Takoradi in Ghana from where it is transported by road to the town of Tarkwa. The transportation of the cyanide in Ghana is handled by Stellar Logistics which is subcontracted to Orica. At the Orica Box to Sparge Bulk Cyanide Transfer Facility in Tarkwa, operated by Barbex, the briquettes are transferred to isotainers. The cyanide is delivered to the Ahafo Gold Plant in dry briquette form, in truck-mounted isotainers, for solid to liquid sparging by Stellar Logistics. The cyanide mixing facility at Ahafo Gold Plant has been constructed to handle the sparging operations.

During the sparging, pH adjusted water from the mixing tank is passed through the isotainer in a continuous and closed circuit until 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 **The International Cyanide Management Code**

in substantial compliance with

not in compliance with

Newmont Ahafo Gold Plant is:

Audit Company: Golder Associates Africa (Pty) Ltd

Audit Team Leader: Ed Clerk, Lead Auditor

Email: eclerk@golder.com

Newmont Ahafo Gold Plant has not experienced any significant cyanide incidents or compliance problems during the previous three-year audit cycle.

Name of Other Auditors

Marié Schlechter, ICMI pre-certified Mine Technical Specialist

Dates of Audit

The Re-certification Audit was undertaken between 28 January 2018 and 31 January 2018.

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.

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 from manufacturers employing appropriate practices and procedures to limit exposure of their workforce to cyanide, and to prevent releases of cyanide to the environment.

The operation's contract with the cyanide manufacturer (Orica) requires that the cyanide be produced at a facility that has been certified as being in compliance with the Code.

Observed: Sodium Cyanide Agreement between Newmont Ghana Gold Limited and Orica International PTE LTD for Supply of Sodium Cyanide to Ahafo Gold Mine, dated 28 April 2015.

Orica's Yarwun production facility is certified as being in full compliance with the Code on 22 February 2017 with the prior recertification being dated 21 October 2014. Orica's Box to Sparge Transfer Facility is certified as being in full compliance with the Code on 21 October 2014 with the prior recertification being dated 8 March 2011.

Cyanide is purchased directly from Orica.

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.

in full compliance with

The operation is

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(Orica) and the operation (Newmont Gold Mine).

Sodium Cyanide Agreement between Newmont Ghana Gold Limited and Orica International PTE LTD for Supply of Sodium Cyanide to Ahafo Gold Mine, dated 28 April 2015.

These agreements designate responsibilities for the following:

- a) Packaging as required by the United Nations for international shipments and by the political jurisdiction(s) the shipment will pass through – Section 8.1 (c).
- b) Labelling in languages necessary to identify the material in the political jurisdiction(s) the shipment will pass through, and as required by these jurisdiction(s) and by the United Nations (for international shipments) – Section 6.1.
- c) Colourant is not within the agreement, but it is added at Orica's box to sparge transfer facility.
- d) Storage prior to shipment – Section 8.1 (a) and (b).
- e) Evaluation and selection of routes, including community involvement – Section 8.1 (c).
- f) Storage and security at ports of entry – Section 8.1 (a) and (b).
- g) Interim loading, storage and unloading during shipment – Section 8.1 (a) and (b).
- h) Transport to the operation – Section 8.1 (c).
- i) Unloading at the operation – Section 8.1 (c).
- j) Safety and maintenance of the means of transportation (e.g. aircraft, vessels, trains, etc.) throughout transport – Section 8.1 (c).
- k) Task and safety training for transporters and handlers throughout transport– Section 8.1 (c), Section 8.2 (a).
- l) Security throughout transport – Section 8.1 (c).
- m) Emergency response throughout transport – Section 8.1 (c).T

The agreement between Newmont Gold Mine and Orica does not provide for any of the services to be subcontracted.

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 FULL 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.

Ahafo Gold Mine purchases cyanide from Orica under supply agreement. The contract requires that the supplier and affiliated transporter be certified under the Code. The Orica Australian Supply Chain from Yarwun to the port of Brisbane was re-certified on 26 January 2015. The Orica West Africa Supply Chain, from the Port of Brisbane by sea to the port of Takoradi and on-land to the site, was recertified on 5 September 2014.

The operation has chain of custody records identifying all elements of the supply chain (producer, transporter(s), interim storage facilities) that handle the cyanide brought to its site.

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.

Facilities for unloading and storing 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 facility was designed by an engineering and construction company known to have designed and constructed previous gold mining projects. In addition, the facility is inspected by the cyanide producer on an annual basis.

The unloading and storage areas of liquid and solid cyanide are located away from people and surface waters. A review of the site and risk assessments suggests there is no potential for releases to surface water and the site has implemented controls to minimise the risk of human exposure.

There are cyanide gas detectors with visual and audible alarms at the facility. These monitors are inspected, maintained and calibrated.

During cyanide sparging there are two operators, the site emergency response team and an emergency response vehicle present.

Liquid cyanide is unloaded on a concrete or surface that can minimise seepage to the subsurface. The sparge unloading pad is bunded and run-off is directed into secondary containment.

The cyanide unloading area is designed and constructed to contain, recover, or allow remediation of any leakage from the tanker truck. The truck transporting the isotainer parks on a concrete pad and runoff is directed into the secondary containment.

There is a method to prevent the overfilling of cyanide storage tanks, such as a level indicator and high-level alarm.

The cyanide sparge tank has high level alarms interlocked with the cyanide sparge pump. The sparge tank is equipped with an overflow pipe to the cyanide storage tank. The cyanide storage tank is equipped with ultrasonic level detection with high level alarms and an interlock tripping the transfer pumps from the sparge tank.

There is an overflow from the mixing tank to the storage tank and the storage tank in turn overflows to the sump.

Field level display instruments are available and level instrumentation is inspected and maintained.

Cyanide mixing and storage tanks are located on a concrete or other surface that can prevent seepage to the subsurface.

Secondary containments for cyanide storage and mixing tanks are constructed of concrete, which provides a competent barrier to leakage.

Solid cyanide is delivered to site using isotainers, which are sparged. Solid cyanide is not stored on site. Liquid cyanide is stored within the storage tanks, and the mixing and storage tanks are vented.

The cyanide make-up and storage area, including the caustic make up, hydrochloric storage and reagent store is fenced and equipped with gates that are locked.

Cyanide is stored separately from 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.

in full compliance with

The operation is

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.

The operation uses a sparging system. Solid cyanide is delivered to the site in isotainers, which are not unloaded from the truck. Once sparging is complete, the isotainers are removed from site.

Following the sparging process the isotainer is subject to a rinsing sequence. The rinse water is sent to the sparging tank. The isotainer, coupling joints and hoses are also rinsed.

Procedures are in place that detail the operation of valves and couplings for unloading liquid cyanide and mixing solid or liquid cyanide.

If leaks or solution are observed, the procedure entails rinsing with water, which is drained into the reagent facility bund.

Procedures are in place, which state the required PPE and that a second individual is required. Observers as well as the site emergency response team with an emergency response vehicle are present during the sparging process.

Colorant is added to the isotainers prior to arriving on site.

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, leach plants, tailings impoundments (TSF), and cyanide treatment, regeneration and disposal systems.

The tailings decant return water is stored in the Process Water pond and is used as rinse water at the Counter Current Decantation (CCD). The operation can demonstrate that the cyanide concentration in the Decant Return Water Pond does not exceed 50 mg/l WAD cyanide.

The Process Water Pond is covered with Bird Balls to restrict birds from access to the pond. The pond is inside the fenced mine and plant area and no other wildlife have access to the pond.

The operation has developed a site-wide management system in alignment with ISO14001 and OHSAS 18001 management system standards. This system requires operations to identify key risks, develop Standard Operating Procedures (SOPs) and provide training to employees to ensure they carry out their tasks in a safe manner while monitoring and evaluating effectiveness of programs for continuous improvement.

The operation has numerous cyanide specific procedures and plans, and numerous maintenance and operating procedures for cyanide facilities. These procedures are documented and controlled on the company intranet site and are readily retrievable by personnel.

The operation does not have a heap leach operation nor a regeneration system.

The operation has plans and procedures that identify the assumptions and parameters on which the facility design was based as well as applicable regulatory requirements to prevent or control cyanide releases and exposures consistent with applicable requirements.

Plant procedures were developed and have been updated using the original Plant Design Criteria. These design criteria were based upon Newmont Corporate and Regulatory requirements.

Critical design parameters are referenced in the original design criteria as well as in various management plans, standard operating procedures, and standard task procedures. These design criteria are reviewed, and the associated documents are updated as and when required by changes to facilities, processes, and/or as part of incident reviews.

The operation has plans and procedures that describe the standard practices necessary for the safe and environmentally sound operation of the facility including the specific measures needed for compliance with the Code, such as inspections and preventative maintenance activities.

Daily inspections including pre-start checks are conducted for each shift on each circuit. Issues identified that cannot be rectified immediately are recorded and a work request is generated in the SAP Maintenance system.

In addition to the shift inspections, formal monthly inspections are conducted across all areas of the plant using a cross-functional team of inspectors.

Maintenance inspections are carried out on a routine basis according to the preventative maintenance schedules established in the SAP. Work orders are generated by the maintenance system for the various plant facilities and equipment. Records of all maintenance activities are maintained within the SAP System.

Inspection findings are documented and retained. Corrective actions from the cross-functional inspections and audits are documented in the corrective action tracking software to ensure the action is appropriately managed and completed.

The operation has a procedure to identify when changes in a site's processes or operating practices may increase the potential for the release of cyanide and to incorporate the necessary release prevention measures.

Newmont has implemented a Change Management Procedure as part of the operation's Integrated Management System (IMS). This procedure helps to ensure that the relevant risks are captured, evaluated, controlled and before changes to facilities, equipment, processes, and/or resources and equipment are implemented.

Changes may be identified via inspections, corrective actions, audits, accident/incident reviews and employee inputs during pre-shift, safety and other meetings. All changes will be reviewed and approved by authorized personnel and management personnel will sign-off on the change prior to implementation. The level of reviews and approvals is driven by the level of risk associated with the change.

The operation has cyanide management contingency procedures for situations where there is an upset in a facility's water balance, when inspections and monitoring identify a deviation from design or standard operating procedures, and/or when a temporary closure or cessation of the operation may be necessary.

The operation has incorporated contingency procedures into various standard operating procedures and management plans. Examples of upset conditions include upsets in water balance, identified leakages, and/or plant shutdowns.

The operation inspects cyanide facilities on an established frequency sufficient to assure and document that they are functioning within design parameters. The operation conducts daily, weekly, monthly, quarterly and annual inspections.

The operation inspects the following at unloading, storage, mixing and process areas, as applicable to the site:

- a) Operational inspections include tanks, pipelines and pumps for leakage and corrosion, and bunds for debris, salts, solutions, cracks and damage. Planned maintenance include annual inspections of cyanide sparging and cyanide storage.
- b) Daily operational inspections include bunds.
- c) TSF inspections include leak detection at the TSF. Weekly pond inspections include leak detection system pumps into the process pond.

- d) TSF pipelines and lining are inspected daily, weekly and monthly. The operational inspections cover pipes, pumps and valves and flanges for leakage.
- e) TSF freeboard is surveyed monthly and supernatant pond checked weekly. Plant ponds are checked in daily and weekly inspections. Level indicators and alarms are fitted to all ponds, and alarms are inspected on 90-day preventative maintenance routines. Storm water diversion structures are inspected during rainfall events. Inspections address physical integrity of surface water diversions.

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 retained.

Records of audits, Inspections and subsequent corrective actions identified are documented in accordance with the IMS Inspections requirements which includes the nature and date of the corrective actions. Daily and maintenance inspections are recorded on the inspection sheets and any follow-up work requests are logged in the SAP System. Inspection sheets and work orders identify the name of the inspector, the date of the inspection and any identified items for corrective actions. Corrective actions from cross-functional audits and inspections are logged in the corrective action tracking software.

Preventative maintenance programs are implemented and activities documented to ensure that equipment and devices function as necessary for safe cyanide management.

The operation utilizes the SAP System to manage all maintenance tasks including those identified during inspections. Planned maintenance schedules are generated in the system which is then automatically issued at the prescribed date and/or frequency as a work order. Maintenance schedules are determined according to the level of risk associated with the equipment and/or manufacturer recommendations and specifications. Maintenance schedules are also updated as required due to plant changes, incident, audit and/or inspection findings.

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.

Power is supplied to the operation via the grid. In the event of a grid power failure, the process plant is equipped with Diesel Powered generators with sufficient emergency/backup power capacity. The emergency generators are inspected and tested as part of the plant preventative maintenance program. Critical items such as event pond and tailings line pumps are given priority for emergency power in order to maintain the water balance at the plant facilities.

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.

The Weekly Mine to Mill Meeting is used to plan ore ratios and efforts are made to keep ratios constant. Annual external test work is conducted to analyse the ore to be mined in the following year.

Bottle roll tests and diagnostic tests are conducted to confirm cyanide addition and plant recovery, and set points have been established.

The operation has a strategy to control its cyanide addition and has evaluated various control strategies for cyanide additions.

To ensure minimum use of cyanide addition, the pre-leach thickener density is controlled.

Cyanide containing process water is returned to the Carbon-in-Leach (CIL).

The OCM 5000 system is used for automatic cyanide addition and control, and manual titrations are taken to confirm the correct operation of the system.

Free cyanide is monitored using the OCM 5000, and a control to limit the maximum flow of cyanide to the leach is in place to prevent overdosing.

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

in full compliance with

The operation is

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 has developed a comprehensive, probabilistic water balance. A GoldSim water balance model has been developed for the operation.

The water balance considers the above criteria in a reasonable manner and as appropriate for the facilities and environment. The water balance includes the following:

- It was observed that the water balance takes into consideration the rate at which tailings is deposited on the TSF;
- The model considers the required freeboard standard on the TSF and Decant Return Water Dam. The model automatically generates a storm event to the maximum of 1:500-year storm event based on historic rainfall data dating back to 2006 (on-site data);
- An on-site weather station provides daily rainfall data used to update the model. Rainfall data dates to 2006;
- Evaporation is measured daily on site;
- Run on of the TSF is included in the catchment area of the dam. No run on exist to the plant and infiltration is negligible as the flow to the pond originates from concrete and HDPE lined surfaces;
- Freezing, thawing conditions are not applicable as there are no snowfalls under normal conditions, which has been verified for the last 12 years;
- The model takes into consideration solution losses from the TSF. The TSF pool is lined with HDPE with the rest of the dam floor consisting of compacted clay layer. Retained interstitial water is calculated in the model;
- The model takes into account the effect of total power failures and was illustrated in the model by simulating the operation of the Event pond under normal conditions as well as during shutdown conditions;
- Retained interstitial water is calculated in the model.
- 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.

The available freeboard at the TSF and Decant Return Water Pond is observed daily and measured on a monthly, quarterly and annual basis. The checks are performed to ensure that required freeboard is maintained.

The water level of the TSF is checked twice a day to ensure that the pond is operated at a safe level.

The water level of the Process Pond is checked twice a day to ensure it is operated at a safe level.

The Event Pond is operated at a minimum level and the standard operating procedure is to pump out the material as quickly as possible in order to have room for any eventuality.

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

The operation measures precipitation on a daily basis, compares results to design assumptions and revises operating practices as necessary. Rainfall is recorded on-site and included in the monthly sheet used for updating of the Water Balance.

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

in full compliance with

The operation is

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 is no heap leach currently being operated.

The Process Water Pond is covered with Bird Balls to restrict birds from access to the pond. The pond is inside the fenced mine and plant area and no other wildlife have access to the pond.

The operation can demonstrate that the cyanide concentration in open water i.e. TSF and Decant Return Water Pond does not exceed 50 mg/l WAD cyanide.

Sampling is conducted twice a day at the spigots, Decant Return Water Pond and CCD Tails.

No wildlife mortalities were recorded in the past 3 years, indicating that the current cyanide levels appeared to be effective in preventing significant wildlife mortalities.

The TSF and other water storage facilities are inspected on a daily and quarterly basis for the presence of any wildlife mortalities.

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.

There is no direct or indirect discharge to surface water as observed from the upstream and downstream surface and groundwater results observed for 2015, 2016 and 2017.

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

in full compliance with

The operation is

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 or other measures to manage seepage to protect the beneficial use(s) of groundwater beneath and/or immediately down-gradient of the operation.

The TSF has been designed with under drains. The water from the under drains as well as from the finger drains, installed to dewater the TSF walls, are collected and returned to the TSF. The TSF is lined with a clay liner and partially lined with HDPE in the area of the supernatant pool. Secondary under drains have been installed under the HDPE liner.

The Process Water and Event ponds are fully lined to prevent seepage. Leak detection and recovery systems have been installed at the ponds.

There is currently no jurisdictional Ghana Environmental Protection Agency (EPA) standards for groundwater cyanide levels. Newmont has adopted the Ghana drinking water standard of 0.07 mg/l. No exceedances of the 0.07 mg/l were recorded in the groundwater monitoring results observed for 2015, 2016 and 2017.

The operation does not use mill tailings as underground backfill.

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.

Spill prevention or containment measure are provided for all cyanide unloading, storage, mixing and process solution tanks.

Cyanide reagent and process solution tanks are contained on impervious tank foundations and within concrete containments. The reagent box mixing tank is located on a solid concrete plinth. The sparge reagent mixing and storage tanks, and all other process tanks are located on concrete ring beams with an impervious HDPE liner beneath the tanks.

Secondary containments for cyanide unloading, storage, mixing 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 tanks at Ahafo are designed with adequate storage to contain at least the capacity of the largest tank in the bunded area plus 10% of the bund volume for a 1:25 year 24-hour storm event.

The cyanide storage area is sized to be 110% of the largest tank within the bund. In the event that a bund overflows it will report to the event pond which provides additional storage. Other bunds that use the events pond are sized to 110% of the capacity of the largest tank in the containment area. The bunds are connected to the event pond with concrete lined trenches.

There are procedures in place and being implemented to prevent discharge to the environment or any cyanide solution or cyanide contaminated water that is collected in the secondary containment area.

All secondary containments are equipped with pumps and pumping systems returning the contents to the process. The sumps are largely automated with fixed piping systems to contained process areas (tanks). No sump pump piping systems are directed to the environment. Emergency power is available on all pumps including the events pond pumps.

Spill prevention or containment measures are provided for all cyanide process solution pipelines to collect leaks and prevent releases to the environment.

Tailings pipelines are placed inside an HDPE lined trench, draining to the events pond and back into the TSF.

Reagent strength pipelines are of the pipe in pipe design and equipped with leak detection systems. The pipes are routed over concrete trenches draining into the events pond, which is the additional secondary containment.

Process pipelines are placed in pipe racks over concrete containment areas.

The process water dam feed pipe line and suction lines are placed over a concrete surface. The process water pipeline was equipped with a concrete drain beneath the line.

Flange covers and deflection panels are also used on site.

Cyanide focused risk assessments have not identified that cyanide pipelines present a risk to surface water and consequently they do not require special protective needs

Cyanide tanks and pipelines are constructed of material compatible with cyanide and high pH solutions. The materials of construction of the plant are specified within the design documentation and appear to be compatible with cyanide and high pH conditions (HDPE, mild or stainless steel).

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.

in full compliance with

The operation is

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 have been implemented during construction of all new cyanide facilities and modifications to existing facilities.

The QCQA for the cyanide facilities were addressed in the original ICMC certification audit and Recertification Audit.

With the exception of a TSF embankment raise, no additional facilities have been constructed during the audit period. The QAQC documentation was available for the TSF Embankment Raise and was prepared by a consulting engineering firm and signed by an appropriately qualified person.

QCQA programs have addressed the suitability of materials and adequacy of soil compaction for earthworks.

QCQA records cyanide facilities have been retained, and the review of cyanide facility construction by appropriately qualified personnel was addressed in the original ICMC certification audit and Recertification Audit.

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

in full compliance with

The operation is

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 covering Site Wide Water Resources Monitoring, Surface Water Sampling (Grab), Emergency Environmental Monitoring and Groundwater Sampling.

Sampling and analytical protocols have been developed by appropriately qualified consultants. Updates to the procedures and protocols are done by the Ahafo Mine Environmental Manager.

The procedures specify how and where the samples should be taken, sample preservation techniques, chain of custody procedures, shipping instructions and cyanide species to be analysed.

Sampling procedures and conditions are documented in writing.

There is no discharge of process water to surface water. However, the operation does undertake surface and groundwater monitoring upstream and downstream of the operation.

The operation inspects for and records wildlife mortalities related to contact with and ingestion of cyanide solutions. This is done on the daily during the daily TSF and Water Storage Facility inspection as well as during water sampling activities.

Monitoring is conducted at frequencies adequate to characterise the medium being monitored and to identify changes in a timely manner. Groundwater and surface water monitoring 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.

The operation has developed written procedures (Reclamation and Closure Plan, Ahafo South Project Area) to decommission cyanide facilities at the cessation of operations.

The plan includes an implementation schedule for decommissioning activities. Section 3.1 – Decommissioning Schedule of the Reclamation and Closure Plan for the Ahafo 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.

The Cyanide decommissioning procedures are reviewed and updated every three years along with the update of the Site Wide Reclamation and Closure plan.

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

in full compliance with

The operation is

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 plan.

The Closure and Liability Costs are updated annually. The current version available is the 2016 Ahafo Mine Overall Closure Liabilities Cost.

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.

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 the operation to identify potential cyanide exposure scenarios and take measures as necessary to eliminate, reduce, and control them.

The operation has developed and implemented an extensive list of cyanide procedures, which included unloading, mixing, plant operations and equipment decontamination prior to maintenance to minimize worker exposure. Other key procedures developed and implemented by the operation to minimize worker exposure included confined space entry and job hazard assessment.

All procedures include risk assessment references, pre-task checklists, PPE requirements, references to linked procedures, training pre-requisites, and licence and permit requirements. The procedures require, where necessary, the use of PPE and address pre-work inspections.

The operation also has a software-based permit system, with electronic records kept of each permit.

The operation implements procedures to review proposed process and operational changes and modifications for their potential impacts on worker health and safety, and incorporate the necessary worker protection measures

Newmont has implemented a Change Management Procedure as part of the operation's Integrated Management System (IMS). This procedure helps to ensure that the relevant risks are captured, evaluated, controlled and before changes to facilities, equipment, processes, and/or resources and equipment are implemented.

Changes may be identified via inspections, corrective actions, audits, accident/incident reviews and employee inputs during pre-shift, safety and other meetings. All changes are reviewed and approved by authorized personnel and management personnel sign-off on the change prior to implementation. 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. During these meetings, updates are provided, procedures are reviewed and discussed, and comments for improvement are directed to supervisors and/or management for consideration.

Procedures are also given to the Supervisors to review and sign off before they are implemented.

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.

in full compliance with

The operation is

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 to prevent the evolution of hydrogen cyanide (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. pH probes in the CIL circuit are used to monitor the pH of the solution in CIL tanks. A pH controller is used to adjust the quicklime feed to maintain optimal pH level control. 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 done. Morning meetings are used to discuss pH cross references between manual pH readings and the analyser.

Where the potential exists for significant cyanide exposure, the operation uses ambient and personal monitoring devices to confirm that controls are adequate to limit worker exposure to hydrogen cyanide 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.

There are 18 fixed monitors located in the plant and several operational personal monitors, with the first alarm set at 4.7 ppm and the second alarm at 10 ppm.

The operation has identified areas and activities where workers may be exposed to cyanide in excess of 10 ppm on an instantaneous basis and 4.7 ppm continuously over an 8-hour period and require use of PPE in these areas or when performing these activities

Gas surveys have been conducted to determine areas where workers may be exposed to cyanide in excess of 10 ppm on an instantaneous basis and 4.7 ppm continuously over an 8-hr period. In addition, risk assessments were conducted to assess all areas and activities that were identified as representing a risk of cyanide exposure.

Hydrogen cyanide monitoring equipment is maintained, tested, and calibrated as directed by the manufacturer, and records are retained for at least one year.

Calibration on fixed monitors are done monthly, while the manufacturer requirement is 6 monthly. Calibration is conducted internally, with training provided by the manufacturer.

Calibration of personal monitors is conducted internally using Industrial Scientific Automatic Calibration. Automatic record keeping is on the linked computer.

Warning signs have been placed where cyanide is used advising workers that cyanide is present, and that smoking, open flames and eating and drinking are not allowed, and that, if necessary, suitable personal protective equipment must be worn. The signage reinforces messages contained in the Induction training and procedures.

Colorant is added to the isotainers by the cyanide producer prior to arriving on site.

Showers, low pressure eyewash stations and dry powder fire extinguishers are located at strategic locations throughout the operation and are they maintained, inspected, and tested on a regular basis.

Emergency eye wash stations and showers are inspected by on a regular basis. Fire extinguishers are inspected monthly, and maintenance by the vendor is conducted 6 monthly.

Unloading, storage, mixing and process tanks and piping containing cyanide are identified to alert workers of their contents, and the direction of cyanide flow in pipes is designated.

The site inspection verified the labelling and flow direction indication of cyanide lines and slurry lines, including at the TSF and in the plant. The workforce is trained to understand that slurries and waters inside the plant contains cyanide.

MSDS, first aid procedures or other informational materials on cyanide safety in the language of the workforce are available in areas where cyanide is managed.

MSDS were noted as being available in the reagent storage area, control room at CIL and elution area. The MSDS were available in English, the country's official language. All staff also have access to the MSDS on the Chernalert web service.

Procedures are in place and being implemented to investigate and evaluate cyanide exposure incidents to determine if the operation's programs and procedures to protect worker health and safety, and to respond to cyanide exposures, are adequate or need of revising.

The operation has a Standard that includes the investigation and evaluation of cyanide exposure incidents. All incidents are captured within the event reporting system, which is used for incident reporting, investigations and action management. The system includes investigation reports, which detail the events, findings, critical actions, a full description, the scope, and chronology.

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

in full compliance with

The operation is

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.

The operation has water, oxygen, a resuscitator, antidote kits and a radio, telephone, alarm system or other means of communications or emergency notification readily available for use at cyanide unloading, storage and mixing locations and elsewhere in the plant.

Emergency showers, water, oxygen and SCBA are available at various locations around the plant. Resuscitator and antidote kits are kept by the clinic, and radios are used for communication throughout the operation.

The operation inspects its first aid equipment regularly to ensure that it is available when needed, and materials such as cyanide antidotes are stored and/or tested as directed by their manufacturer and replaced on a schedule to ensure that they will be effective when needed.

The Emergency Response Team (ERT) inspect their first aid equipment on a regular basis, and the Emergency Escape Breathing Apparatus (EEBA) and oxygen cylinders are inspected monthly.

The operation has developed specific written emergency response plans or procedures to respond to cyanide exposures.

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

The operation has also developed a protocol which details the required treatment and handling of suspected and confirmed cases of cyanide poisoning and exposure.

The operation has its own on-site capability to provide first aid or medical assistance to workers exposed to cyanide.

The operation employs a full-time and fully trained ERT and International SOS (ISOS) medical team to effectively respond to cyanide and other incidents at the site. In addition to ERT and ISOS personnel, a number of process plant first responders have been trained in the plant to provide initial rescue efforts.

The onsite medical clinic has the capability to treat multiple casualties. This includes a 24/7 staffed clinic with nurses, doctors and paramedics ready to respond to any accident/incident at the site. If secondary complications occur after initial treatment, the patient will be transferred to a local hospital for further advanced medical care.

The operation has developed procedures to transport workers exposed to cyanide to locally available qualified off-site medical facilities.

The auditor observed the procedures, which state the required treatment and handling of suspected and confirmed cyanide poisoning and exposure. The external medical facility is Komfo Anokye Hopsital in Kumasi which has acknowledged it can accept, manage and treat patients.

The operation has made formalised agreements with local hospitals, clinics, etc., so that these providers are aware of the potential to treat patients for cyanide exposure. The operation is confident that the medical facility has adequate, qualified staff, equipment and expertise to respond to cyanide exposures.

There is a fully equipped ERT and clinic available on site, who are trained and equipped to treat patients for cyanide exposure. The clinic is equipped with PPE, antidote kits and personal gas monitor. The clinic has a trained paramedic and doctor, and participates in mock drills.

The clinic medical doctor in charge will make decision on further advanced medical care and evacuation, as per the protocol for treatment of all suspected or definite cases of cyanide poisoning.

The patients will receive initial management and stabilisation and if secondary complications occur the patient will be transferred to Komfo Anokye Hospital in Kumasi. Komfo Anokye Hopsital has acknowledged it can accept, manage and treat patients.

Mock emergency drills are conducted periodically to test response procedures for various cyanide exposure scenarios, and lessons learned from the drills are incorporated into response planning.

Mock emergency drills are undertaken at least once a year. Various mock emergency drills were reviewed by the auditor. The drill reports included the scenario, field observations, details of debriefing meeting and areas for improvement.

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.

in full compliance with

The operation is

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 emergency documentation to address potential accidental releases of cyanide.

Newmont Ahafo has developed both a site wide Emergency Response Plan and a Process Plant specific plan. 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.

In addition to these overarching plans, there are procedures to assist with emergency response scenarios related to cyanide incidents, such as spills, emergency sampling, community notification and evacuation.

The operation's Process Plant Emergency Plan lists the various credible event scenarios for the site inclusive of cyanide incidents. The plan is reviewed no less than every three years and accounts for the following events:

- Catastrophic releases
- Transportation accidents
- Releases during unloading and mixing
- Releases during fires and explosions
- Pipe, valve and tank rupture
- Overtopping of ponds and impoundments
- Power outages and pump failures
- Uncontrolled seepage
- Failure of tailings impoundment and other cyanide facilities.

For each section, actions and/or supporting procedures are outlined to ensure adequate levels of response. These are further supported by the Newmont Rapid Response system which may be initiated for significant events.

Planning for response to transportation-related emergencies has considered transportation route(s), physical and chemical form of the cyanide, method of transport (e.g. rail, truck), the condition of the road/railway, and the design of the transport vehicle (e.g., single or double walled, top or bottom unloading).

Newmont's sodium cyanide supplier has responsibility for the sodium cyanide from the point of origin to the Newmont off-loading facility at Ahafo. The supplier has developed site specific emergency response plans for transport to Ahafo. Consideration has been given to transport routes and response capabilities along the way.

The Plans describe specific response actions 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.

The Plans cover remote area evacuation, surface evacuation, underground evacuation and evacuation within the plant. Cyanide first aid procedures are detailed in the Plans and there are also trained first responders within the plant. Notification and evacuation of the community is described in a specific procedure to assist with emergency response.



Standard of Practice 7.2: Involve site personnel and stakeholders in the planning process. **in full compliance with****The operation is** 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 has involved its workforce and stakeholders in the cyanide emergency response planning.

The documentation developed has been done using cross-functional teams from various departments. The site has monthly safety meetings in which new procedures and updates, including emergency response, are presented. Mock emergency drills are conducted periodically to test response procedures for various cyanide exposure scenarios.

The operation has made potentially affected communities aware of the nature of the risks associated with accidental cyanide releases, and consulted with them directly or through community representatives regarding appropriate communications and response.

External stakeholders do not have a direct involvement in Emergency Response Planning, however the Community Relations team maintains contact with community figures and utilizes community liaison officers to share relevant information with affected peoples with regards to emergency response planning.

Quarterly Stakeholder Engagement Meetings are held during which operational issues and cyanide management measures are discussed with the attendees. The meetings provide stakeholders with the opportunity to communicate issues of concern regarding the management of cyanide.

The operation has involved local response agencies such as outside responders and medical facilities in the cyanide emergency planning and response process.

Due to the location and response capacities of local agencies, Newmont Ahafo would maintain responsibility for emergency response activities with negligible involvement from local response agencies. Despite this, Emergency Response Plans are made available to and shared with the Ghana Minerals Commission, Ghana 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 transporters and other community service providers to help with mobilization and evacuation of personnel if required under direction from Newmont Ahafo Rapid Response personnel.

The operation engages in consultation or communication with stakeholders to keep the Emergency Response Plan current. The Quarterly Stakeholder Engagement Meetings include discussion on operational issues and cyanide management measures, and provide stakeholders with the opportunity to communicate issues of concern.

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 are as follows:

- a) The Plan states the responsibilities of the Security Control Centre (SCC) and Health and Safety Manager to mobilise ERT, and that the ERT Captain to mobilise the necessary resources. The plant specific Plan stipulates the detailed roles and responsibilities for plant emergencies.
- b) There are three ERT crews who work on rotation, and approximately 20 trained First Responders on the Plant. The Plans state to the responsibility of trained First Responders to attend to the exposed employee until the ERT arrives.
- c) ERT Training includes Cyanide Awareness and First Aid, Chemical Awareness, Rope Rescue - High Angle Rescue at Heights, Medical Cardiopulmonary Resuscitation (CPR) and Automated External Defibrillator (AED) and Oxygen administration, Cyanide Sparging Response, Standard Conditions of Temperature and Pressure (STP) sign off, Confined Space Rescue and Hazmat Response.
- d) Call out procedures and contact information is included within the Plans. A Weekly Call Out List is updated and issued weekly. Calls go to SCC before ERT, and the SCC has all contact lists.
- e) Responsibilities are detailed at the beginning of each emergency plan.
- f) The Cyanide Sparging PPE and Equipment Checklist lists the equipment available to the ERT during an incident.
- g) Emergency response equipment is inspected to ensure availability; the fire truck, rescue truck, hazmat truck and first aid box checklist (fire truck) are checked daily, the Cyanide sparging PPE and Equipment checklist is checked weekly, and fire hydrants and SCBA monthly.
- h) The internal clinic takes part in emergency response. The only outside responders are the local Fire Department if the incident requires additional firefighting resources. The Plans includes contact details for the local Fire Service and responsibilities for the internal clinic.

The operation has confirmed that outside entities included in the Emergency Response Plan are aware of their involvement and are included as necessary in mock drills or implementation exercises.

Mock emergency drills are conducted monthly by the ERT and annually by the processing plant. Various mock emergency drills were reviewed by the auditor.

Standard of Practice 7.4: Develop procedures for internal and external emergency notification and reporting. in full compliance with**The operation is** 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 Plan includes procedures and contact information for notifying management, regulatory agencies, outside response providers and medical facilities of the cyanide emergency. The auditor sighted the specific plan, which includes the necessary emergency contact numbers.

The Plan includes procedures and contact information for notifying potentially affected communities of the cyanide-related incident and any necessary response measures and for communications with the media.

The operation has a community notification and evacuation procedure, which includes the contact information for notifying relevant communities, necessary response measures and communications with the media.

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.

in full compliance with

The operation is

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 Plan describes specific remediation measures as appropriate for the likely cyanide release scenarios, such as:

- a) Ferrous sulphate is used to neutralise CN spills. Ferrous Sulphate is stored in the Reagent Shed and mixed in accordance with the Ferrous Sulphate Mixing Guide. Neutralisation and sampling of the contaminated area continues until the WAD cyanide is no longer detectable.
- b) 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.
- c) Cleaned up spillage can be reintroduced into the process plant or deposited into the TSF.
- d) Alternative drinking water is supplied if required.

The Plan prohibits the use of chemicals such as sodium hypochlorite, ferrous sulphate and hydrogen peroxide to treat cyanide that has been released into surface water. There is a specific procedure that prohibits the use of ferrous sulphate to treat cyanide that has been released into surface water.

The Plan addresses the potential need for environmental monitoring to identify the extent and effects of a cyanide release, and include sampling methodologies, parameters and, where practical, possible sampling locations. A specific procedure has been developed, which details the field sampling requirements, and the sampling points.

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

in full compliance with

The operation is

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.

The operation reviews and evaluates the cyanide-related elements of its Emergency Response Plan for adequacy on a regular basis. The Plan is reviewed every three years and the most recent version is dated September 2017.

Mock cyanide drills are conducted periodically as part of the Emergency Response Plan evaluation process.

Mock emergency drills are undertaken at least once a year and the auditor reviewed various mock emergency drills from the audit period. The drill reports include the scenario, field observations from incident site, details of the debriefing meeting, and areas of improvement.

There are provisions in place to evaluate and revise the Emergency Response Plan after any cyanide-related emergency requiring its implementation. The debriefing session after each mock emergency drill gives rise to action, which may include the revision of the Emergency Response 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.

in full compliance with

The operation is

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 plant employees, contractors and visitors, who may encounter cyanide, in cyanide hazard recognition.

All persons entering the plant receive process plant induction training including cyanide awareness and cyanide hazard recognition and emergency response. The card access control system prevents personnel, contractors and visitors from entering the plant if the induction was not completed.

Every plant employee and long-term contractors receive the Ahafo Process Safety and Security Induction on an annual basis. It is also presented to employees when returning from annual leave and contractors annually. The card access system prevents personnel from entering the site if the refresher training has expired

Training records are retained for the duration of employment plus an additional 10 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.

in full compliance with

The operation is

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 in a manner that prevents unplanned cyanide releases.

The auditors observed the Training Matrix, which stipulates training need as identified per occupation per section of the plant. The matrix is compiled for all employees as well as long-term contractors. Training modules include both in the class and on the job training.

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 plans. The training session plans requires a particular pass rate for the theory component and in-field competency assessment. The Standard Operating Procedure (SOP) and Standard Task Procedures (STP) for the tasks form part of the module.

Appropriately qualified personnel provide task training related to cyanide management activities. The trainers are appropriately qualified in the subject matter and training credentials.

The operation trains all plant employees, contractors and visitors, who may encounter cyanide, in cyanide hazard recognition.

All persons entering the plant receives process plant induction training including cyanide awareness and cyanide hazard recognition and emergency response. The training department will also conduct a Standard Task Procedure on an employee once the theoretical and practical training has been completed for a specific task.

Refresher training on cyanide management is provided to ensure that employees continue to perform their jobs in a safe and environmentally protective manner.

Refresher training on the plant, cyanide safety, chemical awareness and confined space entry safety is provided annually. Refresher training on spill management and fire awareness and extinguishers is provided every 2 years.

The operation evaluates the effectiveness of cyanide training by testing, observations or other means. Planned Task Observations (PTO) are conducted on employees to ensure a continual understanding of a specific task. The PTO observer checks the various steps as stipulated in the Job Procedure attached to the PTO form.

Training records are retained for the duration of employment plus an additional 10 years. The records include the names of the employees and the trainer, the date of training, the topics covered, and if the employee demonstrated an understanding of the training material.

PTO's are retained for at least 3 years, and 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.

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

in full compliance with

The operation is

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 Ahafo Gold Mine:

- General Plant Induction is presented to all Employees, Contractors and Visitors, and includes general information on cyanide identification, basic emergency response and first aid measures.
- Cyanide Safety training is presented to all employees, long term contractors, Emergency Response Team (ERT) members, International SOS employees and Community Relations employees. The training includes detailed information on the cyanide identification, Emergency Response and First Aid Treatment.
- A module on Cyanide First Aid Response is presented to all on-site ERT members. The module covers identification of cyanide and Cyanide emergency response and first aid.

Site cyanide response personnel, including unloading, mixing, production and maintenance workers, are trained in decontamination and first aid procedures. They also take part in routine drills to test and improve their response skills.

The Plant First Responders and ERT are trained in the procedures included in the Emergency Response Plan regarding cyanide, including the use of necessary response equipment. Cyanide specific First Aid and Emergency training is provided to the ERT.

The operation has made off-site Emergency Responders, such as community members, local responders and medical providers, familiar with those elements of the Emergency Response Plan related to cyanide.

Annual Cyanide related training is provided to the International SOS Clinic, and training is provided to the Community Relations Department on Cyanide related matters and response in order for them to be able to discuss cyanide matters with the local communities.

Plant induction training, Cyanide Safety Training, Emergency Response and First Aid training is refreshed annually.

Mock emergency drills are undertaken at least once a year. Drill reports include the scenario, field observations from the incident site, details of the debriefing meeting and areas for improvement.

Cyanide emergency drills are evaluated from a training perspective to determine if personnel have the knowledge and skills required for effective response.

All mock drills are evaluated afterwards to identify short comings and refresher training may be stipulated as a requirement.

Training records are retained for the duration of employment plus an additional 10 years. The training records included the names of the employee, the trainer and the date of training, the topics covered and how an 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. This includes quarterly External Stakeholder Meetings held with various communities and stakeholder groups as well the availability of Community Relations Officers at Community Information Centre where information can be obtained.

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

in full compliance with

The operation is

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.

There are opportunities for the operation to interact with stakeholders and provide them with information regarding cyanide management practices and procedures. This includes quarterly External Stakeholder Meetings held with various communities and stakeholder groups as well the availability of Community Relations Officers at Community Information Centre where information can be obtained.

Mine tours are provided to community groups ad hoc to show certain elements of the mining operations. The site tours normally take place after the Stakeholder Engagement Meetings.

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

in full compliance with

The operation is

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.

Newmont Ahafo has developed a written Cyanide Fact Sheet. The fact sheet is distributed at the External Stakeholder Meetings and available at the Community Information Centres.

The operation has disseminated information on cyanide in verbal form where a significant percentage of the local population is illiterate.

Newmont Ghana has developed a presentation on cyanide management. The presentation is presented in the local language, Twi, during the Stakeholder Engagement Meetings.

The operation makes information publicly available on confirmed cyanide release or exposure incidents.

Newmont reports on cyanide management, at all operations, publicly on the company website. Cyanide exposure or release related incidents, if any, will be communicated via this media.

There have been no incidents of cyanide exposure in the last 3 years.

There have been no cyanide releases of the mine site in the past 3 years.

Signature Page

Golder Associates Africa (Pty) Ltd.



Ed Clerk
ICMC Lead Auditor



Marié Schlechter
ICMC Gold Mine Technical Auditor

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APPENDIX A

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