# *INTERNATIONAL CYANIDE MANAGEMENT INSTITUTE*

## *Cyanide Code Compliance Audit Gold Mining Operations*

## *Recertification Summary Audit Report*

## *Société Ashanti Goldfield de Guinée (SAG) Siguiri Gold Plant Guinea West Africa*

## *11th – 16th August 2022*

## *For the International Cyanide Management Code*

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|---|---|
| Name of Operation: | SAG (Société Ashanti Goldfield de Guinée) |
| Name of Operation Owner: | AngloGold Ashanti |
| Name of Operation Operator: | Siguiri Gold Mine |
| Name of Responsible Manager: | Mr Mamady Kouyate |
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**Location detail and description of Operation**

**LOCATION**

The Siguiri mine has been in operation since 1997. It is an open-pit located in the Siguiri district in the north-east of the Republic of Guinea, West Africa, about 850 km northeast of the capital city of Conakry. The nearest major town is Siguiri, with approximately 50,000 inhabitants, located on the banks of the Niger River. AngloGold Ashanti has an 85% interest in the operation, with the balance of 15% held by the government of Guinea. AngloGold Ashanti (AGA) operates the site under the Société Ashanti Goldfields de Guinea (SAG). The site was originally owned by Ashanti, which merged with AngloGold in 2004. Operations are undertaken 365 days a year.

**PROCESS PLANT DESCRIPTION**

Processing began in 1997 with heap leaching and was continued for eight (8) years, after which the long-term potential of the site as a heap leach became limited. As the percentage of heap-leachable ore declined, and to be able to exploit ores that extended below the base of the existing pits, a CIP (Carbon in Pulp) plant was built and commissioned in 2005. The plant was designed to treat 8.6 million tonnes of ore per annum (mtpa), but it currently treats approximately 12mtpa (million tons per annum) of ore. This increase in tonnage and treatment of transitional material and hard sulphides was made possible by the addition of plant extensions, “The Combination Plant in 2019”.

The ore body is roughly made up of the following mineralized zones: -

- Oxide material - saprolite and laterite
- Transitional material
- "Fresh Rock" (sulphide) material.

The existing Combination Plant, commissioned in 2019, is an upgraded plant to treat up to 50% fresh rock and 50% soft ore with a total throughput of 11.4 mtpa.
The Combination Plant includes several new stages: - a crushing plant (Run Of Mine 3-ROM3), a new ball mill set up in a closed circuit with 30 cyclones, two Knelson concentrators which feed ILR1000BA, a new trash screen composed of 3 screens, 4 modified leach tanks to the CIL (Carbon in Leach) tank, and an upgraded elution circuit with a split elution tank. The combination plant project includes an additional power plant of 30MW (Megawatts) to satisfy the new equipment's operation needs.
The plant's primary ore source is provided from an oxide pit in mining through current MMD (proprietary name) sizers (ROM1 and ROM2), and fresh rock through the new ROM3 crushing plant. The secondary plant feed source is mill scat oversize product, which is stockpiled and crushed by a cone crusher and recycled to Mill 1 or Mill 2.

**Crushing**
The ore reception section at Siguiri Gold Plant consists of three off-loading pads, ROM 1, ROM 2, and ROM 3, where dump trucks directly tip ore into tipping bins or stockpile the material on the pads. Ore from the tipping bins is withdrawn at controlled rates by hydraulically powered variable speed apron feeders in a close loop with mass meters to feed MMD sizers at ROM 1&2. The ROM 3 Apron Feeder is electrically driven with a variable speed drive. ROM 3 treats the hard-transitional material in three-stage crushing, comprising a primary jaw crusher in the close circuit with a screening plant having double-deck fine screening with a minimum panel size of 20mm. The primary bin apron feeder grizzly undersize is fed to the screening plant via 101-CVR-25, where the screen oversize is discharged onto CVR15 passing by 101-CVR-26/27 and undersize of the screening, bypassing the circuit via 101-CVR-28, 101-CVR-22, and 101-CVR-23 to final product TS2. The crushed ore at the primary jaw crusher is discharged onto TS1 by 101-CVR-15 and 101-CVR-16. The secondary circuit feed from TS1 is in a closed circuit with a screening plant composed of 3 double deck vibrating screens (screen apertures top deck 35 mm and bottom deck 19 mm). The tertiary cone crushers are in a closed circuit with the same screening plant.

Crushed products from ROM 2&3 crushers are transported in a series of overland conveyor belts onto a crushed ore stockpile located near the process plant. The stockpiled ore is withdrawn by the west apron feeder onto CVR04 feeding the new Ball Mill 2. The second apron feeder, east, located underneath the stockpile, feeding CVR06, is capable of feeding both the existing Scrubber and the new Ball Mill 2, depending on Scrubber power, ore requirements, and other factors.

The existing ROM 1 Apron Feeder continues to feed oxide material directly into the Scrubber/Ball Mill 1. Scats generated from the Scrubber and Ball Mill 2 are crushed in existing Symons 7 ft. short head cone crushers (running and standby) via a 6,000t live scats stockpile. New ball mill scats are also stockpiled near the existing scats stockpile. Crushed scats are returned at a controlled rate to the existing scrubber and/or new Ball Mill 2.

**Scrubbing, Milling & Classification**

The milling circuit receives its water from a combination of raw water, stormwater and TSF return water. Tests have shown that WAD (Weak Acid Dissociable) cyanide levels are below 0.5 mg/l WAD cyanide, and thus the circuit is not deemed to be a cyanide facility for ICMI (International Cyanide Management Institute) Cyanide Code purposes. At Mill 1, crushed ore is fed from ROM1 or stockpile 3 feeds a 6.15m diameter x 11.1m length Scrubber, equipped with a 2500 kW (kilowatt) installed drive. The Mill 1 feeding system has been redesigned in 2021 to allow a bypass chute to redirect feed to the scrubber or Ball Mill or get 50% feed each mill.

Scrubber discharge, controlled at approximately 50-55% solids by weight, is fed onto a vibrating double deck screen fitted with 35mm/12-10mm square aperture polyurethane panels to scalp off scats. The Scrubber screen oversize discharges to a scats stockpile via a conveyor, whilst the undersize goes into a mill sump.

The scrubber mill is bypassed through the new bypass chute to feed a 6.15m diameter x 9.0m length, using conveyor 103-CVR-09, Ball Mill (1#) equipped with a 6000kW motor. Ball Mill 1 operates in a closed circuit with a cluster of mix cyclones composed of Kreb GMax 15 and GMax 26. The single Ball Mill operation is set to discharge at a higher slurry density of 60-70% solid, than scrubber operation of 50-55% solid. The ball mill discharges through a trommel screen from where the undersize gravitates to the mill sump and is pumped to the cyclone cluster. Ball Mill 1 trommel screen oversize discharges into a scats bunker. The mill cyclone cluster overflow gravitates to the new trash screens, and the underflow is split between the gravity circuit through a scalping screen to Knelsons (proprietary name) (1 & 2) and the ball mill feed. Trash screen undersize is pumped to the CIL by two separate lines set with 3 pumps. This new scrubber mill bypass chute setup allows quick flexibility to feed the scrubber or ball mill in case of need.

A 12 MW Ball Mill (2#), size 24'x38', with two 6000kW motors, dual drives, fixed speed gearboxes, and a liquid resistance starter, runs in a closed circuit with a 30x15" Krebs cyclones. The cyclone underflow is bled off to feed two scalping screens. The screen undersize feeds two 48" Knelson concentrators (3&4), and the oversize and Knelson tails return to the Ball Mill 2#. The cyclone overflow is de-trashed in the new linear screen plant near the CIL tanks joining the Ball Mill 1# product to be pumped as CIL feed.

**Gravity 1&2**

Two parallel streams of gravity circuits are installed, comprising two sets of 48'' Knelson concentrators (Knelsons 1&2 at Mill1 and Knelsons 3&4 at Mill2) and Gekko In-line Leach Reactors (ILR 1000) in each circuit. A bleed stream of cyclone underflow is split and fed to two gravity scalping screens fitted with 3mm/4mm square aperture polyurethane panels to remove oversize material before feeding to gravity recovery units. Gravity screens oversize goes to the ball mill while the screens undersize serve as feed to two 48" Knelson concentrators to recover free gold. The tailings from concentrator 1 is discharged to the mill sump, and the concentrator 2 tail was recently redirected from the dewatering tail hopper/cyclone/ball mill to directly drain into the common mill sump. The concentrates generated from the concentrators at Mill1 and Mill2 are Intensively leached at their respective Gekkos (proprietary name) (ILR 1&2). From the Gekko Leach Reactors, the eluate is pumped to the holding tanks situated

outside the smelt house. A new holding tank was installed for the combination plant project, which both ILRs (Intensive Leach Reactors) can feed.

**Carbon in Leach & Trash Screens**

The overflow from the Ball Mill 1# cyclone cluster gravitates to the trash screens, whilst from Ball Mill 2#, it is pumped. The slurry from both mills is distributed by a distributor to three trash screens where debris, such as woodchips, fibres, wire, and plastic, are removed. The undersize of the trash screen is pumped to the CIL tanks through newly installed weir mineral 14/12 AH centrifugal pumps, two running with one standby. Flow meters and density meters are installed on the transfer pump discharge lines to record the plant throughput. The CIL feed pumps pump the slurry through a distributor box into CIL 1 tank, with a bypass line to feed CIL 2 when CIL 1 tank is isolated for maintenance. The first four leach tanks are operated as CIL tanks to counteract the effect of preg-robbing in the transition ore. As carbonaceous ore feed has increased, leach tanks 6,8, and 10 were converted to CIL tanks to minimize the preg-robbing effect inside the circuit. At trash-CIL, lime (slaked lime) is added to adjust pH at 9.5-10.2, hydrogen peroxide to raise DO at 20-22 in CIL1 cyanide dosed to reach slurry NaCN (Sodium Cyanide) of 300 ppm (parts per million) for leaching. Flosperse™ is added as a viscosity modifier where required. The cyanide slurry passed by 0.6mm interstage screen from one CIL tank to the other CIL tank. Each tank of 3,675$m^3$ (cubic metres) is equipped with a mechanical dual impeller axial flow downdraft agitator. Leached slurry from CIL tank 10 gravitates into CIP tank 1 through launders. Loaded carbon from either CIL tank 1 or CIL2 is recovered at the elution-loaded carbon screen, while CIP1 loaded carbon is pumped to the last tank (TNK10) of CIL. A carbon slurry recovery circuit was added to the loaded carbon recovery system to continue leaching the CIL slurry associated with the carbon recovery to CIL1 or CIL2 tanks via the leach feed distributor.

**CIP (Carbon in Pulp)**

The cyanided slurry from CIL tank 10 flows through seven CIP tanks to the tails. Each tank is equipped with a mechanical dual impeller axial flow downdraft agitator as well as two inter-stage screens for carbon retention.

The pumping action of an internal impeller mechanism of the inter-stage screens drives the flow of slurry (through launders) from the first CIP tank through to the last tank in the train. The slurry from the last CIP tank gravitates to the tails screens. Periodically, recessed impeller-type pumps transfer carbon counter-currently to the flow of slurry from the last CIP tank through to the first in the train. The adsorption of dissolved gold onto carbon progresses as the carbon moves upstream counter-current to the slurry flow from tank to tank. Loaded carbon in CIP1 is transferred from the first or second CIP tanks to the last CIL tank (10) via the loaded carbon transfer pump.

**Desorption**

Loaded carbon of 700-1,000 ppm (gold) from CIL tank 1/2 is sequentially pumped to be screened into the batch tank. 10 tons of batches are dropped into the acid wash column for acid treatment with two cycles of 2-4% dilute hydrochloric acid for acid wash treatment.

On completion of the acid wash, carbon is hydraulically transferred to the Elution Column to undergo the Anglo-American Research Laboratory (AARL) elution process, with a resulting pregnant batch of higher-grade electrolyte, flowing into pregnant solution tanks. The high-grade electrolyte solution is recycled through electrowinning cells in the

Gold Room. Eluted carbon from the elution column is delivered to a tank ahead of thermal regeneration in a kiln. Regenerated carbon is fed back into the circuit from the quenched tank to CIP tanks 6 or 7 via dewatering screens. A split elution system allows for lower grade eluant to be stored as eluant for the next batch of elution. The split elution was not commissioned in 2019.

**Tailings Disposal**

Tailings from the CIP circuit gravitates into a splitter where it is distributed to three tailings linear screens. Spray water is added to the screens to ensure efficient wet screening and cleaning of the screen cloth.

The undersize from each linear screen flows by gravity to a tailings tank for onward pumping to a tailings dam. The oversize from the tailings linear screens discharges onto a fine carbon dewatering vibrating screen, equipped with 0.8mm square aperture panels. The oversize from the dewatering screen (fine carbon) is collected in carbon bags whilst the undersize from the dewatering screen gravitates to the tailings tank for disposal to the tailings storage facility. Lower pH dilution water is added to this section to manage WAD Cyanide levels to less than 50 mg/l at the tailings tip points.

At the TSF, the tails slurry is split utilizing cyclones which send fine solids with water into the dam bed and dewatered coarse solids are deposited on the dam wall to build up the saddles. This process saves on tailings building costs and reduces solids deposited into the dam. Decant water is drawn to the Return Water Dam (RWD) and Inter West Pond (IWP) by a floating penstock.

**Smelting**

Pregnant electrolyte from the Elution and Intensive Leach Reactor (ILR1&2) circuit flow into separate pregnant solution tanks from where the electrolyte is pumped in a recycled Electrowinning circuit, through 2 electrowinning cells for the Elution circuit and 2 electrowinning cells in the Gold Room, where the gold is deposited on stainless steel knit mesh cathodes. Gold is plated as loosely adhering finely divided sludge onto the pad of stainless-steel knit mesh contained in a cathode basket.

Once electrowinning is complete, barren liquor is pumped from the active pregnant tank to a barren solution tank.

Loaded cathodes are removed periodically and washed. The resulting sludge is dried in trays in a Calcine oven. The dried sludge is smelted with fluxes into gold doré bullion in a smelting furnace.

## *Auditor's Finding*

**This operation is**

**X in full compliance**

☐ in substantial compliance *(see below)

☐ not in compliance

**with the International Cyanide Management Code.**

* The Corrective Action Plan to bring an operation in substantial compliance into full compliance must be enclosed with this Summary Audit Report. The plan must be fully implemented within one year of the date of this audit.

This operation has not experienced compliance problems during the previous three-year audit cycle, but reported one significant cyanide incident in 2019. This is detailed in 9.2 below.

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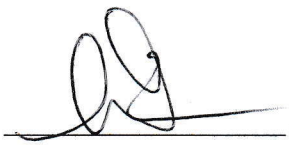
Name: Dawid M. L Viljoen Signature  Date: 20/3/2023

Dates of Audit: 11th – 16th August 2022

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

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

| Facility | Signature of Lead Auditor | Date |
|---|---|---|
| SAG Siguiri Gold Mine |  | 23/03/2023 |

***Audit Findings***

***Principle 1 - PRODUCTION AND PURCHASE***
***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 certified manufacturers employing appropriate practices and procedures to limit exposure of their workforce to cyanide, and to prevent releases of cyanide to the environment.*

**X in full compliance with**

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

□ not in compliance with

*Basis for this Finding/Deficiencies Identified:*
The operation's contract (valid from the last recertification audit to 31 December 2019) with Samsung C&T Corporation (Samsung), an ICMI (International Cyanide Management Institute)-certified distributor and consignor, required that the cyanide was produced at a facility that had been certified as being in compliance with the Code. Samsung supplied solid cyanide from cyanide producers TaeKwang Industrial Co., Ltd., (Taekwang) and TongSuh Petrochemical Corporation, Ltd (TongSuh), both ICMI certified on 24 July 2020 and 9 March 2020, respectively. The contract ensured that the producer would always supply cyanide from a certified cyanide production facility, under normal, abnormal and emergency conditions.
Due to supply issues with Samsung in 2019 relating to the Covid-19 pandemic, a single order was placed with Orica Australia Pty Ltd (Orica), a certified cyanide producer (ICMI certified on 17 September 2020).
The subsequent contract with Australian Gold Reagents Pty Ltd (AGR), valid from 2020 until 2023, states, "… The parties (Siguiri Mine and AGR) are each a signatory to the ICMI Code for the production and transport of cyanide, and each agree to comply with the ICMI Code as published and amended from time to time by ICMI in performing its obligations under this agreement." The AGR Kwinana Production Facility was certified ICMI compliant on 22 September 2020.

**Principle 2 - TRANSPORTATION**
***Protect communities and the environment during cyanide transport.***

***Standard of Practice 2.1***
*Require that cyanide is safely managed through the entire transportation and delivery process from the production facility to the mine by use of certified transport with clear*

*lines of responsibility for safety, security, release prevention, training and emergency response.*

**X in full compliance with**

**The operation is** □ in substantial compliance with **Standard of Practice 2.1**

□ not in compliance with

*Basis for this Finding/Deficiencies Identified:*
From the previous recertification up to the end of 2019, ICMC (International Cyanide Management Code) certified Consignor (recertified 15 June 2021), Samsung supplied solid Cyanide to Siguiri via their **Africa Supply Chain** (ICMC recertified on 15 June 2021.) The chain includes road transport in South Korea from the producers to Pusan New Port (SAM IK Logistics and Hae Dong Logistics), marine transport from Pusan new Port to Conakry, Africa (Maersk, MSC and Safmarine), and road transport from Conakry to Siguiri Mine (Transport Terrassement Minier (TTM)).
Due to supply issues with Samsung in 2019 relating to the Covid-19 pandemic, a single order was placed with Orica, a certified cyanide producer. The Orica **Australian Supply Chain** (ICMC recertified on 4 February 2022) and Orica **Global Marine Supply Chain** (recertified on 16 June 2021) were reviewed. The shipment was transported from Conakry to the mine by TTM, Siguiri's regular transporter, who was ICMC recertified on 29 January 2020.
From 2020, AGR supplied Siguiri Mine with solid cyanide, using their **Western Australia Supply Chain** (from the AGR/CSBP Kwinana Production Facility using road and rail to transport to user mine sites in Western Australia as well as road transport to Freemantle Port for export. Also included in the supply chain are the stevedoring services at the Freemantle port.), the **Ocean Freight Supply Chain**, a consolidation of all marine carriers used, or proposed to be used, by AGR to distribute solid sodium cyanide from Freemantle port, Western Australia, to their export customers. The marine carriers include MSC (Mediterranean Shipping Company), Maersk, ONE (Ocean Network Express), Hamburg Sud, Inchcape Shipping Services, and Swire Shipping.
The Supply Chain documentation for AGR was sampled for 2020 and 2022.
**2020**
a) Purchase Order No 4501719961 dated 8 June 2020 - 200 boxes of cyanide briquettes, b) AGR Commercial Invoice dated 10 August 2020 for 200 boxes, c) Certificate of Analysis dated 10 August 2020, d) MSC Bill of Lading No MEDUGT197266 dated 10 August 2020, e) AGR Packing List (200 boxes), f) TTM Guinea road transport inventory dated 5 Dec 2020, g) TTM Guinea Trip Order dated 11 Dec 2020, h) Guinea Ministry of Security Convoy Escort approval dated 11 December 2020 i) Vehicle Delivery Note confirming delivery of 200 boxes, date unclear.
**2022**
a) Purchase Order No 4502044632 dated 16 February 2022 for 400 boxes of cyanide briquettes, b) AGR Commercial invoice dated 14 June 2022 for 300 cyanide boxes, c) AGR certificate of Analysis (wrong PO number), d) MSC Bill of Lading No

MEDUGT422235 dated 28 August 2022, e) TTM Guinea Trip Order dated 13 July 2022, f) Guinea Ministry of Security Convoy Escort approval dated 3 July 2022, g) TTM Guinea Trip Order dated 13 July 2022, h) TTM Delivery Note dated 13 July 2022.

***Principle 3 - HANDLING AND STORAGE***
***Protect workers and the environment during cyanide 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.*

**X in full compliance with**

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

□ not in compliance with

*Basis for this Finding/Deficiencies Identified:*
There were no changes to the cyanide mixing and storage facilities since construction and the recertification audit in 2019, except for the addition of an additional cyanide feed line to the new ILR (In-line Leach Reactor) section in the mill. The operation only uses solid cyanide, which it mixes in the cyanide mixing area.
The previous certification audit evidence was: "…The facilities used up to September 2012 were designed by SENET (proprietary name) and constructed in 2005. Designs and drawings were reviewed and found Code Compliant during the certification audit in March 2010. Upgrading of the cyanide facilities commenced following a change management and risk assessment process (Management of Change process of 9/9/08). The cyanide dosing tank was repaired and inspected. The new facility was commissioned, completely replacing the old facility, in September 2012. The new facility consists of a solid cyanide store, a mixing tank, two storage/dosing tanks and the required infrastructure, secondary containment, pumps, pipes and spillage sumps and pumps. A decontamination bay is also included in the section. The facilities were designed according to AngloGold Ashanti specific cyanide design specifications: AGA "Africa Region Cyanide Code Volume 1 - Gold Extraction Plants, Tank Leach Circuit Revision 05 February 2008". This guideline serves to provide the basis for ensuring that cyanide off-loading, storage and dosing facilities are designed in accordance with AngloGold Ashanti specifications and incorporate the cyanide-specific requirements for plant and equipment as specified in these guidelines. Civil specifications are according to SABS (South African Bureau of Standards) 1200 and AngloGold Civil Engineering Specifications…."
It was confirmed during the site visit that the unloading and storage areas for liquid and solid cyanide are located away from people and surface waters in a separate area from the Plant operations.

The mixing and storage tanks are equipped with electronic level indicators linked to the SCADA (**S**upervisory **C**ontrol **A**nd **D**ata **A**cquisition) system in the control room. (The electronic indicators are included in the PMS (Planned Maintenance System) schedules. The SCADA system will default to High, in case of instrument failure or malfunction, when the system will revert to a failsafe condition, shutting the operation down. Pumps and water feed valves are interlocked with the level indicators, stopping the pumps at 80%, which are managed from the control room.
The Cyanide Make-Up Procedure indicates that the cyanide make-up water isolation valve will open and start to fill the mixing tank with raw water. When Level High (80% full) is reached, the make-up water isolation valve will close automatically.
Furthermore, if a transfer pump is selected and in Auto Mode, a flag will appear on SCADA after 40 minutes (the Agitator stops), and transfer starts automatically only if there is no High Level at the dosing tanks. The dosing tanks (which are equalised) level is interlocked with the mixing transfer pumps at 85%.
The mixing and storage tanks are located within a steel framework above a concrete bunded area that is also sealed with a membrane. All tank secondary containments are constructed of concrete and sealed with a suitable material resistant to caustic cyanide solutions. The mixing and storage tanks are located in the open air with ventilation pipes at the top. The dry solid store is designed with two open access/ingress sections at the opposite ends of the store, creating a through flow of ventilation from the front of the store, which is open. The dry solid cyanide is stored in a purpose-built store, which is roofed. The concrete floor is equipped with a longitudinal drain down the length of the store to direct any rainwater coming in through the access openings, away from the boxes to a sump where an automatic pump sends it to the cyanide tank bund. Any water in the cyanide tank bund is pumped to the barren solution tank.
It was confirmed that the unloading and storage areas are inside the Process Plant in a secure, fenced, 24-hour, access-controlled area. The Cyanide Mixing and Storage tanks are located in dedicated bunds with no incompatible materials stored nearby. The solid cyanide is stored separately from incompatible materials in a dedicated store designed for dry boxed cyanide storage. The store is equipped with ramps at the entrances and a spillage channel directed to the spillage pump to prevent any cyanide solution from exiting the store and coming into contact with incompatible materials such as acids, strong oxidizers and explosives and is separated from foods, animal feeds and tobacco products. This was all verified during the site inspection.

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

**X in full compliance with**

**The operation is** □ in substantial compliance with **Standard of Practice 3.2**

□ not in compliance with

*Basis for this Finding/Deficiencies Identified:*
All cyanide packaging is incinerated in a secure, locked and fenced area, on top of the nearby disused heap leach facility, which is within the wider controlled mine site. This is done on the same day that the mixing event takes place with the boxes and plastic packaging taken directly from the solid cyanide storage area to the secure box burning area. Metal strapping is required to be disposed of in the Mine's On-site Landfill site. No plastic drums are used for cyanide on site. This was verified and detailed in the procedure, Disposal of Empty Cyanide Boxes and Packaging. The box and bag burning area on top of the decommissioned Heap Leach dumps was inspected. It was noted that the area is fully fenced and equipped with signage and a safety shower. The area is also kept locked and secure.
The auditors confirmed the risk assessment on the Rinsing of Cyanide Liners before Disposal dated 18 August 2008 that assessed the risks associated with rinsing the plastic bags and liners to be greater than immediately burning the boxes once the mixing event has been undertaken. This was still deemed valid on 12 August 2022 (date of the site inspection), as there were no changes made to the cyanide mixing and box burning areas.
No cyanide containers are returned to the vendors. It is stated in the procedure, Unloading Procedure of Cyanide Containers at Siguiri Gold Mine that "…the sea containers will be cleaned inside and locked before leaving the mine site." It is further stated in the procedure that when unloading is complete, all empty containers are to be cleaned inside and locked.
The Cyanide Make-Up Procedure describes steps for mixing of cyanide, including the operation and sequencing of valves and couplings. All cyanide equipment involved in mixing is included on the PMS. In order to avoid rupturing or puncturing cyanide boxes during handling, forklifts or Manitous (proprietary name), must be approved by the Engineering Manager, and operators must be in possession of a valid certificate of competency to operate the respective vehicles. The Unloading procedure limits stacking height to a maximum of three boxes high.
The Cyanide Make-Up Procedure states, "…After every mixing, hose the area to make sure that the area is totally clean of any cyanide spills that might have occurred during the process.". For more substantial cyanide spills, the Detoxification procedure is used for all cyanide spillage incidents. No liquid cyanide tankers are used on the plant.
The Cyanide Make-Up Procedure provides for the safe manual mixing of solid cyanide by requiring appropriate personal protective equipment and having a second individual observe from a safe distance. The procedure further states, ".. The "buddy" system to be followed whilst making up cyanide. The supervisor to be on site at the make-up area for the entire duration of the cyanide batching operation. The supervisor must carry a mask and combination canister on their person. The seal on the canister must only be broken, and the mask used if high levels of HCN (hydrogen cyanide) gas are detected." Details regarding the presence of a second individual (a "buddy") are included in the procedure, The Buddy System. All Siguiri procedures detail the required PPE (Personal Protective Equipment) for the tasks included in the procedures. The colourant is added to the cyanide bulk bags at the production facility at Kwinana by AGR staff. A note in the

Cyanide Make Up procedure states, "…Colorant is added to the dry briquettes bulk bags at the producer to colour the solution red…."

***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 preventive maintenance procedures.*

**X in full compliance with**

**The operation is** □ in substantial compliance with **Standard of Practice 4.1**

□ not in compliance with

*Basis for this Finding/Deficiencies Identified:*
There are 83 Cyanide procedures in place covering cyanide operational and engineering activities. The TSF (Tailings Storage Facility) is operated using the Siguiri Gold Mine Tailings Storage Facility Operation Maintenance and Surveillance Manual and the Continental Africa Region Cyanide Code Implementation Guideline, ref AGTE.10.4.1.CAR, dated 17 August 2011, revision 6. TSF operating procedures sampled included: - the Penstock Standard Operating Procedure, the Cycloning Operation Procedure, the New Return Water Dam Standard Operating Procedure, and the TSF Cyclone Sampling and Monitoring Procedure. Quarterly reports are conducted by the Tailings Engineer and include operational recommendations and parameter updates. TSF Surveillance Reports for Quarter 3 2021 and Quarter 1 2022 were sampled and reviewed.
The Siguiri Gold Mine Tailings Storage Facility Operation Maintenance and Surveillance Manual includes: - a design storm having the 1 in 50-year 24-hour recurrence interval (161mm) is assumed, on top of the average operating conditions, and the pool wall is about 160m long and is maintained at a minimum width of 15m with a freeboard of at least 2m above the surrounding beach level. The Continental Africa Region Cyanide Code Implementation Guideline specifies the ICMI requirements for cyanide levels in open surface- and groundwater. The Guideline also requires the implementation of measures designed to manage seepage from cyanide facilities to protect the beneficial uses of groundwater. The following plant procedures were sampled and reviewed: - Procedure for Pollution Control Dam Operation and the Procedure to follow when High Cyanide Levels are Measured in The Residue Slurry. In the latter, under Definitions and Abbreviations, the target WAD (Weak Acid Dissociable) cyanide at the TSF tip point was identified as 50 mg/l for compliance with the maximum WAD cyanide ICMI allowance at the TSF tip point.

A Planned Maintenance System (PMS) using the SAP (proprietary name) software is in place and functioning. It tracks and documents planned inspections by artisans such as fitters, boilermakers, instrument technicians and electricians from the Engineering Department and Reliability inspectors from the Reliability Engineer's Department. Cyanide facility daily inspections covering the whole Process Plant (Including the box burning area) are undertaken. Files for 2020 were sighted, and documents for 2/4/2020 and 10/11/2020 were sampled. Similarly, files for 2022 were sighted, and documents for 20/1/2022 and 12/7/2022 were sampled. A temporary issue was identified with the new Gecko fixed HCN gas detector, as external technicians could not be sourced due to Covid regulations. Safety and health monthly inspections covering elution, cyanide plant, TSF and Leach were sighted. Documents sampled for 2020 included CIP Plant and Elution 11/2/2020, and TSF Monthly planned inspection report 15 May 2020. Similarly, 2022 was sampled, and the documents for the new cyanide storage (including bund wall) and Milling and Leach dated 23/3/2022 were checked. Environmental inspections are done approximately quarterly and cover reagents and ponds. Inspection report files were sighted, and inspections for 17\3\2020, 8/7/2020, and 22/2/2022 were sampled. An Environmental follow-up report comparing pictures of the issues found before and after for 2022 was sampled and reviewed.

TSF daily operational inspections and reports were reviewed, and files for 2020 and 2022 were sighted. Documents sampled included March and November 2020 and July and February 2022. The Inspection checklists included leaks on delivery lines, delivery points and decant return line, tailings deposition, supernatant pond and penstock, wildlife (live and dead), structural integrity of the outer perimeter, erosion gullies, damage to fences, gates, roads, tailings data, and pond and river water. There are no heap leach pads and none of the process solutions ponds have leak detection or collection systems that require inspection.

Weekly reports were also reviewed, and files for 2020 and 2022 were sighted, and January - April 2020 and March - June 2022 were sampled. Monthly Reports were confirmed to be done by the TSF Superintendent. Various planned maintenance inspections are raised on the SAP PMS system.

An MOC (Management of Change) procedure is in place and was sighted. MOC signoff is required by Safety and Environmental officials, unless they deem the change to be not applicable. The following MOC examples were sighted and reviewed: - 1. MOC Plant dated 02/22: To establish a procedure for the use of hydrogen peroxide to decontaminate the cyanide spills instead of Ferrous Sulphate. The Plant has been using hydrogen peroxide to decontaminate the cyanide spills, but there was no procedure for that. The current procedure available is ferrous sulphate which is not used to decontaminate the cyanide spills. 2. Replace the cross beam by a two-ton sling for cyanide mixing processing dated 7/7/21, 3. An MOC covering the change of gate access to the cyanide storage and mixing area from outside to inside the plant, signed by a Safety Official and deemed not applicable by the Environmental Official.

The following procedures covering various non-standard operating situations were sighted: - 1. Procedure for Total Power Failure on the Plant, 2. Procedure for Responding on Low pH Alarm, 3. Procedure to Follow When High Cyanide Levels are Measured in the Residue Slurry, 4. Procedure for abnormal conditions at the leach, CIP or Residue

tanks, and 5. Procedure to follow for Cyanide Management for an Extended Closure.
The SAP PMS system has been used since May 2017. The system was reviewed and audited electronically with the Planned Maintenance Planner. The system includes all cyanide equipment on the plant and at the TSF, plus the new extensions, and there is a complete history of all equipment maintenance since May 2017. The SAP PMS system is fully populated and covers all sections from Ore receipt to the TSF. The cyanide mixing and storage tank level equipment is inspected by the Mixing Operators.
All tanks are inspected annually by the boilermakers and are thickness tested. Three years of boilermaker PM inspections were reviewed electronically. All tanks (including those identified as having ring beams and forming part of the RBI (Risk-Based Inspection) inspection program, are inspected and coordinated by the Reliability Engineer. The Procedures: - Risk-Based Inspection of Cyanide Tanks, Magnetic Particle Inspection (Crack testing) Procedure, and the Ferrous Metal Thickness Testing Procedure, which are all part of the RBI inspection program, were sampled and reviewed.
It was reported that all CIP tanks bottom plates are being redone according to a programme as tanks become available. The following inspection reports and documents were sighted and reviewed: -
- Cyanide storage tank 1 and 2, cyanide dosing tank thickness results 18 August 2021
- CIL tank 5 bottom plate RBI inspection report 3 August 2021
- CIL tank 9 bottom plate RBI inspection report 2 April 2021
- CIL tank 1 bottom plate RBI inspection report 13 July 2021
- CIL tank 10 bottom plate integrity RBI inspection report 29 December 2020
- RCM (Reliability Centred Maintenance) strategy matrix, including monthly inspections on all cyanide-containing tanks. RBI reports are available for leach and CIP tanks. One tank per month is taken offline. The inspection schedule, including the cyanide mixing and storage tanks, leach tanks and cap tanks, was sighted and reviewed.

All secondary containments are inspected as a part of routine operational inspections on the TSF and the plant.
Pump and valves are covered by the daily operations inspections, and job cards are raised in the event of leaks or other deviations. Fitters carry out daily (cyanide pumps) inspections and weekly inspections (other pumps), which are prescribed by notifications from the SAP (proprietary name) PMS (Planned Maintenance System) system. Pipes are inspected and thickness tested by the Reliability Engineer's staff, and they are also thickness-tested (Sighted electronic records in the SAP system.). Thickness tests on the TSF line are carried out under the guidance of the Reliability Engineer. Daily operational inspections are conducted by the TSF, which include checking pipes and valves. All TSF pipelines and pumps are included in the SAPS PMS system. The Reliability Engineer's inspectors also check the TSF pipeline.
The PCD (Pollution Control Dam) is covered in the operational inspections and in the environmental inspections. TSF daily inspections include the pond and the return water dam. The frequency of inspections on the TSF and the Plant is deemed to be adequate to assure and document that they are functioning within design parameters. Furthermore, inspections on the TSF and Plant were reviewed, and it was confirmed that they were 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 within the SAP system. Job card documentation contains details of deficiencies and correction of deficiencies.
It is reported that the capacity of the mine generators is 36mW. There are two spare generators, with one used during maintenance. The load is shared according to a priority protocol. The generators have adequate capacity to operate pumps and other equipment to prevent unintentional releases and exposures in the event its primary source of power is interrupted. The plant load is reduced during maintenance by running one mill only. All generators are on the SAP PMS. A separate specialist crew is in place to service the generators, which include High and Low voltage areas. The Procedure for Total Power Failure on the Plant was sighted and reviewed. The procedure to follow in the event of a total power failure on the plant states that in the event of a power failure, the shift supervisor must manually close the gate in between Leach Tank 09 and 10 to minimise the tanks' overflow. Also, in the event of a power failure, the cyanide pumps will stop, and reagent strength cyanide will remain in the pipes and flow back to the tanks.

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

**X in full compliance with**

**The operation is** □ in substantial compliance with **Standard of Practice 4.2**

□ not in compliance with

*Basis for this Finding/Deficiencies Identified:*
Since the previous re-certification audit in 2019, the plant feed has changed significantly from soft oxidised ore to deeper transition and hard sulphide ores from the various open pits. Ore mixing is taking place and is planned to optimise process throughput, grade and recoveries.
A new plant facility, the Combination Plant, was constructed. The additional plant was designed to crush, mill and treat the new combination ore mix consisting of soft oxides, transition and hard sulphide materials mined and fed to the plant. Commissioning took a relatively long period of about two years due to various issues and challenges.
Optimisation work is ongoing to improve recoveries, throughput, and reagent consumption. The optimisation work is now done on the post-commissioning steady combined feed to the plant, and optimised process parameters and reagent control is possible. This resulted in improved recoveries, throughput, reagent consumption and WAD cyanide at the TSF tip points, meeting ICMI standards from January 2022.
Optimisation test reports were reviewed, including: - Feasibility tests for combination plant: Appendix 26 SGS (proprietary name) Metallurgical Report no 14/748 dated 28 Sept 2015. The tests cover:
Gold Ore Source from Siguiri Gold Mine Guinea (Phase 2 and 3 Combination Plant Feasibility Study) using the planned ore blend. Test work includes WAD analyses on the final filtrate, and the performance at different concentrations of cyanide from 0.35 to 1

kg/t. (kilogram per ton) The test work was done on different ore blends and indicated optimal cyanide concentration in leach for each blend. WAD cyanide results for each blend were detailed in table 80. WAD cyanide for the predicted cyanide usage of 0.5 kg/t was 62.4 mg/l in the bottle roll filtrate.

Optimisation tests 2021: Bottle roll results were sighted for January 2021 using cyanide concentrations of 250 to 300. The optimal ppm was 280 ppm sodium cyanide.

- Optimisation tests 2022: Bottle roll results were sighted for March from 200 to 300 ppm sodium cyanide. The optimal cyanide was 260 ppm sodium cyanide.
- Other tests: pH tests were sighted for18 January 2022, indicating the optimal pH is 10.0

The Plant uses an automated cyanide dosing system coupled to an online sodium cyanide TAC 1000 analyser and variable speed peristaltic pumps assisted with dosing valves at the two cyanide dosing points.

***Standard of Practice 4.3***

*Implement a comprehensive water management program to protect against unintentional releases.*

**X in full compliance with**

**The operation is**

- □ in substantial compliance with **Standard of Practice 4.3**
- □ not in compliance with

*Basis for this Finding/Deficiencies Identified:*

The operation has an OPSIM (proprietary name) - general purpose operational simulation tool) Probabilistic Water Balance (PWB) in place. It was confirmed that the OPSIM is a probabilistic water balance, as it includes precipitation and evaporation and the uncertainty and variability inherent in the prediction of precipitation patterns, by considering frequency and distribution of precipitation events along with extremes and seasonal variations, rather than average conditions. The actual daily tonnage is sent to the Water Management Team for inclusion in the PWB. The model also includes a target annual tonnage and moisture factor. The 1:50 year, 24-hour storm event is used in the model, and this was confirmed in the procedure, New Return Water Dam Standard Operating Procedure.

Local rainfall local data is used in the model, dating back to 1931. A weather station is in place, managed by the Environmental Department, who provide the daily rainfall data to the model. Evaporation data is based on monthly assumptions in OPSIM. There is no run-on to the site because the ponds are elevated, and no runoff enters the ponds. The TSF uses the direct catchment data. There are no effects from potential freezing and thawing conditions on the accumulation of precipitation within the facility and the up-gradient watershed because the mine is located in tropical Guinea. The recycle water from the TSF penstock is confirmed in the input data, and the percentage return water recycled is calculated.

Seepage from the TSF is based on the actual volume measured by the flow meter downstream of the wall in the seepage recovery system. No discharge to surface water occurs.
With regard to potential power outages and potential equipment failures, the TSF uses the gravity flow system of the penstock. Thus, a power outage will not impact on the TSF pool levels. The return water dam (RWD) is not at risk during the dry season, but during the wet season, the RWD may be at risk of overflowing. The operation measures the freeboard at the RWD and the TSF weekly. Two power lines supply power to the RWD, and a standby pump is available at the RWD. The OPSIM monthly reports in SharePoint and seasonal reports for wet and dry seasons showing dam levels (2021) were sighted. Also sighted and sampled were monthly reports for July 2020 and June 2022. No discharge to surface water occurs.
Piezometer readings at the TSF are taken on a weekly basis. The quarterly TSF surveillance reports by Geotechnical Engineers include a review of phreatic levels. An operating procedure for the return water dam covers wet and dry season RWD levels and inspections and actions to manage the RWD.
Water management is reviewed on a monthly and annual basis based on the prediction of pond levels. The site runs the OPSIM model monthly. This covers all seasons.
The OPSIM monthly reports in SharePoint and the seasonal reports (wet and dry seasons) showing dam levels (2021) were sighted. Monthly reports for July 2020 and June 2022 were sampled. The reports make provision for comments on SharePoint. The OPSIM model calibrates automatically and recalculates assumptions based on ongoing precipitation, evaporation and pond and impoundment levels. This is done monthly as the data is loaded.

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

**X in full compliance with**

**The operation is** □ in substantial compliance with **Standard of Practice 4.4**

□ not in compliance with

*Basis for this Finding/Deficiencies Identified:*
The TSF is fenced off and has security access control at the entry gate which also prevents wildlife and livestock having access to open waters. The evaluation of the WAD cyanide results indicates that the WAD values exceeded the 50 mg/l WAD cyanide ICMI limit on the tip point at the TSF on a significant number of occasions. However, exceedances were investigated, causes identified, and remedial action implemented where possible. No cyanide-related wildlife or bird mortalities were recorded. After reviewing the information and evidence provided by the process plant, it is the Auditors' opinion that the Mine addressed the high WAD cyanide issues as they occurred, and after resolving most issues and potential issues as per their investigations, the plant can now

deliver a consistent and repeatable tails to the TSF tip points at less than 50 mg/l WAD cyanide.
The Procedure to follow when high cyanide levels are measured in the residue slurry is in place, and it states, "…a. Action must be taken when the free-cyanide level in the CIL 1 feed slime rises above 300 ppm, or the WAD cyanide rises above 80ppm (as measured by the On-line Mintek WAD Cynoprobe on CIP Tank 7) …."
The Siguiri WAD cyanide compliance point is the daily grab sample taken at the TSF Cyclones/tip. WAD cyanide levels, graphed for the three years since the previous recertification audit were sighted and reviewed.
The Siguiri commissioning schedules, graphs and notes for the Combination Plant between 2018 and 2021 were sighted. The commissioning met with various challenges and issues, resulting in an extended period of process upsets. This required revision of designs and operating practices to manage the WAD cyanide to the TSF and achieve nameplate design performance.
The commissioning issues affected process control and WAD cyanide until the time the Combination Plant was fully commissioned and optimised from the start of 2022. The daily WAD manual sample results from the TSF tip, analysed at the Siguiri Laboratory using a MINTEK (a South African provider of minerals processing and metallurgical engineering products and services) Cynoprobe laboratory analyser from 1 January 2020 to 12 August 2022, were sighted and reviewed. On several occasions, the WAD cyanide values exceeded the target 50 mg/l WAD cyanide during the commissioning period. The Mine has completed most of the optimisation on the new feed, and since January 2022, the WAD cyanide in the spigot at the TSF has stabilised at less than 50 mg/l WAD cyanide on a sustainable basis.
An Investigation report dated 1 September 2020 to 11 July 2021 was sighted and reviewed.
The period covers the commissioning of the new combination plant, resulting in unpredictable tonnage feed rates from the mill and unanticipated ore blend changes resulting in the TAC 1000 cyanide addition control system being unable to handle the changes above. The TAC 1000 control system was designed for smooth feed conditions to the leach.
An investigation report dated 10 April 2021 to 7 June 2021 was sighted and reviewed. The cyanide level setpoint to the leach was increased to evaluate the effect on recoveries which was reduced due to the change in ore blends during commissioning.
Corrective action included: -
- reducing the cyanide setpoint from 330 to 300 ppm sodium cyanide.
- recalibrating the TAC1000
- increase the addition of dilution water to the tails to reduce WAD cyanide. The resulting WAD cyanide levels reduced.
An investigation report dated 10 July to 22 August 2021 was sighted and reviewed. The calibration of the Cynoprobe measuring the WAD cyanide in the laboratory was incorrect, and due to the COVID-19 Pandemic, the MINTEK Technicians could not travel to the Mine in time.

Corrective action included: -

- Maintenance and calibration by the site Metallurgist were done in the interim.
- Routine MINTEK maintenance was delayed due to COVID-19 Pandemic border restrictions and lockdown but was expedited once the borders opened up again. The MINTEK calibration certificates done in November 2021 were sighted. MINTEK also trained Plant staff for Cynoprobe maintenance and calibration work.

An investigation report dated 14 Feb 2022 to 16 Feb 2022 was sighted and reviewed. WAD cyanide level was at 63.3 mg/l due to CIL 1 tank being offline for breakdown maintenance. The cyanide dosing was increased to compensate for the reduction in residence time.

Corrective action included; -

- Cyanide setpoint was reduced from 300 to 290 ppm,
- Residual cyanide was monitored every 2 hours
- WAD cyanide returned to less than 50 mg/l in the TSF tip after two days.

An investigation report from 25th January 2020 to 22nd September 2020 was sighted and reviewed.

**"…Investigation findings:**

The main causes of WAD cyanide going above 50ppm, and its high variability were:

- Increase in hard rock sulphide blend from ROM3 to 24% in November 2019, 39% in December 2019, 43% in Jan 2020, 45% in Feb 2020, up to 55% in April-May 2020 **(with +-30% variance)**.
- Instabilities in plant operation on the fronts of feed blend, grade, recovery, reagents consumption and milling.
- Increase in CIL1 cyanide setpoint from 280ppm to 340ppm within a period of three (3) months to optimise recovery.

**Corrective actions:**

Bringing the TSF WAD cyanide under control (<50ppm) included the following actions:

1. The cyanide setpoint was dropped to 300ppm on the back of improving recovery.
2. Reduced and maintained the percentage of hard sulphide in the feed blend to below 50% (42% actual during the drop period) to improve grind, recovery and reduce WAD.
3. The mining department was tasked to stabilize blend variability from+-30% to +-5% for better operation control.

New WAD value after actions: 37.56ppm (14 days average period)…"

An investigation report of 27 November 2021 to 19 December 2021 was sighted and reviewed.

**"…Investigation findings:**

The main causes of WAD cyanide going above 50ppm

- Reading deviation after repair of electrical fault on the machine
- Failure of the first calibration of the machine because of a setting change by an electrical fault

**Corrective actions:**

To bring TSF WAD cyanide to below 50ppm after the repair

1. Repair electrical fault on the machine with OEM (Mintek)

2. Recalibration of Laboratory Cynoprobe to the correct deviation.

New WAD value after actions: 28.40ppm (12 days average period) …"

The TSF pool decant water WAD cyanide quarterly WAD cyanide samples were less than 10 mg/l. WAD cyanide. Evidence under optimisation in 4.2 above supports the efforts to stabilise and optimise cyanide consumption.
TSF daily inspection checklists include wildlife mortalities, which were sampled and checked. No cyanide-related bird or wildlife mortalities were recorded since the last recertification audit, and including the Combination Plant commissioning period where WAD cyanide issues were identified. There is no operational heap leach on the mine at present.

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

**X in full compliance with**

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

□ not in compliance with

*Basis for this Finding/Deficiencies Identified:*
There is no direct discharge to surface water. No indirect discharge to surface water was also confirmed, which was determined by borehole and surface water sampling of the river. Not all borehole samples were carried out due to Covid 19 restrictions.
Boreholes sampling groundwater around the TSF were reviewed. All results are less than the limits of detection of 0.03 mg/l free cyanide. Bi-annual samples sent to SGS Laboratories Mali are less than 0.005 mg/l WAD cyanide, the Laboratories' limits of detection. The river is sampled for free cyanide up and downstream, and all results were less than 0.03 mg/l limits of detection. Results of bi-annual samples sent to SGS Laboratories, Mali, were less than 0.005 mg/l WAD cyanide, their limits of detection.
One exceedance was detected on R-TSF-SPRING2, the second water spring on the Samani Road, dated 22 July 2021, with a value of 0.317 mg/l free cyanide. The value was traced to a laboratory error, and an investigation was done to identify the reason. These samples are used for control only. No additional samples have been sent to the laboratory concerned since the occurrence.
Indirect discharges from the operation have not caused cyanide concentrations in surface water to rise above levels protective of a designated beneficial use for aquatic life. Therefore, no remedial action was taken.

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

**X in full compliance with**

**The operation is**  in substantial compliance with **Standard of Practice 4.6**

 not in compliance with

*Basis for this Finding/Deficiencies Identified*

The plant is equipped with concrete bunds, a lined pollution control dam and concrete connecting trenches between bunds. The new Combination ILR (InLine Leach Reactor) plant is equipped with a concrete bund and pipe-in-pipe cyanide lines. The Electrolyte tank is placed inside a connected concrete bund.

The TSF is equipped with finger drains that drain into a seepage sump. The solution is pumped from the sump to the top of the TSF via an automatic pump. The automatic pump is connected to a standby generator in case of power failure. Monitoring boreholes are sampled up and downstream of the TSF to check for seepage. The Tinkiso river is 11 km downstream of the TSF, which is monitored monthly for free cyanide. Community drinking water sampling boreholes at 9 villages upstream and downstream of the villages were found to be below the detection limit of 0.005 mg/l free Cyanide, indicating that the beneficial use of groundwater is protected.

Groundwater sampling results from 2019 to 2021 (routine samples for 2020 were not submitted to SGS because of Covid 19 restrictions and regulations) were sighted. The SGS laboratory is located in Bamako, Mali, and the border was closed. No numerical standard was established by the Guinea Authorities for cyanide in groundwater. The site, however, uses IFC (World Bank International Finance Corporation) guidelines of 0.1mg/l free cyanide. Groundwater sampling is carried out bi-annually and analysed at SGS Bamako (a Certified Laboratory) for WAD cyanide analyses. Analysis for free cyanide is undertaken monthly by the mine in their on-site laboratory as control samples. The following sample results were sighted for WAD cyanide since the last recertification:

**TSF boreholes**

All of the results were below the detection limit of 0.005 mg/l. WAD cyanide.

**Plant boreholes**

Exceedances occurring in 2019 during the commissioning period of the Combination Plant. The results since the last recertification audit were reported to be all below the detection limit of 0.005 mg/l WAD cyanide, except for the cyanide store and mixing area. The Plant used hydrogen peroxide to neutralise the cyanide, and subsequent samples were back to less than 0.03 mg/l free cyanide.

The Community drinking water sampling boreholes results at 9 villages upstream and downstream of the villages were taken and were sighted. It was reported to be all below the detection limit of 0.03 mg/l WAD cyanide.

Monthly free cyanide sampling for seepage collected in the Seepage Sump at the base of the TSF was observed, and all values were below the detection limit of 0.03 mg/l free cyanide since the recertification audit. Note that SGS limits of detection are 0.005 mg/l for Free, WAD and Total Cyanide. Site laboratory limits of detection are 0.03 mg/l free cyanide.

The site does not make use of mill tailings as underground backfill.
No seepage from the operation has caused the cyanide concentration of the groundwater to exceed that necessary to protect its beneficial use, and thus the operation is not engaged in remedial activity to prevent further degradation and restore beneficial uses.

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

**X in full compliance with**

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

□ not in compliance with

*Basis for this Finding/Deficiencies Identified:*
It was verified during the site inspections that all tanks are installed within bund areas to contain spillage. During the previous audit, the civil engineering drawings indicated that the leach and CIP tanks were installed on ring beams. The ring beams are covered with a bitumen/sand layer (40 - 70 mm thick) over the whole surface of the ring beam. This is unchanged from the previous audit.
All tanks on ring beams are subject to Risk Based Inspection (RBI) inspections. They are monitored for leaks and weaknesses in the tank base to minimise the risk of leaks to groundwater through the base of the tank and through the compacted soil in the centre of the tank base to groundwater. There are procedures in place governing RBI inspections, magnetic particle inspections and thickness testing. A groundwater monitoring program is in place, and no elevated free cyanide levels were detected, indicating that there were no leaks from the tank bases. Borehole location maps and result tables of the samples were sighted and reviewed.
The new cyanide mixing and storage tanks are installed inside a bund on plinths, and this was verified during the site inspection. It was confirmed during the site inspection that the new ILR (InLine Leach Reactor) eluate tank was installed inside an extended bund. The tank has a sloped bottom plate, and leak detection slots are installed in the tank's outside wall. The tank is installed on a concrete plinth, and the installation is Code compliant. The mechanical drawing was sighted during the previous re-certification audit, showing a sloped bottom plate. It was confirmed by site inspection that the Gecko ILR is installed inside a concrete bund. During the site inspection, it was noted that the tank is a conical tank installed in a steel frame.
The plant is equipped with bunds and sump pumps, returning spillage to the process, as per design. All secondary containments are sized to hold a volume greater than that of the largest tank within the containment and any piping draining back to the tank, with additional capacity (approximately 10%) for the design stormwater event. The Procedure for Pollution Control Dam (PCD) Operation, states that the PCD must always be empty and stipulates the task to empty the dam after a spill. The Procedure to Empty Cyanide Spillage Bund, states that the bund must be emptied during the rainy season to prevent an overflow. Spillage from running water is pumped to the pre-leach tanks via a barren

solution tank (pH must exceed 10.5 in the pre-leach tank). Spillage due to leaks on the cyanide storage tanks, pipes, valves, pump or flanges and large quantities of clean cyanide solution, must be returned to the cyanide storage tanks. It was observed during the site inspection that the cyanide bunds were empty, with some spillage in the CIL and residue bunds. There are no cyanide process tanks without secondary containment.
The cyanide solution pipelines from the cyanide solution/dosing tanks are placed inside a launder that drains back to the cyanide mixing and storage bund prior to entering the area above the leach bund. This was confirmed during the site inspection. The new extensions project team confirmed that the reagent strength cyanide line from the cyanide mixing to the ILR at the new mill was designed as a pipe-in-pipe system, and a custom-designed Fischer system was used. No changes have occurred since the previous certification audit. The pregnant solution pipeline from the new ILR to the Gold Room is made of carbon steel, and this was confirmed in the P&ID (piping and instrumentation drawing), indicating the pipe specification. The pipe is not installed with secondary containment as the cyanide levels are lower. PMS inspections and testing are used as a preventative measure. No changes have occurred since the previous certification audit. The TSF pipeline is trenched, and unlined paddocks are placed strategically at the lowest points to collect any leaks. This was verified during the site inspection. Daily pipeline inspections are conducted to check for leaks.
There are no risks to surface water from the plant, but the tailings pipeline crosses one intermittent stream. The pipeline has been designed not to have any flanges on the section crossing the stream. The pipeline is also placed on a concrete bridge for the crossing, and there is a paddock on either side of the bridge for any spills to drain into. This was confirmed during the site inspection.
Reagent cyanide mixing and storage/dosing tanks are constructed of mild steel. This was confirmed during the site inspection, and there has been no change since the previous recertification audit. Cyanide solution pipelines from the cyanide storage facility are made of HDPE (High-density polyethene) and the valves used are stainless steel ball valves. Process tanks (Leach and CIP tanks) are constructed of mild steel, and process pipes are made of mild steel and HDPE. The new ILR facility cyanide pipes are custom-made of HDPE (the Fischer system), and the ILR leach solution pipe to the eluate tank is made of carbon steel as per the AGA (AngloGold Ashanti) standards. The TSF tailings pipeline is made of mild steel. The Mine is in the process of replacing the mild steel pipes in the cyanide mixing area, and will conduct an MOC (Management of Change process) before the final changes.

***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.*

**X in full compliance with**

**The operation is** □ in substantial compliance with **Standard of Practice 4.8**

□ not in compliance with

*Basis for this Finding/Deficiencies Identified:*
The process plant facilities were audited during the previous recertification audits, and the new addition's Quality Control/Quality Assurance (QC/QA) details are detailed below. It was confirmed by the Cyanide Champion that the hardcopy QC/QA documents are still stored in the same container archives on site.
The Combination Plant Project was constructed in 2017/18 and commissioned in 2019. The additions consisted of a crushing section, Ball Mill Section, classification cyclones, Knelson Concentrators, Gecko Intensive Leach Reactor (ILR) and an additional Electrolyte tank at the Gold Room. The project Engineering Construction Project Management is done by Batemans, and the construction on site by Group Five. The Civil Construction was done by WBHO. Files were sampled from the comprehensive project filing system, and it was confirmed that the files contained detailed quality control plans (QCPs). WBHO QCP number WBHO QCP 002 Mill 2 Surface Bed and Electrowinning records were sampled. A Group 5 Data Pack was sampled, including the Accepted Quality Control Plan (AQCP) Electrolyte Tank Piping 642/021 dated 15 November 2017. The Plan was signed off by SGS Engineering, AGA (the client) and Group 5. The plan refers to the ASTM (American Society for Testing and Materials) A967 standard. It was confirmed that data packs for all the areas of the project similar to the packs sampled were filed and available. No changes or additions were made since the previous certification audit.
TSF Evidence from previous re-certification audit:
"1. A project was completed in 2016 at the Siguiri Gold Mine (SAG) to install a gravity decant penstock on the Tailings Storage Facility (TSF). No other changes were done since the 2016 previous certification audit:
2. Sighted EXECUTIVE SUMMARY, in the construction completion report documents whether the components of the Penstock Project were constructed in accordance with the contract specifications, working drawings, and the Quality Control Plan.
3. A very brief quality control plan was submitted, together with concrete mix designs and historical test data on previously placed concrete, and a rudimentary laboratory was established on site. Construction commenced during the last week of March 2015.
4. This report concludes that the measures put in place and the quality management system implemented by SAG provided reasonable assurance that standards were met and that the penstock will perform as intended.
5. Section 4.0 Conclusions: "The quality management system implemented by SAG provides reasonable assurance that standards were met and that the gravity penstock will perform as designed, or later modified, to meet operational requirements."
Evidence from the 2019 certification audit:
1. Civil Construction by WBHO, data pack for Mill 2 surface bed, including the bund, was sampled and confirmed to contain concrete inspection checklists dated 25/10/2018, field density test by Humboldt (nuclear gauge) dated 17/9/2018, Internal Snag list dated 27/10/2018.
2. Mechanical construction Data Book Area 118, Electrolyte tank piping M7485-X-M402 form number ENG'G -031 was sampled.
TSF Evidence from previous re-certification audits:

" 1. Section 2.2 Earthworks, 2.2.2 Monitoring, Table 2: Earthworks testing included Work Item/Test Parameter, Test Method, Inspection/Testing/Acceptance Criteria. It concluded, "…The compaction was accepted as being adequate. The earthworks fill checklist was completed and is on record…".
2. Section 2.3.2 Monitoring, Table 4: Concrete testing includes: Work Item/Test Parameter, Test Method (ASTM C39 and TMH (Technical Methods for Highways) 1 D1), Inspection/Testing/Acceptance Criteria.
3. Section 2.4 Reinforcing steel, 2.4.2 Monitoring concluded, "…Verification of correct reinforcing fixing is recorded in the concrete pre-pour inspection forms..."
The process plant facilities were audited during the previous certification audits, and the new addition's QA/QC are detailed below. It was confirmed by the Cyanide Champion that the hardcopy QA/QC documents are still stored in the same container archives on site.
Evidence from the 2019 certification audit:
1. Confirmed during project file rooms inspection that comprehensive data packs, including civil and mechanical construction QA/QC records both in hardcopy and DVD electronic copies, were kept for the complete project.
2. Sampled various data packs to confirm they contain the relevant records, as required.
3. Confirmed cyanide line and Gecko ILR records are available.
TSF Evidence from previous re-certification audits:
"1. Section 2.3.3 Documentation stated, " …All of the required concrete pre-pour inspections were completed and duly signed off by a responsible SAG representative, and these forms are on record…"
2. Section 2.5 Penstock pipe work, 2.5.3 Documentation concluded, " …Inspection and Quality Services (Pty) Ltd. performed the required QC testing on the steel pipe and provided a comprehensive quality data pack to the PM covering all aspects of the pipe quality control testing.
3. 3. Section 2.2 Earthworks, 2.2.2 Monitoring, A set of soil tests results from a representative sample are shown in APPENDIX A..."
Evidence from the previous recertification audit indicated that appropriately qualified personnel reviewed facility construction and provided documentation that the facility has been built as proposed and approved.
A Structural Inspection and Maintenance Management at Siguiri Gold Mine, December 2021, by LNW Consulting Engineers and Project Managers (Pty) Ltd., was undertaken. The inspection was carried out by Mossie Mostert, Senior Mechanical Technician, compiled by Ronald Bakker, Professional Structural Technologist, and reviewed by Johan van Vuuren, Professional Civil Engineer. The objective of the audit was to visually evaluate the structural integrity of the plant, ROM 1, 2 & 3 primary & secondary circuits, overland & overhead conveyors with civil work, with special emphasis on the Construction Regulations to ensure infrastructure stability for safe operations and functioning of the structure. A summary of the priority frequency per area is given below. The information has been extracted from the Excel audit database in the report.
Figure 8-1: Summary of audit results (Numbers of items).
0 Observations for record purposes. - 0
X Structures not to be used until the fault has been rectified. - 0

1 Immediate action required. - 29
2 Action to be taken as soon as possible no later than one year after inspection. - 29
3 Action required within the next three years. - 68
No X-Priority or immediate action items were identified to justify suspending of operations.
There were no items identified in cyanide structures that were of concern.
The Covid 19 regulations prevented TSF site quarterly audits and inspections from being carried out. The Mine and TSF Engineers of Record conducted remote quarterly audits for quarters 2, 3, and 4. The Quarterly reports are conducted by the Tailings Engineer and include operational recommendations and parameter updates.
TSF Surveillance Report: Quarter 4-2021 was sighted.
"EXECUTIVE SUMMARY extract. This document serves to record the discussions, observations and recommendations; and reports that, with a few exceptions, the TSF is being constructed within the set limits and specifications and mostly to best applicable practice.
TSF Surveillance Report: Quarter 3 2021was sighted.
"EXECUTIVE SUMMARY extract: this document serves to record the discussions, observations and recommendations; and reports that with a few exceptions, the TSF is being constructed within the set limits and specifications, and mostly to best practice."
TSF Surveillance Report: Quarter 2 2021 was sighted,
"…EXECUTIVE SUMMARY extract:
This document serves to record the discussions, observations and recommendations; and reports that with a few exceptions, the TSF is being constructed within the set limits and specifications, and mostly to best practice..."
TSF Surveillance Report: Quarter 1 2022
"…EXECUTIVE SUMMARY extract:
This document serves to record the discussions, observations and recommendations; and reports that with a few exceptions, the TSF is being constructed within the set limits and specifications, and mostly to best applicable practice…."
The report recommends the following:
7.2 TSF EXTERNAL AUDIT
The consulting company of SRK conducted an external audit on the Siguiri TSF in October 2015. Knight Piésold has been appointed to conduct an external TSF audit in May 2022."
The above reports conclude that the TSF is constructed and operated as fit for purpose, and the reports highlight issues that need attention, as well as recommendations.
All the reports include Quarterly Surveillance Action Plans with a table that covers a reference item, required action, responsible party, due date and update.

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

**X in full compliance with**

**The operation is** □ in substantial compliance with **Standard of Practice 4.9**

□ not in compliance with

*Basis for this Finding/Deficiencies Identified:*
The Procedure for TSF/CIP Cyanide Water Sampling describes general and specific procedures, methods and considerations to be used and observed when taking water samples for cyanide analysis. The procedure was compiled by Aboubacar Camara (Environmental Superintendent). His qualifications are: Chemist and Degree in Administration and Management, ISO (International Organisation for Standardisation) 14001 Implementation Course, ISO14001 Auditing courses, and 14 years' experience in the Environmental Field. The species to be analysed for are: WAD, Free and Total Cyanide and are to be preserved with caustic. Total and WAD Cyanide analysis is done at SGS Laboratories in Bamako, and Free cyanide is done by the Siguiri Environmental Laboratory. The auditors observed the Chain of Custody Form to SGS Bamako, Ground Water Quality Monitoring. The Environmental Sampling Sheet indicates the following: Samples Category, Sampling Station, Sample taken, Analysis required, Weather Condition, Livestock, Wildlife activities, Human Activities, and Sample Preservation. The maps indicating the groundwater monitoring points up and downstream of the TSF, the Plant, the Leach pad, and surface water monitoring points were sighted.
Wildlife and bird mortality recording is done on the daily inspection records for the TSF and the daily inspection records for the Plant. Wildlife monitoring forms a part of the TSF inspection checklists. The Environmental Department have a procedure, Procedure for Fish and Wildlife Protection, ENV.Lab_15, First issue, dated 27-07-2022, which includes wildlife monitoring and investigation of any wildlife or livestock mortalities. Since the last recertification audit, no cyanide-related wildlife mortalities have been observed around the TSF and return dam.
Samples of groundwater and surface water are taken bi-annually. The samples are analysed at the mine for free cyanide on a monthly basis. The groundwater samples are analysed bi-annually for WAD and Total cyanide at SGS Bamako. WAD cyanide in the discharge to the TSF is sampled daily. The Auditors deemed that the sampling is conducted at frequencies adequate to characterize the medium being monitored and to identify changes in a timely manner.

## *5. DECOMMISSIONING*

***Protect communities and the environment from cyanide through development and implementation of decommissioning plans for cyanide facilities.***

### *Standard of Practice 5.1*

*Plan and implement procedures for effective decommissioning of cyanide facilities to protect human health, wildlife, livestock, and the environment.*

**X in full compliance with**

**The operation is** □ in substantial compliance with **Standard of Practice 5.1**

□ not in compliance with

*Basis for this Finding/Deficiencies Identified:*
The Procedure for Decommissioning of Cyanide Facilities was sighted. In the procedure, Section 7.2 Specific Requirements, states:
"• The requirements of the Continental Africa Region (CAR) Cyanide Code Guideline – Revision 6, will be implemented and adhered to for all cyanide-related work." The Guideline is cross referenced to the Cyanide Code requirements for decommissioning of cyanide facilities.
It was confirmed that the procedure includes a timing schedule for decommissioning, and the procedure is reviewed every three years.

***Standard of Practice 5.2***
*Establish a financial assurance mechanism capable of fully funding cyanide-related decommissioning activities.*

**X in full compliance with**

**The operation is** □ in substantial compliance with **Standard of Practice 5.2**

□ not in compliance with

*Basis for this Finding/Deficiencies Identified:*
The Demolition Assessment Update - Rev D, AngloGold Ashanti - Siguiri Mine Guinea, dated 7 October 2022, prepared by Jet Demolition Pty Ltd, Johannesburg, South Africa, was sighted.
Section 10, Cyanide Decommissioning, contains details, as per the ICMI Guidance for the Use of Mining Operations Verification Protocol (June 2021), regarding an estimate of the cost to fully fund third-party implementation of the cyanide-related decommissioning measures identified in the site decommissioning or closure plan. A detailed cost breakdown is included in a Table, Financial Provisioning for Decommissioning and Preliminary Decontamination pre-demolition, under section 10.4 – Financial Provisioning, indicating a total cost of US$ 453,073.60.
The mine liability spreadsheet has been reviewed every three years externally. The latest version, dated 12 August 2022, was sighted and reviewed.
The Guinean Government does not require money to be physically put in an account or for financial guarantees to be provided. The applicable jurisdiction does not require financial guarantees, and the operation has not established a mechanism other than self-insurance or self-guarantee to cover estimated costs for the cyanide-related decommissioning activities. Sighted a letter from: AngloGold Ashanti:
" For the 2022 certification process, find attached the financial strength and ratios (Annexure 1) for its cyanide related decommissioning certification for the 5 years ended 31 December 2021. The ratios were reviewed by AngloGold Ashanti Group Internal

Audit (GIA) department and the GIA feedback following completion of the review is copied in below for your information (Annexure 2)." The note is signed off by Christo Bezuidenhout CA (SA) Risk & Assurance) and Himesh Personal, VP Finance.
The Financial strength and ratios Annexure A: Ratios and financial strength requirements (Appendix 1) were sighted.
Sighted a letter from Johan Vermaak CA(SA) VP Group Internal Audit dated 23 May 2022, titled "International Cyanide Management Code Financial ratios review", concluding that (Appendix 2):
" Group internal audit has completed the data (in Appendix 1) which AngloGold Ashanti Management specifies as having been derived from the independently audited, year and financial statements for the financial years through with the amounts in such financial statements, the calculated ratios are accurate, and nothing came to our attention which caused us to believe that the specified data and/or ratios should be adjusted."
The statement of financial strength meets the requirements of ICMI for this audit requirement.

## *6. WORKER SAFETY*

***Protect workers' health and safety from exposure to cyanide.***

***Standard of Practice 6.1***

*Identify potential cyanide exposure scenarios and take measures as necessary to eliminate, reduce and control them.*

**X in full compliance with**

**The operation is**

- ☐ in substantial compliance with **Standard of Practice 6.1**
- ☐ not in compliance with

*Basis for this Finding/Deficiencies Identified:*
The auditors sampled, sighted and reviewed the following procedures on the cyanide procedure inventory list: -

- Off-Loading Cyanide Containers
- Storage of Cyanide Containers at SAG (Siguiri Mine)
- Unloading Boxes from Container
- Storage of Cyanide Boxes in Cyanide Store
- Loading Cyanide Boxes at Warehouse (CN Shed)
- Transport cyanide to cyanide make-up
- Offloading cyanide at the new cyanide plant
- Cyanide Make-Up Procedure
- Disposal of Empty Cyanide Boxes and Packaging
- Maintenance on Cyanide Equipment including Valves, Pumps, Pipelines and Tanks
- Cleaning Cyanide Contaminated Equipment

- Procedure for Issue of Clearance Certificates for Cyanide Areas
- General notes on cyanide handling
- Flushing cyanide dosing line for maintenance procedure

The auditors also sighted and reviewed the Siguiri Gold Mine Tailings Storage Facility Operation Maintenance and Surveillance Manual and the following sampled TSF Standard Operating Procedures: - Penstock Standard Operating Procedure, New Return Water Dam Standard Operating Procedure, and TSF Cyclone sampling and monitoring procedure.

It was confirmed in the review of TSF and Plant procedures that they all contained a list of equipment/material / PPE required for the task, that a mini risk assessment is required before commencing the task, and that the form is signed by the person doing the work and the supervisor. Where appropriate, a Buddy must be used.

In the Procedure for Pollution Control Dam Operation, it was noted, "….6.1 Access to the area must be closed and controlled by the Supervisor (Shift Supervisor on back shift) to prevent unauthorized access or exposure of people to cyanide products.

6.2 Any person entering the area must wear adequate PPE, must have a PAC 7000 (personal HCN gas monitor) on him and cyanide first aid kits must be readily available outside the cyanide storage area.

6.3 All safety precautions must be taken; safety showers must be checked and a Buddy must be present if the cyanide area is entered…."

Monthly H&S (Health & Safety) Meetings are held to discuss safety-related issues. Everybody working on the plant attends this meeting (Engineering and Processing), and this is an opportunity for worker input on any Health and Safety matters, including the procedures. Meeting minutes were sampled for January 2020 / 21 (Meetings were disrupted due to Covid 19 regulations and restrictions). In 2022, the safety share electronic system was sampled, where various safety issues were raised in the meeting forum.

Toolbox talks are held before every shift starts. This is also a forum for workers to raise any safety or health issues. Topics for toolbox talks are prescheduled for the year. The toolbox topic schedule for 2022, which includes safety principles, safety attitude, chemical handlers, hazard recognition, "A-hazard" reporting, and permits to work, was sighted. Meetings were stopped in 2020 due to Covid restrictions. Meeting notes for 2022 were sampled. (31 March 2022 on cyanide awareness, and 23 May 2022 on Fuel and chemical management). It was confirmed during interviews that toolbox talks are held and that feedback is given to Supervisors, who then respond or take up the issue with the next level of management.

The electronic safety share system, where people will raise issues from the health and safety meetings or toolbox talks, was sampled. A Safety stoppage system is in place where a job could be stopped in case of safety issues. It was reported that the incident where a cow died due to ingestion of cyanide solution from an unfenced pond was reportedly shared.

PTOs (Planned Task Observations) are also used to get worker input regarding health and safety procedures. This was confirmed during the questioning and interviews. Weekly Friday safety meetings are also held.

***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.*

**X in full compliance with**

**The operation is** □ in substantial compliance with **Standard of Practice 6.2**

□ not in compliance with

*Basis for this Finding/Deficiencies Identified:*

The Cyanide Make-up Procedure states that the pH in the mixing tank (before adding the first bag of solid cyanide) must be a minimum of 10.5. The Procedure for Responding on Low pH states that "… If the pH of the slime drops below 9.5, the alarm will sound and display on the SCADA system. A local alarm will be activated at the site…." The Procedure to Empty Cyanide Spillage Bund states, "…Section 6.4 - If spillage is due to running water during off-loading it can be pumped to the pre-leach tanks via barren solution tank by the CQP (Company Qualified Person) after establishing that the pH in the pre-leach exceeds 10.5. And must be followed as this is an abnormal condition..." The Batch Gecko-ILR Operation Procedure requires the raising of the pH to12.

There are currently 60 x PAC 7000 and 40 x PAC 8000 personal HCN gas monitors used on the plant and tailings area. 5 x X-am 7000, and 8 x X-am 8000 multi-gas personal monitors are also used on the plant. 10 x Polytron (proprietary name) fixed HCN gas monitors are installed on the plant. Monitors are set to alarm at 10 ppm HCN gas on an instantaneous basis and 4.7 ppm continuously over an 8-hour period. At 4.7pm, the alarm is investigated, and at 10ppm, everyone evacuates the area. The Procedure for Issuing of Gas Monitoring Equipment, describes the process of issuing personal gas monitors for use, as well as where certain employees retain them for continuous use. The Cyanide Gas Detector - PAC7000 HCN Movement File for 2021 and 2022 was sighted. The form records the name, company number, serial number of instruments, date of issue, time of issue, the status of the instruments, signature, time in, status in, and signature in.

Hotspot surveys are conducted weekly at the following places: - ILR Gecko 1 and 2, CIP Tanks, Leach Tanks, Reagents Mixing Area, Met Lab, Pregnant Tanks area, Eluate tank area, Tailing Screens, Tailing Tank, Mill Platform close to ILR, Batch tank area, tailings pumps area, 06-pump-08, 06-pump-09, area between CIP and Leach, elution area. The High reading areas include the Batch tank area (between 4.5 and 4.8ppm). The highest readings are at the tailings tank (12.4 and 10.8ppm). The area is marked as a hot spot area, with warning signage, and access has been restricted. Hot Spot warning signage was observed during the site inspection.

The monitor manufacturer, Dräger, calibrates the HCN gas monitors 6 monthly, as per their recommendation, on contract. However, the COVID-19 lockdown, subsequent closure of borders, and restricted travel have meant that the technicians could not travel to Guinea to calibrate the HCN gas monitors. A new Dräger-certified agent in Ghana has started calibrating HCN gas monitors. The Plant is sending gas monitors in batches for

calibration. The file containing all calibration reports for 2022 was sighted. The site is aware that it needs to keep three years of calibration records for the future.

It was confirmed during the site inspection of the plant and the TSF, the extensive use of appropriate signage, in English and in French, covering no smoking, open flames and eating and drinking, and that, if necessary, suitable personal protective equipment must be worn.

Colourant is added to the cyanide bulk bags at the production facility at Kwinana by AGR staff. The Cyanide Make-Up Procedure contains a note stating, "…Colorant is added to the dry briquettes bulk bags at the AGR production facility to colour the solution red…."

Appropriately placed safety showers and dry powder fire extinguishers were observed by the auditors during the site inspection throughout the plant and at the TSF. Weekly Inspection checklists and documentation for the safety showers were sighted, and files for 2020 (reviewed file covering February to June, July to December weekly checklists), including repair/replacement actions, where necessary, and 2022 (reviewed file covering January to July weekly checklists, including repair actions where necessary) were sampled. Dry powder fire extinguishers are inspected and maintained. The Inspection checklists file for 2020 was sighted, and inspection records for the new cyanide store and the cyanide mixing area, CIP store, Leach tanks, CIP tanks from January to December were sampled. Similarly, inspection checklist files for 2022 were sampled, and inspection records for the new cyanide store, including the cyanide mixing area, CIP, and Leach tanks from January to July, were sampled.

It was observed during the site inspection that pipes containing reagent strength cyanide are purple, and the cyanide reagent tanks are red with a purple band. The direction of flow is indicated on the reagent strength cyanide pipelines and launders. Training includes the identification of high-strength cyanide tanks and pipes. The pipeline conveying the tailings to the TSF is colour-coded (grey) in order to alert plant employees of the presence of cyanide in the tailings material. The tailings pipeline has been marked with warning signs to alert the local community of the presence of cyanide in the tailings material, and the direction of flow is indicated. This was confirmed during the site inspection. This is further emphasised in employee cyanide awareness and refresher training. Low-strength pipes are identified in the general pipe colour coding system and trained to all accordingly.

SDSs (Safety Data Sheets) in English are provided in areas where cyanide is managed. Although the workforce speaks French, the working language of the plant is English. This was confirmed during the site inspection. The emergency call-out procedures were posted strategically throughout the plant, and this was confirmed during the site inspection.

The iSIMS (propriety name - Integrated Sustainability Information Management System) system was used from 2022 for incident reporting, audits, and inspections. This system will be used in case of any incident, including cyanide and environmental incidents. The electronic incident report and investigation on a lost time injury occurring on 12 April 2022 was sighted. A boilermaker injured his arm and hand trying to free a restriction on flopper gate number iSIMS-71278. The incident was investigated, causes identified, and recommendations made.

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

**X in full compliance with**

**The operation is** □ in substantial compliance with **Standard of Practice 6.3**

□ not in compliance with

*Basis for this Finding/Deficiencies Identified:*
The operation has water, medical oxygen, resuscitators, and TriPac antidote kits (TriPacs - 8 units in cyanide emergency boxes, 1 at the TSF, 5 at the hospital, 1 at the transporter, TTM Guinea. A total of 19 units are available on the Mine, and 9 bottles of Sodium Thiosulphate 5% aqueous solution in bottles of 1 litre). Portable radios, cell phones, and alarmed safety showers are used for communicating cyanide emergencies. There are also Mandown alarm stations are also available. There are 9 cyanide emergency cabinets at strategic locations in the Plant, with one at the TSF. The cyanide first aid equipment in cabinets was confirmed by site inspection as follows: -. Cyanide PPE. Respirators and canisters, OxyViva Medical Oxygen, SCBA (Self-Contained Breathing Apparatus) sets, PVC (Polyvinyl chloride) suits, rubber gloves, and rubber boots.
One large batch of cyanide antidote kits is ordered via AGA (AngloGold Ashanti) South Africa, and all kits are replaced at once, 3 months before expiry. It was observed during the site inspection that all antidote kits are stored in fridges, as per the manufacturer's requirements. It was noted during inspections that current antidotes expire in February 2023. Antidote expiry dates are monitored during cyanide first aid inspections. All inspection reports on first aid and cyanide emergency equipment were sampled. In checking the weekly cyanide emergency box inspections, the files include inspections from January to December 2020 and inspections from January to July 2022 were sampled.
The operation has two specific written emergency response plans or procedures to respond to cyanide exposures, the Plant Emergency Preparedness and Response Plan and the Mine-wide Siguiri Gold Mine Emergency Response Plan.
The operation has its own on-site capability to provide medical assistance to workers exposed to cyanide. First aid to workers exposed to cyanide is provided by the First Responders on the plant, who are trained in Cyanide First Aid. The Heap Leach Clinic is 5 minutes from the Plant and is manned 24 hours per day, and the Front-Line Manager for Emergency Medical Care (Paramedic) will respond with the ambulance. The Patient will have been decontaminated by the First Responders on the plant. The Paramedic will then treat the patient, who will be taken back to the Clinic to be stabilised. The patient may be transferred to the Koron Mine Hospital, next to the mine village, 25 minutes' drive from the Plant, for longer term care. The fully equipped Koron Mine Hospital is manned 24 hours per day. The staff includes 8 doctors trained in cyanide emergencies, with a medical doctor on standby in the village after hours. The heap leach clinic

adjoining the mine is staffed by a Paramedic for response to emergencies. If there are any chronic conditions that the hospital is unable to treat, the patient may be transferred to a hospital in Conakry, depending on the care required and at the discretion of the Hospital Doctor. All clinic and hospital staff undertake bi-annual or annual cyanide induction training in addition to specific medical training. Staff at the clinic and hospital take part in cyanide mock drills.
The emergency procedure for access of an ambulance in the event of a medical emergency was sighted and confirmed. Emergencies are announced on the open radio channel so that the whole plant is aware of an emergency occurring, including the security control room, to ensure that the ambulance has free access to the Plant.
A note from Clinique Ambroise Pare, Conakry, from the director general, Dr SAAD Nabil, in French, confirmed that any patients from Siguiri Mine will be taken care of. The note confirmed the Clinique has the resources and capability to treat sodium cyanide exposures and gassed patients from the mine. The Clinique Ambroise Pare, Conakry, is considered one of the best hospitals in Guinea.

## *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.*

**X in full compliance with**

**The operation is**

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

□ not in compliance with

*Basis for this Finding/Deficiencies Identified:*

The operation has two specific written emergency response plans or procedures to respond to cyanide exposures, the Plant Emergency Preparedness and Response Plan (EPRP) and the Mine-wide Siguiri Gold Mine Emergency Response Plan (ERP). The Siguiri Gold Mine Tailings Storage Facility Operation Maintenance and Surveillance Manual includes Section 8 - Emergency Planning and Response.
Potential cyanide failure scenarios and responses are included in the Emergency Preparedness and Response Plan under Section 11, Table 11. These include: - Catastrophic release of hydrogen cyanide from storage or process facilities; Emergency situation inside plant boundaries (Cyanide release during Offloading Containers-Solid, Mixing of Cyanide, and, Transfer of liquid Cyanide- Mixing to storage, Storage dosing to process); Cyanide releases during fires and explosion (Full Cyanide wooden crates store and Burning of empty boxes); Cyanide Tank failure/rupture (Caustic cyanide make-up and, Inside the Gold room); Power outages and pump failures; Uncontrolled seepage (Seepage from Dam/pond/Heap leach/bund storage, and Detox for All Cyanide Spillage

Incidents); Failure of cyanide treatment/ destruction or recovery systems; and Supplier /Transporter emergency response/route.
The EPRP describes specific response actions appropriate for the anticipated emergency situations. For each emergency identified, the specific actions are stipulated, such as whom to contact, evacuation of personnel/community, and actions to be taken. The Continental Africa Region (CAR), Metallurgy Best Practice Guidelines, AGTE.10.4.1.CAR. Chapter 42: First Aid and Medical Treatment for Cyanide Reagent Exposures provides detailed cyanide first aid response. This is read in conjunction with the procedure, Cyanide First Aid, to ensure consistency in treating suspected cyanide-poisoned persons. The evacuation of communities is covered in the Mine Wide Emergency Plan: Mine ERP, section 13.1.6) Evacuation. The control of releases at their source, and containment, assessment, mitigation and future prevention of releases are detailed in the Environmental Department procedures.

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

**X in full compliance with**

**The operation is**
- □ in substantial compliance with **Standard of Practice 7.2**
- □ not in compliance with

*Basis for this Finding/Deficiencies Identified:*
The operation involved its workforce and stakeholders, including potentially affected communities, who are given cyanide sensitisation which includes awareness of the nature of the cyanide risks. The workforce will be briefed on significant changes to the ERP, as appropriate. No such changes have occurred since the last re-certification audit. The First Responders and the workforce are refreshed using cyanide drills. The communities are given cyanide sensitisation presentations via community liaison meetings and outreach centres. The communities are not directly involved in the ERP.
The operation has its own on-site capability to provide emergency response and medical assistance to workers exposed to cyanide, and no external entities have specific emergency response roles.
First aid to workers exposed to cyanide is provided by the First Responders on the plant, who are trained in Cyanide First Aid. The Heap Leach Clinic is 5 minutes from the Plant and is manned 24 hours per day, and the Front-Line Manager for Emergency Medical Care (Paramedic) will respond with the ambulance. The Patient will have been decontaminated by the First Responders on the plant. The Paramedic will then treat the patient, who will be taken back to the Clinic to be stabilised. The patient may be transferred to the Koron Mine Hospital, next to the mine village, 25 minutes' drive from the Plant, for longer term care.
The fully equipped Koron Mine Hospital is manned 24 hours per day. The staff includes 8 doctors trained in cyanide emergencies, with a medical doctor on standby in the village after hours. The heap leach clinic is staffed by a Paramedic for response to emergencies.

If there are any chronic conditions that the hospital is unable to treat, the patient may be transferred to a hospital in Conakry, depending on the care required and at the discretion of the Hospital Doctor. All staff at the clinic and the hospital undertake bi-annual or annual cyanide induction training in addition to specific medical training. Staff at the clinic and hospital take part in mock drills.
The workforce is additionally refreshed using cyanide drills, and the communities are given cyanide sensitisation presentations via the community liaison meetings and outreach centres.

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

**X in full compliance with**

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

□ not in compliance with

*Basis for this Finding/Deficiencies Identified:*
The Emergency Preparedness and Response Plan includes a section on Management Roles and responsibilities which designates primary and alternate emergency response coordinators and identifies duties and responsibilities. Similarly, the Mine-wide ERP includes a section entitled, Emergency Response and control. Included in the Emergency Preparedness and Response Plan, is a General Emergencies Decision Tree and an Emergency Communication Structure which guides authorities and responsibilities.
The Emergency Response Teams are identified in the Emergency Response Team Procedure. The Chemical Response Team processing plant call-out list lists all the Team members with their names, designation, office and home contact numbers and radio channels. In the Mine-wide Siguiri Gold Mine Emergency Response Plan, Section 9. Emergency Response Training, stipulates the training requirements for the Mine Emergency Response Leaders, and Emergency Response Team Training. The training elements for the Process Plant First Responders was sighted. Section 9, Planned Training and Testing of the Emergency Preparedness and Response Plan, describes cyanide drills as part of the emergency training practical refresher.
The procedure, Call-Out for Cyanide Poisoning, is in place to ensure a rapid call-out system for personnel required to attend to a cyanide poisoning incident. The Emergency Response Team Procedure lists PPE (Personal Protective Equipment) needed and emergency equipment available in the emergency vehicle, and Cyanide Emergency boxes. In the Plan, the section entitled, Emergency Equipment, lists all the equipment available.
The inspection of cyanide emergency green boxes was confirmed. The inspection reports on first aid and cyanide emergency equipment were reviewed and sampled. The 2020 file with weekly inspections was sighted and sampled, which included the Gecko dated 31/8/2020, New Gecko dated 27/7/2020, Elution dated 16/3/2020, and the Ablution block

area dated 6/1/2020. Similarly, the 2022 file with weekly inspections was sampled, including: - Elution dated 18/7/2022, CIL dated 30/50/22, Gecko dated 4/42022, new cyanide plant dated 8/3/2022, and the TSF dated 7/2/2022. It was confirmed that emergency response equipment inspections are carried out at the Koron Mine Hospital and the Heap Leach Clinic. Ambulance inspections from 14/8/2022 were sampled, along with PPE checklists and Ambulance content checklists. Cyanide antidotes in the fridge were also checked. It was noted that the Cyanide Champion job description makes him responsible for the inspection and availability of all cyanide emergency response equipment.
There are no external entities included in the Emergency Response Plan. Staff at the clinic and hospital participate in mock drills, and all medical staff are mine employees.
A note from the Clinique Ambroise Pare, Conakry, from the director general, Dr SAAD Nabil, in French, confirmed that any patients from Siguiri Mine will be taken care of. The note confirmed the Clinique has the resources and capability to treat sodium cyanide exposures and gassed patients from the mine.

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

**X in full compliance with**

**The operation is** □ in substantial compliance with **Standard of Practice 7.4**

□ not in compliance with

*Basis for this Finding/Deficiencies Identified:*
In the Emergency Preparedness and Response Plan, Section 12 Response Section, it stipulates the Emergency Response Levels and who needs to be notified in the event of that level of emergency. The responsible persons are indicated in the Emergency Communication Structure. Section 14, level 1 incident emergency response flowchart, Section 15, Level 2 Emergency response flowchart, and Section 16, level 3 incident emergency response indicate the various levels of crisis management in a control flowchart. The Plant Call–Out Procedure for Sodium Cyanide Poisoning (NaCN) contains the contact details for Plant management, the Heap Leach Clinic, and the Koron Hospital.
The Procedure for Communication with Interested and Affected Parties, states the following, "…No employee or manager is permitted to communicate directly with the press or general public regarding a cyanide incident or accident. The Senior Manager: Process will follow established communication practice involving the corporate office and communications department…." The Siguiri Mine has a Community Affairs Department. The designated person, the Community Liaison Person, will communicate with the community with regard to necessary actions. The Mine Crisis Management Plan, Section 8. MEDIA RELATIONS, 8.1 Corporate Guidelines, states that the Managing Director or the person designated by him, will handle all media communications during emergencies. The Procedure for Notifying ICMI of any Significant Cyanide Incidents,

was sighted. Included in the procedure was the ICMI definition of a significant cyanide incident, including a list of confirmed cyanide-related events. Siguiri reported a significant cyanide incident in October 2019 to the ICMI.

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

**X in full compliance with**

**The operation is** □ in substantial compliance with **Standard of Practice 7.5**

□ not in compliance with

*Basis for this Finding/Deficiencies Identified:*
There is a procedure in place entitled, "Detoxification Procedure for all Cyanide Spillage Incidents", and a Procedure for Using Hydrogen Peroxide for Detoxification of Cyanide Spills.
The Detoxification Procedure for All Cyanide Spillage Incidents, includes a number of sections that detail actions: -
Section 7.1 Solid Cyanide Spillage, 7.2 Liquid Cyanide Spillage, 7.3 Pulp Spill with Cyanide, 7.4 Small and Large contained cyanide spillage. (The section states, "…The use of treatment chemicals such as Sodium Hypochlorite, Ferrous Sulphate and Hydrogen Peroxide to neutralise cyanide spillage into the surface water is prohibited but it is used in other circumstances, guided by the manufacturer's recommendations detailed in the MSDS….") Section 8 Containment of Spillages, describes the recovery and safe disposal of spilled cyanide solutions and solids either via the Process Plant or the TSF. The section also states that the contaminated area must be neutralised with detoxification reagents (hydrogen peroxide). Hydrogen Peroxide is kept in the Chemical Store. The section further states that the spilled cyanide material can either be disposed of at the CIP Plant, Heap Leach pads or TSF (dependent on the nature and quantity of the spill). The procedure further states, "…"8.7 Provide water for villages where drinking water is affected in the Clean empty peroxide drum which is tested and confirmed clean by the Environmental Officer…."
The Procedure for Using Hydrogen Peroxide for Detoxification of Cyanide Spills, states that approximately 2-8g $H_2O_2$ (hydrogen peroxide)/g of cyanide liquid released should be used. The primary strategy is neutralisation, as opposed to recovery. The procedure also states, "…Hydrogen peroxide (or any other neutralizing agent) should never be used to neutralize cyanide spilled into clean-water rivers or dams…."
The Environmental Department will initiate sampling according to their procedures and will indicate when neutralisation is complete. The site uses the IFC/World Bank standard of 0.1 mg/l Free Cyanide or less, as a target for successful clean-up. The Siguiri Environmental Monitoring Plan 2022, states in Section 6.3.8, "…Sampling for Cyanide, (a) Sampling for Cyanide during Emergencies. In case of cyanide solution spillage - methodology. The parameters of focus during sample assay will be the pH and WAD.

Sampling of the flow path of the solution starting from point of spillage and every ten meters for up to 1 km if this is in flowing stream. In case of TSF spillage (failure of facility) the potential flow path as indicated by the survey plan will be used to collect samples. Monitoring around the facility will also be sampled…." The Environmental Department will initiate sampling according to their procedures and will indicate when neutralisation is complete.

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

**X in full compliance with**

**The operation is** □ in substantial compliance with **Standard of Practice 7.6**

□ not in compliance with

*Basis for this Finding/Deficiencies Identified:*
The Plant Emergency Preparedness and Response Plan (EPRP) and the Mine-wide Siguiri Gold Mine Emergency Response Plan (ERP), are revised every three years, or if there are significant changes. The emergency response plan was revised in 2021. The last EPRP revision for the Plant Plan was on 28 April 2020 (next revision 2023), and the ERP was last revised in November 2021 (The next revision is November 2024).
The Plant Emergency Preparedness and Response Plan requires an annual cyanide drill to be conducted. Annual cyanide drills are required in the new ICMI Code dated June 2021.
Only one restricted Emergency drill was done due to the COVID-19 regulations and social distancing restrictions since 2020. On 11/8/2021, the scenario was a mandown at the cyanide mixing area. Drill strengths included that emergency equipment was available, the workforce responded well to the emergency alarm, and there was a good reaction from the Paramedic taking charge of the victim. Drill weaknesses included a communication problem between the security department and the heap leach first aid post, the first aiders did not use the SCBA (Self-Contained Breathing Apparatus) and the Oxy-viva at the right time, and there was a problem with a faulty stretcher.
A full cycle (to the hospital) mandown drill was carried out on 5 August 2022. This was a combined mandown and cyanide spillage at the mixing area, when lifting a cyanide bag. Drill Strengths: Emergency equipment was available, there was a prompt reaction from the first aiders to decontaminate and remove the victim, and there was a good response from the workforce going to the assembly point. Drill Weaknesses: a communication problem in contacting the plant control room due to congestion on radio channel 2.
The Plant Emergency Preparedness and Response Plan includes a section: -
"….7. PLANNED MAINTENANCE AND CHANGE MANAGEMENT
7.1.2. To update the document whenever there is a major change to the document as per – Revision of Cyanide Procedures and Revision of Environmental Procedures.
7.1.3. To update the Site Surface Plan (Appendix D) when changes occur on the plant, and update the plan at all locations…."

The revision requirements were confirmed during discussions with the Cyanide Champion to include issues identified during mock drills and emergencies, as appropriate.

## *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.*

**X in full compliance with**

**The operation is**

- ☐ in substantial compliance with **Standard of Practice 8.1**
- ☐ not in compliance with

*Basis for this Finding/Deficiencies Identified:*

Cyanide hazard recognition training is given to all site personnel who may encounter cyanide. The Cyanide Induction training presentation by the Facilitator, Bakary Kamaya Camara, Metallurgical Training Officer, was sighted and reviewed. The induction includes the requirements as per the ICMI guidelines. The training matrix covering cyanide induction and refresher training was sighted and includes all permanent employees:

The Matrix for 2022 was sighted and reviewed. The matrix shows white blocks showing employees not required to receive cyanide awareness and induction. Plant Security Access cards are issued on completion of the induction annually. All those requiring induction and cyanide awareness are indicated by yellow blocks. Once induction and cyanide awareness and the refresher are given, the date is entered into the yellow blocks. Also sighted, sampled, and confirmed was the Matrix for 2020. The combination of the matrices and the security access card system is used to ensure induction refreshers are done as required. The access pass is renewed annually.

Contractors and temporary workers are included in a separate attendance register, kept by the Plant Training Department. Site Managers responsible for the Contractors will submit lists of contractors, for induction and cyanide training. The contractors' induction lists for 2022 (537) and 2020 (395) were sighted and confirmed. The lists include the test marks, with the Pass mark being 75%.

Refresher training is given after returning from leave, depending on the leave cycle, which could be every 6 months or every 12 months. The practice is that every person going off-site for two weeks or more must receive refresher induction, including cyanide training. The training matrix functions from January to December each year, and at the end of the year, the Human Resources Department sends a new list of the current employees to the Trainer, which forms the basis of the new year's matrix.

All Training records are kept permanently as per the practice of the Processing Plant.

This was confirmed for the cyanide awareness training during the review of the training records of the interviewees.

***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.*

**X in full compliance with**

**The operation is**
- □ in substantial compliance with **Standard of Practice 8.2**
- □ not in compliance with

*Basis for this Finding/Deficiencies Identified:*
Task training is undertaken, based on the updated SOPs (Standard Operating Procedures). A list of SOPs covering all the activities in the operation was sighted. The auditors confirmed that the SOP documents include the safe way to do the task and the measures to ensure worker safety and protect equipment from damage. The training matrix sighted covers cyanide induction training only. The Supervisors are responsible for task or SOP training.
The training elements are included in the SOPs. A Matrix indicating the required SOPs to be trained, per job category, in yellow blocks, was sighted.
Bakary Camara, the Plant Training Officer, conducts training. He is an experienced supervisor (14 years of training experience in the Plant) in AngloGold Ashanti. He has completed a Train the Trainer course, ICMI (International Cyanide Management Institute) training, Fire truck training, and Fatigue Management training. The on-the-job training is done by appropriately qualified supervisors with experience in the SOPs and applying the SOPs.
The Supervisor is responsible for ensuring that all Operators in his section are trained and competent to carry out their assigned tasks safely. A badge control procedure is practiced. The Training Officer must sign off training before employees are allowed to work with cyanide in the plant.
Refresher training is given when a need is identified through PTOs (Planned Task Observations), incidents, and other indicators of substandard performance or operations. This will also trigger a review for refresher training.
PTOs are conducted using the SOP to confirm the competence of the trainee. The Supervisors conduct the PTOs. Supervisors must conduct at least 30 PTOs per month.
The PTO file for 2020 and 2022 was sighted and sampled:
- Leach feed sampling, 2 March 2020 on Evandro Cotime by Ousmane Doumbouya and found competent
- AAS reading 19 September 2020 on Amara Camara by Ousmane Doumbouya and found competent.
- Taking tailings discharge sampling, 10 Sept 2020 on Nassou Mady Doumbouya by Mohamed Lamine Kalle and found competent.

- ILR sequence start-up 27 October 2020 on Issiaga Conde by Moussa Kadiatou Traore and found competent.
- Cyanide mixing 9 March 2020 on Koulibaly Fode by Toure Tidiane and found competent.
- Cyclone movement, 9 February 2022 on Aliou Camara by Mohamed Lamine Kalle and found competent.
-Density sampling, 23 March 2022 on Koivogui Joseph Sacko by Mohamed Dian Diallo and found competent.
- Cathode washing, 17 June 2020 on Kabine iii Camara by Youssouf Koulibaly and found competent.
- CIP bund area cleaning 28 February 2022 on Fode Bakary Keita by Seydouba Soumah and found competent.

All Training records (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) are kept permanently as per the practice of the Processing Plant. This was confirmed for the cyanide task training during the review of the training records of the interviewees, as well as the review of the PTOs sampled.

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

**X in full compliance with**

**The operation is**  in substantial compliance with **Standard of Practice 8.3**

 not in compliance with

*Basis for this Finding/Deficiencies Identified:*
All staff are trained in basic cyanide awareness, which requires at least reporting and moving away from the scene to the emergency assembly point. A shift first responder team is in place for dealing with cyanide releases. At least 4 people are present on each shift. A total of 19 members are trained. First Responders Training covers: - Cyanide awareness included in the Gold Plant Induction, Requirements for cyanide emergencies including decontamination, Cyanide antidote kits, Safety Equipment, Cyanide first aid protocol, Cyanide Exposure information, Use of SCBA (Self Contained Breathing Apparatus), Use of Oxy-Viva Medical Oxygen cylinder, and the use of stretchers.
The First Responder Training Matrix from Plant Training Department was sighted and reviewed. Training Reports were also sighted and sampled: -
- Training report dated 20 April 2022 cyanide first aid training attended by 4 members - 2.5 hours.
- Training report dated 11 May cyanide first aid training attended by 4 members - 4 hours
- Training report dated 26 July 2022 cyanide first aid training attended by 7 members - 2.5 hours

- Training report dated 1 August 2022 cyanide first aid training attended by 4 members - 2.5 hours

Fire training records with training carried out by the Mine Emergency Response Department were sighted and reviewed.

Training was interrupted by COVID-19 restrictions from 2020 and is in the process of being updated since the relaxation of the regulations regarding social distancing.

No local responders are involved in any emergency responses from the Mine site. The only " outside " responder would be the Koron Hospital which is a Mine facility and which is involved in all full cycle drills and whose staff are mine employees, receiving ongoing cyanide awareness training.

All first responders receive annual refresher training for cyanide induction as plant employees. Continued annual refresher training takes place for the First Responders, as detailed above. All Training records are kept permanently as per the practice of the Processing Plant and include 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. The cyanide emergency response training records were confirmed during the review of the training records of the interviewees.

## *9. DIALOGUE AND DISCLOSURE*

***Engage in public consultation and disclosure.***

***Standard of Practice 9.1***

*Promote dialogue with stakeholders regarding cyanide management and responsibly address identified concerns.*

**X in full compliance with**

**The operation is**

□ in substantial compliance with **Standard of Practice 9.1**

□ not in compliance with

*Basis for this Finding/Deficiencies Identified:*

The Covid 19 pandemic regulations significantly impacted the planned community dialogue. Physical communication was stopped from the start of the Covid 19 pandemic between 2020 and January 2022. Dialogue continued during the Covid-19 pandemic, but at a different intensity and frequency where there were meetings, and social distancing, masking and frequent handwashing were practiced. The Mine is in the process of an aggressive program of dialogue to re-engage communication with the communities face-to-face.

From the beginning of 2022, two-weekly meetings have been held with the communities, covering appropriate issues, which include cyanide.

1. All communities that may be affected by cyanide were identified.

2. The PowerPoint presentation of Dialogue with Fensorekolen Community on 8th August 2022 was sighted, 20 People attended the meeting.

3. Dialogue with Boukaria Community held on 16th June 2022. 22 people attended.
4. Dialogue with Kintinian Community held on 31st May 2022. 63 community members attended the meeting, including 2nd Vice Mayor Kintinian, the President of artisanal miners and Chambers of Commerce- Kintinian, the National Director of Mines - Guinea, and the President of Boukaria District.
5. Other Community meetings held include a Meeting held at Saraya on 24th September 2021 (27 attendees), a Meeting held at Kintinian on 31st May-2022 (63 attendees), a Meeting held at Boukaria on 16th June 2022 (21 attendees), and a Meeting held at Fensorekolen on 8th August 2022 (20 attendees).

***Standard of Practice 9.2***
*Make appropriate operational and environmental information regarding cyanide available to stakeholders.*

**X in full compliance with**

**The operation is**
□ in substantial compliance with **Standard of Practice 9.2**
□ not in compliance with

*Basis for this Finding/Deficiencies Identified:*
Presentation evidence given at the meetings describing cyanide management at Siguiri in French was sighted. The presentation is available in hard copy, on request. Posters are being produced for distribution in the communities and for posting in communal areas. All presentations are given verbally in French or the local language, Malinke. A significant part of the community is not literate in French or English, but are literate in Malinke, the local language.
The AGA (AngloGold Ashanti) Annual Sustainable Development Report, https://www.aga-reports.com/21/wp-content/uploads/2022/04/AGA-SR21.pdf is available on the AGA open website under, reports downloadable. Information about cyanide incidents and exposures will be released after appropriate investigation.
Siguiri has not had any significant cyanide incidents that have resulted in hospitalisation or fatalities in the 3 years since the last recertification audit that required reporting on a public level, and thus no reports were made in the AGA annual reports since the re certification in 2019.
The iSIMS (proprietary name - Integrated Sustainability Information Management System) system was used from 2022 for incident reporting, audits, and inspections. This system will be used in case of any incident, including cyanide and environmental incidents.
Referring to the 2019 Sustainability Report, page 31: https://www.aga-reports.com/19/sr, 2019 Reportable environmental incidents p 31:
" During October, at Siguiri mine's process plant, construction work for upgrading of the spillage containment infrastructure was in progress when operational challenges with reagent make-up was experienced. This caused cyanide-bearing solution to drain to a temporary spillage pond located inside the process plant fence. A valve on the pipeline

connecting this internal pond to an external spillage pond, which served to increase spillage holding capacity, was in the open position. This allowed an estimated 80m$^2$ of the cyanide-bearing solution to reach the external pond, causing the death of a cow and 4 birds that consumed the water. Upon discovery, immediate actions were taken to isolate and detoxify the water in the external pond. Regulators and local government representatives from Siguiri, were immediately notified"

6. The incident was reported to the appropriate communities, ICMI and included in the publicly available 2019 sustainability report.