INTERNATIONAL CYANIDE MANAGEMENT INSTITUTE

Cyanide Code Certification Audit Gold Mining Operations

Summary Audit Report

Barrick Gold Corporation and State of Mali Joint Venture Company

17th – 22nd June 2021

For the International Cyanide Management Institute

Name of Operation:	Loulo Gold Mine
Name of Operation Owner:	Barrick Gold Corporation and State of Mali joint venture company
Name of Operation Operator:	SOMILO SA
Name of Responsible Manager:	Abdoulaye Kone, Processing Manager
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Location detail and description of operation:
Located in Western Mali, adjacent to the Falémé River, which forms the border with Senegal, the Loulo mine was commissioned in 2005. The mine has an LoM (Life of Mine) to 2037 (another 17 years). It consists of 2 underground mines and 1 open pit currently in operation. The Mill throughput is 420,000 tons per month (tpm), or 5 million tons per year (mtpy). Tailings are split between the Tailings Storage Facility (TSF) and the paste plant (backfill). TSF deposition is 280,000 tpm, and the TSF is located 4.5 km east of the gold plant.
The Loulo processing plant uses a carbon-in-leach (CIL) gold extraction process with a throughput capacity of 4.8 mtpy. The Loulo process plant processes ore from both Loulo and Gounkoto operations.

1. **Crushing and Milling**
   Run of Mine ore from the shafts and Gounkoto operations are blended using detailed source analyses to provide a blend of ore to the plant for treatment, meeting the plant operating specifications. The ore is crushed in three stages of crushing to provide a suitable product for feed to the primary mill. Soft ore is fed to the mineral sizer, followed by ball milling. The mill products are classified using hydrocyclones, returning the course material underflow to the grinding circuit. The cyclone overflow is thickened to a suitable underflow density and pumped to the CIL plant.

2. **CIL and Elution**
   The thickened product from the thickeners is pumped to the CIL, where cyanide is added to the slurry, using an on-line Cynoprobe free cyanide analyser and variable speed hose pumps. pH is controlled at 10.1 to 10.3.

The CIL residue is pumped to the Intermediate Plant, where cyanide destruction and backfill preparation take place.

3. Gold Recovery and Elution

Loaded Carbon is screened from the CIL tank and treated in a Zadra Elution circuit for gold recovery from carbon. The loaded carbon is chemically regenerated by hydrochloric acid before being sent to the elution columns, where gold is eluted into solution. The gold solution is pumped to the electrowinning section where gold is recovered from the solution and smelted to produce Gold Doré, which is sent to the refinery for production of fine gold for the gold market.

4. Intermediate Plant

The CIL tails are pumped to the Intermediate plant, where backfill material for use in the underground shafts is produced. The intermediate plant is equipped with a peroxide cyanide destruction facility, reducing WAD (Weak Acid Dissociable) cyanide to: -

Tailings Storage Facility: - less than 50 mg/l WAD cyanide

Underground Backfill tanks: - less than 0.5 mg/l WAD cyanide

The intermediate plant is equipped with an on-line Cynoprobe WAD and Free cyanide analyser to control the detoxification process and measure the WAD cyanide in the tailings slurry and the backfill feed to the shafts.

5. Tailings disposal

The tailings from the intermediate plant are pumped via a 4.5 km pipeline to the paddock Tailings Storage facility. The solution is decanted to a Return Water Dam (RWD) from where it is recycled to the process plant for re-use. It is reported that the solutions in the milling circuit are below 0.5 ppm WAD cyanide.

Auditor's Finding

This operation is

X in full compliance

☐ in substantial compliance

☐ not in compliance

with the International Cyanide Management Code.

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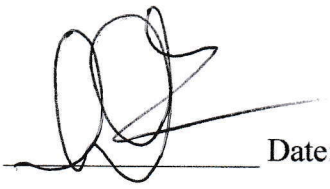
Names and Signatures of Other Auditors:

Name: Dawid M. L Viljoen Signature  Date: 6 DEC 2021

Dates of Audit: 17th – 22nd June 2021

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

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

Facility	Signature of Lead Auditor	Date
Loulo Gold Plant		8/12/2021

Auditor's Findings

1. PRODUCTION: Encourage responsible cyanide manufacturing by purchasing from manufacturers who operate in a safe and environmentally protective manner.

Standard of Practice1.1: Purchase cyanide from manufacturers employing appropriate practices and procedures to limit exposure of their workforce to cyanide, and to prevent releases of cyanide to the environment.

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:
There is a Supply and Purchase Agreement for Sodium Cyanide to Loulo Gold Mine between Société Des Mines De Loulo SA (mine), Hebei Chengxin Company Limited (cyanide producer) and Afrilog South Africa (Pty) Limited (customs clearance agents). There is an amendment to the contract which states, "…Purchase only or supply cyanide sourced from production facilities that are certified as ICMI compliant from manufactures (sic) employing appropriate practices and procedures to limit exposure of their workforce to cyanide and prevent releases of cyanide to the cyanide (sic) to the environment…." Hebei Chengxin Company was certified as an ICMI (International Cyanide Management Institute) producer on 19th February 2019.

2. TRANSPORTATION: Protect communities and the environment during cyanide transport.

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

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:
There is a Supply and Purchase Agreement for Sodium Cyanide to Loulo Gold Mine between Société Des Mines De Loulo SA (mine), Hebei Chengxin Company Limited (cyanide producer) and Afrilog South Africa (Pty) Limited (customs clearance agents). There is an amendment to the contract which states,

" … CSTT-AO, as Company's transporter from the Point of Delivery to the Site, is responsible for the off-loading and loading at the Point of Delivery as well as road transport to the site. Interim storage is currently not an integral part of the Dakar, Senegal to Mali final destination Loulo-Mali transport route. CSTT-AO is also responsible for the training of the transportation crew, route security, and emergency response…."
With regard to delivery and associated responsibilities, clause 3.4 of the contract states,
"…the supplier is responsible for cyanide handling and road transport from the manufacturer's factory to the port of country of origin referred to in clause 4.1 sea shipment from the port of country of origin referred to the clause 4.1 to the Point of Delivery is also the supplier's responsibility. The supplier must be ICMI certified and use ICMI certified service provider for road and sea transport from the manufacturer's factory to the Point of Delivery and such road, and sea transport of the Goods must be in accordance with applicable laws in connection with the handling and shipping of the sodium cyanide (NACYANIDE)
(b) New : CSTT-AO as company's transporter from the Point of Delivery to the site is responsible for the off-loading and loading at the Point of Delivery as well as road transport to the site Interim storage is currently not an integral part of the Dakar, Senegal to Mali final destination Loulo Mali transport route CSTT-AO is also responsible for the training of the transportation crew route security and emergency response. CSTT-AO will as part of the supply chain between off-loading at Dakar and road transport for the duration of the contract, CSTT- AO and any sub-contractors shall be appropriately certified with the International Cyanide Management Institute (ICMI) and shall adhere to all requirements and procedures required regarding, but not limited to, the evaluation and selection of routes, storage and security, interim loading storage and unloading, transport to the operation, unloading, transport to the operation, safety and maintenance of the means of transportation, task and safety training for transporters and handlers throughout transport, security throughout transport compliance of sub-contractors to ICMI requirements and Emergency response throughout transport…"

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

X in full compliance with

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

□ not in compliance with

Basis for this Finding/Deficiencies Identified:
In the Supply and Purchase Agreement for Sodium Cyanide to Loulo Gold Mine between Société Des Mines De Loulo SA (mine), Hebei Chengxin Company Limited (cyanide producer) and Afrilog South Africa (Pty) Limited (customs clearance agents), it states, "… The supplier must be ICMI certified and use ICMI certified service provider for road and sea transport from the manufacturer's factory to the Point of Delivery and such road and sea transport of the Goods must be in accordance

with applicable laws in connection with the handling and shipping of the sodium cyanide…."

The contract further states,"… CSTT-AO will as part of the supply chain between off-loading at Dakar and road transport for the duration of the contract, CSTT- AO and any sub-contractors shall be appropriately certified with the International Cyanide Management Institute (ICMI) and shall adhere to all requirements and procedures required regarding, but not limited to, the evaluation and selection of routes, storage and security, interim loading storage and unloading, transport to the operation, unloading, transport to the operation, safety and maintenance of the means of transportation, task and safety training for transporters and handlers throughout transport, security throughout transport compliance of sub-contractors to ICMI requirements and **Emergency response throughout transport**…."

Hebei Chengxin Transport was ICMI certified on 10th January 2020; the Hebei Chengxin Transport Global Ocean Supply Chain was ICMI certified on 10th August 2020; and CSTT-AO was ICMI certified as a transporter from 13th November 2020.

A full set of documents for a cyanide delivery, complete, from the purchase order to the delivery note to Loulo Gold Plant, was sighted and reviewed. The delivery was the first eight containers of two batches of an order for sixteen containers of sodium cyanide. Included in the documents sighted was a purchase order, delivery note, matched Bill of Lading and Hebei Chengxin Commercial Order. All identified components of the supply chain were included in the Hebei Chengxin Land and Ocean Supply Chain.

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:

The design files for Loulo Gold Plant unloading, storage and mixing facilities were sighted, sampled and reviewed. The Engineering design company, Metallurgical Design and Management Pty Ltd (MDM), used their standard Engineering practices for the cyanide reagent strength facilities. The drawings for the cyanide mixing and storage tanks were reviewed, along with the P&ID (Piping and Instrumentation Drawing) for the cyanide piping and instrumentation, and a table specifying valve types for the facilities. The General Arrangement (GA) drawing of the cyanide storage tank was also sampled and reviewed. It was concluded that the cyanide mixing and dosing facilities were designed to accepted engineering practices for high strength cyanide facilities.

During the site inspection, it was observed that the cyanide shed, cyanide mixing area and cyanide dosing tank area are located away from people and surface waters. No cyanide liquid is unloaded on the Plant, but solid cyanide is mixed inside a bunded concrete area. This was confirmed during the site inspection.

The cyanide mixing and dosing tanks are equipped with level sensors. Level indicators were observed on the SCADA (**S**upervisory **C**ontrol **A**nd **D**ata **A**cquisition) system in the control room. It was reported that the cyanide mixing automatic tank water valve is opened by the SCADA system at 10% volume and automatically closed at 80%. The level indicators are inspected during shutdown and weekly, via the PRAGMA (proprietary name) planned maintenance system (PMS). Transfer from the mixing to the dosing tank is initiated manually. The mixing tank cyanide transfer pump is interlocked with the cyanide dosing tank level and switches off automatically at 80% capacity.

The Sodium Cyanide Briquettes Make-up Procedure refers to level indication and interlocks. At 80%, the water addition valve will close automatically. The “high high” level is set at 90% when a physical alarm will start sounding. The “low low” alarm is set at 10% to indicate that the tank is ready for a new batch. The transfer pump to dosing will automatically stop at 10%. At 80% of the dosing tank, the transfer pump will stop automatically to avoid overflow.

The Liquid Cyanide Transfer from Dosing to Leach Procedure states that: -

The dosing “high high” level is set at 90% to avoid the tank overflowing, and a physical alarm will start sounding at that level. The “low low” alarm is set at 18% to indicate that the tank is empty.

The cyanide mixing tank is installed on a hexagonal concrete plinth, overlain by four layers of HDPE (High Density Poly Ethylene) lining, forming an impermeable layer between the tank base and ring beam compacted soil. The cyanide dosing tank is installed on double concrete structures overlain by four layers of HDPE lining, forming an impermeable layer between the tank base and ring beam compacted soil. Both the cyanide mixing and dosing tanks are installed inside a concrete bund, including a sump and pump to return spillage to the tank (in the case of the mixing tank) and to the process (in the case of the dosing tank).

The cyanide storage shed is equipped with two entrances with mesh to assist with ventilation and the roof of the cyanide shed includes a ventilation apex. The cyanide mixing and storage tanks are both equipped with ventilation pipes which were observed during the site inspection.

The solid cyanide shed is fitted with a galvanised sheeting roof and sides to prevent water from coming into contact with the cyanide boxes. The shed is also fitted with bricked retaining walls. It was observed that the retaining walls are repaired and in a good condition. No water was observed inside the shed. The inspection was done two days after a significant rain event, indicating that the store is not prone to water entering the building. The cyanide boxes were all observed to be in good condition with no evidence of water damage sighted.

The cyanide mixing facility and the solid cyanide shed is located inside the reagent area, and the outside gate is locked. The gate to the cyanide mixing facility and the cyanide shed is fenced. The gate is locked, requiring two persons to remove the locks. It was confirmed during the site inspection that both the Storeman and the Security official were required to unlock their respective locks to allow entry into the solid cyanide store. The key control is the responsibility of the Supervisor only and is managed using an entry register. It was noted that that the cyanide mixing tank, solid

storage shed and the cyanide dosing tank are all located separately and away from incompatible materials.

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:
The site has a series of procedures which cover: - storage of cyanide sea containers; unloading of cyanide wooden boxes from sea containers; loading wooden boxes at the Store; transportation of wooden cyanide boxes to cyanide makeup area; offloading of cyanide wooden boxes at the reagent makeup area; use of PPE, sodium cyanide briquette make-up; disposal of empty cyanide boxes; and liquid cyanide transfer from Dosing to Leach. Cyanide packaging is not rinsed as a site-based risk assessment concluded that rinsing could result in a higher risk of liquid spillage from the rinse operation during transport to the burning facility. Mitigation includes SOP (Standard Operating Procedure) training of the reagent operators, inspection of bags following breaking and adding to the mixing tank, and planned task observations (PTOs). Empty cyanide bags (no cyanide drums are used) are placed in the wooden box and escorted immediately to the burning area, and are incinerated within 12 hours. Safety and Security officers take part in the escort. Empty sea containers are cleaned, checked for any cyanide residues, and locked before being returned.
The sodium cyanide briquettes make-up procedure includes a section covering make-up interlocks and sequencing of opening and closing valves during the make-up operation. To prevent rupturing or puncturing of boxes and bags, the procedure contains a section that requires that, "…The forklift and JCB (proprietary name) operators must be properly trained and competent. The operators must be in possession of a valid certificate of competency to operate the respective vehicles…."
Cyanide boxes are stacked to a maximum of three high in the store, as required in the 'storage of cyanide wooden boxes at Loulo' procedure. The make-up procedure requires that the top and bottom of the makeup tank must be cleaned to disperse any briquettes left on the grating or elsewhere, and the surrounds and under the tower crane must be cleaned of any spills.
The buddy system (second individual observing) is required to be in place and equipped with emergency cyanide equipment during cyanide make-up and storage. The plant mixing operator adds carmoisine colouring dye to the mixing tank for each batch mix, as required in the sodium cyanide briquettes make-up procedure.
The Sodium Cyanide Briquettes Make Up Procedure, Section 1.2 -Equipment required for make-up of cyanide, includes a sub-section, Personal Protective Equipment (PPE), which specifies which PPE is to be used during make-up and the pre-checks that need to be undertaken.

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 utilizing 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:
The Gold Plant has thirty cyanide Standard Operating Procedures (SOPs) and one environmental procedure. There is a Loulo Gold Mine Tailings Storage Facility (TSF) Operating Manual in place. This is supported by a number of specific procedures, including: - a Tailings Deposition Lines procedure; TSF Discharge procedure; Operating Standard Batter Board Installation procedure; Operating Standard Catwalk Construction procedure; and Operating Standard Freeboard Pole Installation procedure.
The Detailed Design Report for the Loulo Gold Mine Tailings Dams Extension Project includes the design storm event (1:50 year event and 7-day storm event), which is 163 mm and 281 mm. respectively. Also included in the report is that the freeboard on the RWD (Return Water Dam) and SWD (Storm Water Dam) meets the minimum requirements set out in Code of Practice, Mine Residue, SANS 0286:1998.
It was confirmed that the 2021 Loulo Free and WAD cyanide Levels were for the TSF (Tailings Storage Facility) – 1- mg/l Free Cyanide and 50 mg/l WAD cyanide, and for the Paste Plant – 0.1 mg/l Free cyanide and 0.5mg/l WAD cyanide.
Operational inspections consist of shiftly inspections, including the checklist for high strength cyanide facilities including bund contents, tank, pumps, pipes; Cyanide line daily inspection; and the CIL (Carbon-in-Leach) dosing and make up monthly inspections. The Management Inspection functions as an over-inspection for other routine inspection events. A second over-inspection undertaken is the Occupational Health and Safety Inspection Feedback Report, which over-inspects other routine inspections and different areas. Completed inspection reports and checklists were sampled for 2020 and 2021.
The operation has used the PRAGMA computerised Planned Maintenance System (PMS) since the mine commenced. Complete maintenance records date back to the start of the mine and are accessible. An electronic review of the PRAGMA system was undertaken, "on screen" with PRAGMA Planned Maintenance System staff. The system has a complete list of critical cyanide equipment for which there are daily, weekly, monthly, two monthly, and quarterly Planned Maintenance (PM) inspections undertaken by Boilermakers, Fitters, Electricians, and Instrumentation Technicians. Twice monthly shutdowns are included on the PRAGMA system, and tasks in these shutdowns are listed on PRAGMA. Also included on the PRAGMA system are: -

safety showers, replacement of cyanide antidotes, and electronic level indicators in the cyanide tanks.

The start-up, shut down procedure includes the following, "…In case of any Strike; Riot; Sit-in; Sabotage; Political disorder etc.…The senior crisis management will meet and analyse any of these situations mentioned above prior to conducting the management of change and thorough risk assessment of any cyanide handling in the circuit…"

All tanks are included on the PRAGMA system, including the cyanide mixing and dosing tanks, leach tanks, elution tanks, tailings tanks, and thickeners. All tanks undergo annual PM (Planned Maintenance) inspections, and boilermaker, fitter and instrument technician planned inspections were reviewed. All tanks also undergo annual thicknesses testing. Samples of thickness testing results were reviewed. Secondary containments are inspected as a part of operational inspections. No tank leak detection systems were observed or confirmed. Most high-strength cyanide pipelines are made of HDPE (High Density Polyethylene) and, therefore, are not thickness tested. Pumps, pipes and valves are covered during the operational inspections. The TSF pipeline and return water pipeline running through the village is patrolled 24 hours per day for leaks and releases. Leaks are reported by exception. The PRAGMA system includes the TSF pipes. Process water pond inspections are included in the 6 monthly inspections in PRAGMA for the pumps and pipes. The process pond level is indicated on the SCADA in the control room, and inspections of the PCD (Pollution Control Dam) ponds include a regular desilting program when the ponds are inspected by the Process Department.

Visual inspections of the surface water diversions are carried out by the Environmental Department. The Department also carries out rainy season preparations on the diversions, using where necessary wheel dozers and graders for remedial action.

The PRAGMA system includes daily, weekly, monthly, quarterly, and annual inspections. The process inspections include daily, weekly and monthly inspections. Thus, the frequencies are deemed by the auditors as adequate and sufficient to assure and document that the operation is functioning within its design parameters.

Inspection records sighted are available in both hard and electronic copy, depending upon the type of record. The date of the inspection is included in the records, along with the name and job of the inspector, and observed deficiencies are indicated. Details of corrective actions are typically included in job cards and transferred to the PRAGMA records.

Potential power outages are low risk as the Mine generates its own power. The generation station has spare capacity to fill in any downtime by generating units. Twelve generators are in place, with four in use at any one time. Thus, power outages affecting the water and slurry pumping capacity are not a credible scenario. Additional back-up power is supplied by solar panels. Operation and maintenance are outsourced to a specialised French company with an on-site presence. An emergency power source was observed at the TSF. The risk of overtopping the return water dam and the holding pond at the Detox was covered during the design of the extensions. The system was designed not to overtop, as per the design document.

There is a Cyanide Management of Change Procedure in place. A 2021 MOC (Management of Change) exercise covering the cyanide handling and dosing tanks liner in order to be environmentally friendly, was viewed. It was confirmed that the

document was signed off by the Safety and Health Manager and the Environmental and Community Manager.

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

□ not subject to

Basis for this Finding/Deficiencies Identified:
The gold plant receives ore from three sources, and each is characterised using bottle roll tests: Gara, Yalea, and Gounkoto. The various ore sources are characterised continuously and recorded in a database spreadsheet. This information is used in the ore mix planning. The spreadsheet database, including all sources and Gara, was sampled. The spreadsheet covers the various blocks mined at Gara. The results include the head grade, recovery, lime consumption, cyanide consumption, copper ppm, arsenic and iron. In each area where mining is taking place, samples are sent to the Metallurgical laboratory for characterisation tests. The laboratory treats 150 samples a week.
The characterisation data is used in the planning for cyanide dosing to the leach circuit in accordance with the SOP (Standard Operating Procedure), Feed Pattern, Cyanide. This states,
"…- Processing Team:
a. Dedicated Plant Metallurgist will compare BM (Block Model) recovery to that of the Lab recoveries and provide lab predictive recovery for each operating day as per the information gathered from; daily tons, grade and BRTW (Bottle Roll Test Work) recoveries.
b. Run an assumption of predictive cyanide consumption for the week base on testwork consumptions. The Plant feed cyanide set point will primarily be based on the Predictive cyanide consumptions developed from the weekly testwork as per the weekly plan, the feed pattern and the residual cyanide...".
The Gara week 26 planning input was sighted, containing characterisation of each Mining block of Gara, including copper (the primary cyanide consumer) and arsenic contents. The same planning sheets and principles are used for Yalea and Gounko as per the procedure.
The same principles are used when new sources are evaluated. Daily bottle roll tests are done on feed and residue samples to check for optimal reagent addition rates. Reagent addition is adjusted, as appropriate, based on the test results. Examples of bottle roll tests were sighted, i.e., extended bottle roll leach tests of CIL tails residue samples done daily, from March to April 2021.
A MINTEK (proprietary name) Cynoprobe 3 is used for on-line free cyanide measurement. The cyanide is dosing via a single dosing line and a hose pump. The cyanide dosing is controlled by a ratio controller with the mass flow system (feed

forward), with the Cynoprobe adjusting the ratio as a feedback control. A predictive controller is also used. Setpoint is set as per blend and test program results. Manual free cyanide backup titrations are done, using silver nitrate and rhodanine, hourly. Titrations are compared with the Cynoprobe, and appropriate action is taken if the variance is significant. Planned maintenance is done by MINTEK on the Cynoprobe. If an issue is experienced with the Cynoprobe, manual control is carried out. MINTEK has remote access to the unit from South Africa to assist in case of maintenance issues. Cynoprobe maintenance is done weekly by the Technician, and daily inspections are also carried out. A laboratory Cynoprobe is used for laboratory analyses.
The current system is deemed adequate for the plant requirements, and no additional improvements are contemplated. New technology is monitored continuously for possible use and implementation.

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:
A spreadsheet water model for Loulo Gold Mine, including the process plant, TSF and various dams was sighted. The water balance is updated monthly. This is a probabilistic water balance as it considers the daily rainfall input from six different rainfall measurement stations
The model includes: -
• tailings deposition rates including feed to the backfill plants
• precipitation, evaporation and seepage rates
• undiverted run-on from up gradient areas
• impacts of freezing and thawing - not applicable (tropical location)
During the review of the model, the input data was sighted and confirmed in the model operation. It was confirmed that the 1:50 year 24-hour storm event is used in the TSF design water balances, as well as the model (163 mm). The risk of overtopping through potential power outages is seen as low risk, as the Mine generates its own power. The power station has spare capacity to fill in any downtime by generating units. Twelve generators are in place, with four in use at any one time. Thus, power outages affecting the water pumping capacity are not a credible scenario. Operation and maintenance are outsourced to Manutention, a specialised French Company.
The new TSF Detox system at the TSF extensions at the RWD (Return Water Dam) is in operation. The old Detox system is available and may be used during the rainy season. However, the old Detox plant is currently not a cyanide facility as the WAD cyanide daily sample values are at less than the levels of detection.
Phreatic level monitoring was confirmed in the TSF inspections Monthly Monitoring System (MMS) weekly detail report and data and quarterly reviews, which includes the phreatic measurements. The TSF inspections (MMS weekly detail report and data)

and quarterly reviews include the levels of the TSF Return Water Dam and (RWD) Storm Water Dam (SWD) as well as the old Detox Ponds. This enables proactive and reactive implementation of the water balance to prevent overtopping of ponds and impoundments and unplanned discharge of cyanide solutions to the environment. The Epoch TSF design document contains a deterministic water balance considering the various rainfall events over wet and dry seasons, which was used to calculate the new TSF extensions pool, freeboard and RWD, and SWD.
The mine probabilistic water balance model is run monthly to update assumptions, and weekly Water Management Meetings are held to review the water balance. The procedure, Mine Water Consumption Monitoring, identifies responsibilities and accountabilities for the collection and management of data and monitoring of water consumption.

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 daily Cynoprobe on-line WAD and Free Cyanide analyser samples taken from Tank 5 from January 2021 to the date of the audit (19 June 2021) were sighted, and the highest WAD cyanide level recorded was 49 mg/l WAD cyanide. Other samples taken during the same period were reviewed: -
- TSF return dam: No values exceeded 50 mg/l WAD cyanide.
- TSF Stormwater dam: No cyanide detected.
- TSF tails deposit samples: No values exceeded 50 mg/l WAD cyanide.
- Plant Process water dam daily: No values exceeded 50 mg/l WAD cyanide.
- Plant PCD (Pollution Control Dam) Monthly samples and daily during rainy season: The maximum value is 12 mg/l WAD cyanide.

In addition, the WAD cyanide values from the plant process water dams and the PCD are all lower than the ICMI compliance value of 50 mg/l WAD cyanide. Thus, no measures to restrict access by wildlife and livestock to all open waters are required.
The TSF weekly inspection includes reporting of wildlife mortalities, and none were reported or recorded. It was reported by the TSF Site Manager that any wildlife mortality observed is immediately reported to the TSF Environmental Officer, who will investigate as per the procedure. Two Environmental persons are stationed permanently at the TSF to observe wildlife and any mortalities. Incidents are immediately reported and investigated by them. Reports are done verbally, by exception, when mortalities are observed. Wildlife mortalities are investigated as per the procedure: Wildlife Mortality Incident Report. The procedure includes responsibilities: -
"…3- Responsibilities
The environment department has an agent at the TSF who must report any incident involving the TSF. Anyone operating at the TSF is supposed to report any case of

animal death. (The) Environmental Officer is in charge of the investigation…."
There are no heap leach operations on the mine, so managing heap leach solutions is not an issue that needs to be managed.

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:
It was confirmed during interviews with Mine staff that no water containing cyanide is discharged into the environment. All water is contained and recycled to the plant via the lined return water dam at the TSF.
A tributary to the Falémé river is located approximately 200 m north east of the TSF and only runs seasonally. The Falémé river is sampled up and downstream of the TSF. Sample values sighted January 2021 were as follows:
- Upstream: all values are below levels of detection of 0.005 ppm WAD cyanide.
- Downstream: all values are below levels of detection of 0.005 ppm WAD cyanide.
Thus, the samples indicate that no indirect discharge to the surface water occurs.

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
All plant facilities are installed inside bunds, returning spillage to the process. The plant is fitted with extensive concrete slabs draining to the pollution control dam from where it is returned to the process. The process water dam is lined with an HDPE liner. The TSF return water dam and storm water dams are also lined with HDPE. The TSFs are equipped with toe or underdrains, removing water to the return water system. All water trenches are concreted.
Beneficial uses of specific boreholes are for human consumption, and the Malian Government limit for total Cyanide is 0.07ppm Total cyanide. Boreholes are sampled monthly by the Mine. Boreholes for human consumption are sampled quarterly by the Malian Government and analysed by the National Laboratory of Water and monthly by the Mine. The Mine analyses for WAD cyanide, Free cyanide and Total cyanide.
Samples from January 2021 to the date of the audit were reviewed and are reported as follows: -

- Upstream of the TSF: - LGW53 and 54: values are less than 0.07mg/l Total cyanide.
- Downstream of the TSF: - BH 18. BH 8B, BH 17, values are less than 0.07mg/l, Total
cyanide.
- Upstream of the Plant: - LGW 64: values are less than 0.07mg/l, Total cyanide.
- Downstream of the plant - LGW 63: values are less than 0.07mg/l, Total cyanide.
- Note: levels of detection are 0.005 ppm total cyanide.

Boreholes for human Consumption sampled - LGW TP: values are less than 0.07mg/l, Total cyanide.

The mine uses underground backfill prepared by cycloning. The WAD cyanide standard for underground backfill is to detoxify the material in a detoxification plant to less than 0.5 mg/l WAD cyanide. Backfill is prepared in batches, and no batch is permitted to go underground unless it meets the standard requirement. It is therefore deemed that the backfill facility (underground) is not a cyanide facility, as per the ICMI definition, and not part of the scope of the audit. It was confirmed that the backfill is detoxified in the detoxification plant to less than 0.5mg/l from reviewed batch results since January 2021.

It was not reported that seepage from the operation has caused the cyanide concentration of the ground water to exceed that necessary to protect its beneficial use; therefore, no remedial activity to prevent further degradation and restore beneficial uses was necessary or conducted.

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 confirmed during the site inspection that the cyanide mixing tank and dosing tanks are placed on four layers of impervious HDPE lining. The tanks were repaired as per the RBI (Risk Based Inspection) inspection recommendations. A baseline RBI inspection was conducted by an external professional Engineer. The RBI inspections report was reviewed and included the broader RBI risk assessment and priorities. The report covered CIL tanks, Reagent cyanide tanks, and the Intermediate plant tanks covering the cyanide facility tanks under the RBI based inspections. The report also includes the following headings: Category, system description, equipment description, containment volume, summary of risk/failure, ranking based on the risk matrix, corrective action required, time scale, implementation dates, responsibility, governance, status and remarks. The on-going corrective actions are included in the PRAGMA planned maintenance system, and the application for funding to carry out the additional repairs is in progress.

All tanks and their secondary containments were reviewed and sampled during the site inspection. This confirmed that the secondary containments for all cyanide unloading, storage, mixing and process tanks were sized to hold a volume greater than that of the largest tank within the containment and any piping draining back to the

tank, and with additional capacity for the design storm event. Where there was insufficient containment capacity, the bunds were linked to other bunds to achieve the required containment capacity.
It was confirmed during site inspection that all bunds are equipped with sump pumps, returning spillage to the process. All high strength cyanide bunds are equipped with bunds and sump pumps, which are manually started.
The reagent strength cyanide pipeline from the mixing tank to the dosing tank runs across competent concrete areas, draining to the PCD (Pollution Control Dam) in case of leaks. All process solution pipelines within the Plant fall within or under concreted or bunded areas. The TSF tailings and return water pipelines are placed inside earth trenches. Low point collection paddocks are installed to retain flow downstream of pipe leaks from the trenches. Continuous foot/bicycle pipe patrols are conducted, and leaks are reported by exception.
It was noted that the TSF residue and return water pipelines cross a few intermittently flowing streams. It is reported that these streams dry up in the dry season. The streams are routed underneath the pipe trench, through concrete pipes and culverts, to divert them away from the streams. The pipeline rupture procedure requires that spills be cleaned up as soon as possible and all resulting wastes are disposed of on top of the tailing facility. It was confirmed that the plant cyanide pipelines do not present any risk to surface water. The cyanide tanks are made of carbon steel, the pipelines are made of HDPE (High Density Polyethylene), and the valves are made of stainless steel, all of which are compatible with cyanide and high pH conditions.

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:
No new plant facilities were constructed, thus negating the need for additional QA/QC (Quality Assurance/Quality Control) documentation. A new extension to the TSF (Tailings Storage Facility) was commissioned in November 2020. It was confirmed that the TSF was designed by Epoch Resources. The Detailed Design Report for The Loulo Gold Mine Tailings Dams Extension Project was sighted and reviewed. In an interview with Andreas Trakoshis, B.Sc. Eng. (Civil), of Epoch Resources (Pty) Ltd, it was confirmed that Epoch used a QA / QC program for the construction of the extensions of the TSF. He further confirmed that all the construction and design documents, including the QA /QC records, are electronically stored at Epoch South African Offices. Detailed electronic QA/QC records were reviewed and sampled. Documentation included the Compaction Control Data Summary for Area: Tailings Dam Extension: Southern Wall - Block C and Filter Material Sieve analyses for TSF aggregate, west extension construction.
The TSF QC (Quality Control) Files and Handover Certificate for the Return Water Dam (RWD), signed by M&T representative Epoch, the client representative, dated

25/07/2020, and the Client Engineering representatives were sighted. The handover includes a full RWD quality files itinerary, construction completion certificate, HDPE liner installation data pack for 428 panels and 28 178 m2, as well as the RWD snag lists. The TSF QC Files and Handover Certificate for the Storm Water Dam (SWD), signed by M&T representative Epoch, the client representative, dated 25/07/2020, and the Client Engineering representatives, was also sighted. The handover includes a full SWB quality files itinerary, construction completion certificate, as well as snag list sign-offs. The TSF QC Files and Handover Certificate, and Final Hand Over Certificate for the Tailings Dam (TSF), signed by M&T representative Epoch, the client representative dated 217/08/2020, and the Client Engineering representatives, were sighted. The handover includes a full TSF quality files itinerary, construction completion certificate. The completion certificate includes sign-off by the Epoch Engineer, Chandre Van Der Vorst, to confirm the project was constructed and checked against the latest design drawings, jointly punch listed, and the punch list worked off by the Contractor to the satisfaction of all parties.
Plant structural inspections were done in 2017, and PRAGMA job cards were issued for these inspections. This was done by a third-party inspection structural engineer, Loulo and Gounkoto Mines Structural Report by SENET Loulo and Gounkoto Mines. The high-level finding was, "… Generally, the plant as a whole is in reasonably good condition…."

Standard of Practice 4.9: Implement monitoring programs to evaluate the effects of cyanide use on wildlife, 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 operation has a cyanide sampling and analysis procedure, which was checked by an ICMI Mining Auditor and Sampling and Analysis consultant. The procedure contains: - sampling frequencies; cyanide species to be sampled; a sampling point location table specifying species to be analysed for, location, procedure, and frequency; sample preservation and chain of custody requirements; and Quality Control measures. The environmental laboratory procedure using continuous flow analyses (FS3100) is coupled with an amphoteric detector for WAD analyses. A sampling sheet, in French, was sighted, which includes comment space for weather, livestock/wildlife activity, and anthropogenic influences. It was confirmed that the operation has no discharge to surface water, but the sampling map demonstrates that samples are taken up and downstream of the plant and TSF.
Staff based at the TSF monitor for wildlife mortalities and report to the Environmental Department. Wildlife mortalities are investigated in terms of the procedure entitled Wildlife Mortality Incident Report. Excerpted from this procedure, it states: -
"…3- Responsibilities
The environment department has an agent at the TSF who must report any incident involving the TSF. Anyone operating at the TSF is supposed to report any case of animal death. Environmental Officer is in charge of the investigation..."

Training material was sighted in a presentation (given on WebEx due to Covid restrictions) entitled, "*Barrick Mali Wildlife mortality incident investigation at Tailings Storage Facility*", given by Boubacar R Diakite (Barrick Cyanide Champion) on 9 February 2021.
After viewing the sampling frequency and procedure section and table detailing sampling points and frequencies, the auditors deem the sampling frequencies adequate.

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 and livestock.

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 Loulo Gold Mine International Cyanide Management Code Compliance, Loulo Decontamination and Decommissioning Plan, dated May 2020, was sighted and reviewed. The Plan contains 9 main sections: - Introduction; Scope of this Plan; Site description; Health and Safety considerations, Decontamination and Decommissioning; Area specific plans; Implementation schedule; Audit and Review, and Bibliography. The Plan specifically includes a preliminary Implementation Schedule for Loulo Gold Mine Processing Plant Decommissioning and Decontamination. The Plan states that the Plan will be revised/updated annually as part of the review and updated of the Operation's Mine Closure Plan.

Standard of Practice 5.2: Establish an 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 Annual Closure Cost Assessment – September 2020 Update, Loulo Mine, prepared by Digby Wells Environmental, was sighted and reviewed. The report includes the following: -
"...Allowance has been made for the decontamination and clean-up of the Plant. This consists of:

● Floor clean up: 10ha of the soil at the Plant will be removed at a depth of 0.3m and processed through the Plant. This activity is seen as an economic activity but will also remove any contamination;
● Infrastructure clean-up and decontamination: The crushers and mills will need to be cleaned. The thickeners, Carbon in Leach (CIL) tanks, reagent tanks and tailings tanks will also need cleaning. Cyanide decontamination of the plant has been included. This involves the flushing of tanks such as the CIL with copper sulphate. The methodology developed includes equipment, staff, chemicals (copper sulphate) and electricity costs. It is estimated that the clean-up process will take roughly 10 months to complete..." All cyanide-related decommissioning action estimates are based upon 3rd Party implementation.
The Malian Government now requires that funding for closure, decontamination and decommissioning be lodged in a separate financial instrument. Loulo Mine is in a transitional process to establish a financial instrument acceptable to the Malian Government. In the meantime, Loulo Mine has reserved funding for closure, decontamination and decommissioning in its balance sheet.
Sighted a Barrick Gold Corporation Letter of Financial Strength, dated 29th March 2021 and signed by Graham Shuttleworth, Senior Executive Vice-President and Barrick Chief Financial Officer, using tests set forth in 10 CFR Part 30, Appendix A to demonstrate financial assurance, as required by 10 CFR Part 40, Appendix A Criteria 9 (approved by ICMI) addressed to the US Nuclear Regulatory Commission: Decommissioning, Uranium Recovery and Waste Program, and relating to Homestake Mining Company, a wholly-owned subsidiary of Barrick Gold Corporation, Canada. Also sighted was a letter dated 19th July 2021 from John Behrens, Director of Business Assurance and SOX for Africa and the Middle East, Barrick Gold Holdings, stating that Loulo Gold Mine is a subsidiary of Barrick Gold Corporation, Canada.

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 or 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 cyanide procedures were reviewed and checked to ensure the minimising of worker exposure. The procedures sampled included: - Procedures PRO-002 to 011 covering all cyanide solids unloading and mixing through to cyanide transfer activities; Cleaning of Cyanide Contaminated Equipment; Maintenance on Cyanide Valves; and the Confined space entry procedure. All procedures reviewed included

the required Personal Protective Equipment (PPE), the cyanide safety equipment to be on hand, and the appropriate pre-work inspections and risk assessments required for the tasks.
The operation's Cyanide Management of Change Procedure was sighted and reviewed. A MOC (Management of Change) exercise covering the cyanide handling and dosing tanks liner in order to be environmentally friendly was reviewed. It was confirmed that the document was signed off by the Safety and Health Manager and the Environmental and Community Managers.
Worker inputs on health and safety issues generally are included in daily and shiftly toolbox meetings and talks, which include all plant staff. The meeting file for 2021, including all departments, was reviewed and sampled. Topics noted included Risk assessment, Incident reporting, Cyanide emergency PPE donning and doffing, Cyanide awareness, Near miss reporting, and Rainy season safety. It was confirmed in interviews that attendees can raise any issues (including health and safety procedures) during Tool Box talks.

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 appropriate pH for maintaining high pH is indicated on noticeboards to be pH 10.1 to 10.3. The Sodium Cyanide Briquettes Make-Up Procedure includes an item that states that 5 x 25 kg = 125 kg of caustic are added to the cyanide-mixing tank for each mixed batch to maintain a high pH.
The plant has 12 x fixed Polytron HCN gas monitors and 5 x Dräger XAM 5000 portable HCN gas monitors on site. Warning/hot spot signage was sighted at the dosing point, at the CIL, and at the Cyanide mixing and cyanide dosing tanks. A sample hot spot survey dated 28-03-2021 was sighted, covering the Cyanide Mixing tank, the Cyanide dosing tank, the Zadra tank and the Tank #2 addition point. All readings were 0 ppm HCN gas.
The 12 x fixed polytrons and 5 x XAM 5000 multi-gas monitors are maintained and calibrated by the Instrumentation Department. The Instrumentation Department has the required equipment and gas standards to calibrate the units. All monitors have two alarm settings, 4.7 ppm over an eight-hour period, and 10 ppm instantaneous reading.
In the case of the 4.7 ppm alarm, a supervisor will investigate the cause, which is usually false density of lime, a shortage of lime or faulty calibration. In the case of a 10 ppm instantaneous alarm, all workers will evacuate to emergency assembly points.
A fixed monitor calibration sheet and the SOP (Standard Operating Procedure) for calibration of HCN gas monitors were sighted and reviewed. The instrumentation staff were trained by Dräger, the monitor manufacturers. All calibrations are recorded on Job cards in the PRAGMA PMS system. The Dräger training competence certificates for three instrumentation staff were sighted. Refresher training or

replacement of the certificate is only required if monitors are changed or upgraded by Dräger. Proof of calibration during the electronic review of PRAGMA PMS was sighted.
It was confirmed during the site inspection that appropriate warning signage was placed at the entrance to the reagent area, the cyanide mixing tank area and the cyanide dosing tank area. Warning signage at the entrance to the TSF, indicating that cyanide may be present and that unauthorised access was not permitted, was sighted. Signage also indicated what PPE (Personal Protective Equipment) is required. The plant mixing operator adds carmoisine dye to the mixing tank at each mix of cyanide briquettes so that cyanide solution is clearly identifiable.
During the site inspection, it was confirmed that safety showers, including eye wash basins and fire extinguishers, are located in all critical areas. Safety shower inspections are included in the PRAGMA system. It was confirmed in the PRAGMA system electronic review that safety showers are inspected by the Fitter on a weekly basis. Fire extinguishers are inspected by an external Company on a monthly basis. Inspections are marked on a label on the fire extinguishers. If faults are found on the fire extinguisher, it is replaced with a new one.
During the site inspection, it was confirmed that unloading, storage, mixing and process tanks and piping containing cyanide were appropriately labelled and colour coded. The Hebei cyanide SDS (Safety Data Sheet) in French was sighted on the plant. TSF pipelines are labelled in Bambara (local dialect), French and English, as not potable and toxic.
All incidents are investigated as per the Loulo - Barrick incident procedures. No cyanide exposure incidents have been reported to date. An incident that was fully reported and investigated was sighted. The report dated 10/03/2021 related to a Driller who was injured by a non-standard response to equipment failure. The report includes: - reports, analyses, conclusions and recommendations.

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 plant has 6 cyanide emergency cabinets located at: - Reagents' area, Elution CIL area, the Gold Room, the Metallurgical Laboratory, the Intermediate Plant, and the Training Room. It was confirmed during the site inspection that cyanide antidote is stored in a fridge in the cabinet. Medical oxygen, face masks and canisters, and manual resuscitators were sighted and are stored in the cabinets. Potable water, radios, cell phones, and a mandown alarm system was confirmed to be used and available. Cyanide emergency cabinets are inspected weekly, and the weekly checklists for the cabins for 2021 were sampled.
Safety showers are also alarm linked with the control room. This was confirmed by testing during the site inspection and a visit to the control room to view the SCADA (**S**upervisory **C**ontrol **A**nd **D**ata **A**cquisition) systems.

The Cyanide Emergency Preparedness and Response Plan, the Emergency Team Procedure for Cyanide Spill, and the Emergency Medical Evacuation Contact Details documents were sighted and reviewed.

An on-site clinic is available to treat cyanide emergencies. The six plant cyanide emergency cabinets contain a TriPac, each stored in fridges. An interview with the doctor, and a clinic site visit, confirmed that TriPac cyanide antidote kits (stored in Fridges), Cyano kits (antidotes stored in the pharmacy), a cyanide emergency doctor's bag including PPE, an emergency room that could handle one patient, with options to transfer multiple cases to two other rooms, and oxygen connections, are available in the clinic. The cyanide antidote kits are ordered based on a PRAGMA PMS instruction to the Doctor and Pharmacy.

In the case of cyanide patient evacuation, there is a specific procedure in place covering this, and it contains the following specific guideline, "…The site Medical Doctor works hand-in-hand that (sic) outside entities included in the Emergency Response Plan are aware of their involvement in the ERP and also confirm they have the facilitates and qualified staff to treat cyanide patients…."

Formalised arrangements and communications with medical facilities showing the operation has assured that the medical facility has adequate, qualified staff, equipment and expertise to respond to cyanide exposures are included in the document, "*Polyclinique Guindo: Protocole Protoc-Lntox-CYAN INS-001 Polyclinique Guindo Prise En Charge des Intoxications aux Cyanures et Derives (Protocol Protoc-Lntox-Cyan Ins-001 Polyclinique Guindo Management Of Cyanide And Derivatives Intoxications)* which includes: - *Procedure de Traitement* (Treatment Procedure)."

The procedure, "In case of Cyanide Patient evacuation", was sighted and it includes the following: - "…The site Medical Doctor work hand-in-hand that outside entities included in the Emergency Response Plan are aware of their involvement in the ERP and also confirm they have the facilitates and qualified staff to treat cyanide patients…."

In the Emergency Response Plan, the section, Training, Testing and Updating, covers emergency drills. There is an Emergency Drill programme in place, and the programme for 2021, including three cyanide drills, was sighted. This included: -

- Release of High Strength cyanide solutions at Reagent - April 2021
- Cyanide Solid Spillage - August 2021
- Cyanide attack (gas release) at CIL - October 2021

A drill report for Top of the CIL, at Cyanide addition point on 14th October 2020 at 11H17 was sighted. The drill scenario was HCN gas contamination, and it was a full cycle drill to the clinic. The report included the timeline and sequence of events. It also included strengths and shortfalls. The recommendations included completion status % (all 100% completed).

A Drill report covering Cyanide make-up tank replacement on 8th April 2021, at 09h30, was reviewed. The scenario was that on Thursday 8th April 2021, there was HCN gas contamination during cyanide make-up tank replacement, due to cyanide solution spillage, and a welder fell down and became unconscious. The drill was to test the knowledge of the employees of their roles and responsibilities. Recommendations emerging from the mock drill included the need for quarterly refresher training to speed up responses; the spill response was weak and needed refreshing; minor equipment items (tarpaulin and torch and batteries) were found to be missing, and an HCN monitor was found to be not calibrated. All the action items have been completed except for the delivery of the missing items.

A TSF Cyanide Emergency Drill Report was reviewed. The scenario was that at 14:38, a by-passer saw a spillage from the TSF pipeline at 4.0 Km. He immediately called the Process Plant control room and reported the spillage. The Report included the Scenario timeline and sequence of events, strengths and shortfalls and recommendations. A debriefing session was held with all the participants to discuss responses and areas of improvement.

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:
Three documents were sighted and reviewed regarding cyanide emergency response: - the Cyanide Emergency Preparedness and Response Plan (ERP), the Emergency Team Procedure for Cyanide Spill, and the Emergency Medical Evacuation Contact Details procedure.
The ERP contained a series of responses to site-specific scenarios, either using specific detail in the Plan or referring or cross-referencing to other documents or procedures. The scenarios included:- Catastrophic release of HCN gas; Explosions and fires involving cyanide; Cyanide transport incidents (within the site); Spillage of cyanide briquettes during offloading; Explosions and fire involving cyanide; Cyanide pipe, valve and tank ruptures; Overtopping of cyanide ponds and impoundments; Power Outages at CIL and the Elution Circuit in the Process Plant; Pump Failure at CIL Process Plant; Uncontrolled Seepage of Cyanide (plant) and Response to a dramatic increase in seepage flow (TSF); Failure of cyanide destruction or recovery systems; Response to Dam failure or Potential Dam Breach (TSF); and Cyanide transport incidents (external to the site).
The Plan also includes reference to Evacuation of the Surrounding Community of TSF; Cyanide first aid measures; Spillage of Cyanide briquette during offloading, Accidental release of cyanide (small quantity); and Accidental release of cyanide (medium-large quantity).

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 workforce is involved in the emergency response planning process through involvement in cyanide drills and feedback sessions. Stakeholders and potentially affected communities are subject to presentations, which include appropriate emergency response information, during community meetings as a part of Principle 9 Dialogue sessions.
Medical staff are involved in mock drills, and emergency response information is passed on to these personnel during the feedback and discussion sessions.

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 roles and responsibilities of response coordinators are included in the Plan in the sections under Callout Procedure and in the response flow diagrams. The Plan also identifies the Emergency Response Team (ERT) and includes training needs for the Emergency Response Team. Appendices in the ERP include Internal Emergency Contact List on 24 Hours; Internal Emergency Contact List; and the Emergency Medical Evacuation Contact Details. The ERP also includes an inventory of Emergency Response Tools and materials.
Emergency equipment weekly inspection sheets covering contents of emergency cabinets and other emergency equipment were sighted and reviewed.
The site Medical Doctor is responsible for ensuring that outside entities are aware of their roles in the ERP (where appropriate) and that they have the facilities and qualified staff to treat cyanide patients. Evidence of doctors being trained in cyanide first aid was sighted.

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 Response Plan (ERP), Section 5, detailed under, roles and responsibilities of the E&C (Environment & Community) Manager and the General Manager, it states that the General Manager shall provide all necessary support and assistance to the Health & Safety Manager during an emergency. The General

Manager also decides whether information should be released to the Media. The General Manager will also communicate with the media, EXCO (Executive Committee), the relevant regulatory body etc., as may be required.
Contact information for notifying potentially affected communities of a cyanide-related incident and any necessary response measures is included in the ERP.

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

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:
Specific remediation measures are described under the various release scenarios, and although the core remediation activities are the same, they are tailored to the specific scenarios. The scenarios covered are:- Accidental release of cyanide (small quantity); Accidental release of cyanide (medium-large quantity); Release of High Strength cyanide solutions; Release of low Strength cyanide solutions; Release of Cyanide during Dry Conditions; Release of Cyanide during Wet Conditions; Uncontrolled seepage of cyanide; Decontamination of a spill of solid/liquid cyanide into soil; Use of Calcium hypochlorite for Decontamination Purposes; Response to Groundwater Pollution to minimize the impact on Community; Response to Surface water Pollution; and Response to Soil Pollution.
The provision of alternate drinking water supply is addressed in the scenario related to Response to Groundwater Pollution to minimize the impact on the Community. In the scenario dealing with the accidental release of cyanide (medium-large quantity), it is stated that if the spilled product has the capability of reaching surface water supplies or seeping into surface water, no calcium hypochlorite, ferrous sulphide or hydrogen peroxide may be used in the decontamination of the area.
In the Cyanide Sampling and Analyses Procedure, the sampling of cyanide solutions in soils, surface and groundwater are covered, and the sampling locations of boreholes and surface streams are indicated on the sampling map included in the procedure.

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:
In the Plan, it is stated that the Emergency Response Team (ERT) will be testing the emergency response procedures by conducting regular mock drills for different

scenarios and that records will be kept. It further states that the ERT will evaluate the drill outcomes and update the procedures, as necessary.
In the Emergency Response Plan, the section, Training, Testing, And Updating, covers emergency drills. There is an Emergency Drill programme in place, and the programme for 2021, including three cyanide drills, was sighted. This included: -
- Release of High Strength cyanide solutions at Reagent - April 2021
- Cyanide Solid Spillage - August 2021
- Cyanide attack (gas release) at CIL - October 2021

A drill report for Top of the CIL, at Cyanide addition point on 14th October 2020 at 11h17 was sighted. The drill scenario was HCN gas contamination, and it was a full cycle drill to the clinic. The report included the timeline and Sequence of events. It also included strengths and shortfalls. The recommendations included completion status % (all 100% completed).
A Drill report covering Cyanide make-up tank replacement on 8th April 2021, at 09h30, was reviewed. The Scenario was that on Thursday 8th April 2021, there was HCN gas contamination during cyanide make-up tank replacement, due to cyanide solution spillage, and a welder fell down and became unconscious. The drill was to test the knowledge of the employees of their roles and responsibilities. Recommendations emerging from the mock drill included the need for quarterly refresher training to speed up responses; the spill response was weak and needed refreshing; minor equipment items (tarpaulin and torch and batteries) were found to be missing, and an HCN gas monitor was found to be not calibrated. All the action items have been completed except for the delivery of the missing items.
A TSF Cyanide Emergency Drill Report was reviewed. The scenario was that at 14h38, a by-passer saw a spillage from the TSF pipeline at 4.0 Km. He immediately called the Process Plant control room and reported the spillage. The Report included the Scenario timeline and sequence of events, strengths and shortfalls and recommendations. A debriefing session was held with all the participants to discuss responses and areas of improvement.
In the ERP, Section 40. Training Needs for The Emergency Response Teams, it states. "…- The ERT will be testing the emergency response procedures by conducting regular mock drills for different scenarios and keep records.
- The ERT will be doing an evaluation on the drill outcome, and update procedures, if necessary…". This evaluation will also be undertaken after any cyanide-related incidents where ERP implementation occurs.

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:
The training matrix induction results were sighted, including cyanide first aid and cyanide awareness training test results 2021, including TSF contractor, Paragon, Security, various Contractors, Process staff, and Engineering staff. The pass mark for the written exam is 80%. The training is repeated until the pass mark is achieved.
The Cyanide First Aid training (given to all plant employees, including emergency Responders) matrix with the scores, was reviewed. The successful employee receives a purple card identifying him or her as having completed the first aid training.
The Cyanide Induction presentation was sighted and included: what cyanide looks like, white briquettes and red solution, causes of cyanide poisoning, recognise areas where cyanide and equipment can be found, precautions to be taken in the cyanide areas, cyanide poisoning modes, symptoms of cyanide poisoning and emergency response equipment in the emergency cupboard, PPE required when working with cyanide, exposure limits, antidotes and demonstration package of TriPac, emergency response decontamination, first aid, cyanide antidotes including Amyl Nitrate and medical oxygen (administered by Emergency Response Team (ERT)), Thiosulphate, Hydroxocobalamin and TriPac (administered by the Doctor only), emergency response demonstrating the decontamination and cyanide first aid required for cyanide patients, and information required for the Doctor when the ambulance arrives.
The training matrix includes a coding: - Training Completed (TC), Training Not Needed (TNN), Training Needed (TN), to assist in rapid assessment of the state of completion of training and refresher training on cyanide induction. The review of the training matrices confirmed that training was up to date.
Refresher training on cyanide induction is carried out annually on return from leave. The interviewees were used as a sample to test cyanide training records' completeness, which was found to be satisfactory. Samples of all training records for current cyanide awareness for interviewees were sighted. It was confirmed that Training records are retained.

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:
The training matrix, including site induction, was sighted. The training matrix includes the training elements for each job in the training needs analyses, showing Training Needed (TN) per person. The matrix includes operational task training, and the Standard Operating Procedures (SOPs) are used for task training. The training matrix includes site induction and task training using the same coding: - Training Completed (TC), Training Not Needed (TNN), Training Needed (TN).
The TSF contractor, Paragon, trains its staff in the tasks performed on the TSF. The TSF detailed training matrix was sighted, including all the tasks and the training needs analyses. The matrix includes all the procedures the staff needs to be trained on and

also uses the coding: - Training Completed (TC), Training Not Needed (TNN), Training Needed (TN).
The Plant Trainer is the Training and Reagent Foreman. He has completed a Train the Trainer course, holds a BSc degree in English, and has 21 years of experience in the mines. His assistant has a BA degree in Teaching and has 8 years plant experience working on the SCADA. The TSF Site Manager does the training and has 11 years' experience on TSF operations, has completed various TSF courses, and holds a Diploma in Mineral Processing.
All new employees will receive induction, cyanide awareness and Cyanide first aid training before being allowed onto the plant. Written tests are conducted, which require an 80% pass mark. A sample of results was reviewed. Once on the plant, he/she is given the necessary procedures to study, and receives on-the-job training from the Training Officer. A PTO (Planned Task Operation) is conducted on the operator by the Supervisor to declare him competent to do the job. Following the PTO finding him/her competent to do the job, he/she is allowed to perform the tasks without supervision. A PTO schedule was sighted for 2021. The Supervisors are required to do two PTOs per month each, on every section. If deficiencies are identified by a PTO, refresher training will be given. Examples of completed PTOs were reviewed and found to be satisfactory. There is currently a PTO training program for Supervisors being undertaken as part of continuous improvement, which is not quite complete.
It was confirmed during an interview with the TSF Site Manager that Safe Working Procedures are used, followed by PTOs, before the employee is allowed to work at the TSF. Refresher training is given as per the requirements in the training matrix.
PTOs records were sampled for both the Plant and the TSF and found to be satisfactory.

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:
The Emergency Response Team (ERT) Training Matrix was sighted. The Training title list for the ERT includes: - Emergency PPE Donning and Doffing, PTO and effectiveness training, cyanide decontamination, cyanide issue-based risk assessment, cyanide ERP training, cyanide SOP training, HAZCHEM (warning plate system used for vehicles transporting hazardous substances, and on storage facilities) spillage training, Confined space, Cyanide SDS training, Management of Change, cyanide First Aid, Basic Fire Fighting, Cyanide awareness training, and plant-specific Induction. All cyanide unloading, mixing, production and maintenance personnel, are trained in the procedures to be followed if cyanide is released, as well as cyanide first aid and basic firefighting.
The ERT participates in all site cyanide drills, as do all cyanide unloading, mixing, production and maintenance personnel.

The local clinic on the Mine is involved in all emergency drills and cyanide training. No outside responders are used. Formalised arrangements and communications with medical facilities showing the operation has assured that the medical facility has adequate, qualified staff, equipment and expertise to respond to cyanide exposures are included in the document, "Polyclinique Guindo: Protocole Protoc-Lntox-CYAN INS-001 Polyclinique Guindo Prise En Charge Des Intoxications Aux Cy Anures Et Derives (Protocol Protoc-Lntox-Cyan Ins-001 Polyclinique Guindo Management Of Cyanide And Derivatives Intoxications) which includes: - Procedure De Traitement (Treatment Procedure)."

The procedure, "In case of Cyanide Patient evacuation", was sighted and it includes the following: - "…The site Medical Doctor work hand-in-hand that outside entities included in the Emergency Response Plan are aware of their involvement in the ERP and also confirm they have the facilitates and qualified staff to treat cyanide patients…."

External General First Aid training is refreshed every year, and Cyanide First Aid is refreshed every 6 months.

In the Emergency Response Plan, the section, Training, Testing, And Updating, covers emergency drills. There is an Emergency Drill programme in place, and the programme for 2021, including three cyanide drills, was sighted. This included: -

- Release of High Strength cyanide solutions at Reagent - April 2021
- Cyanide Solid Spillage - August 2021
- Cyanide attack (gas release) at CIL - October 2021

A drill report for Top of the CIL, at Cyanide addition point on 14th October 2020 at 11h17 was sighted. The drill scenario was HCN gas contamination, and it was a full cycle drill to the clinic. The report included the timeline and Sequence of events. It also included strengths and shortfalls. The recommendations included completion status % (all 100% completed).

A Drill report covering Cyanide make-up tank replacement on 8th April 2021, at 09h30, was reviewed. The Scenario was that on Thursday 8th April 2021, there was HCN gas contamination during cyanide make-up tank replacement, due to cyanide solution spillage, and a welder fell down and became unconscious. The drill was to test the knowledge of the employees of their roles and responsibilities. Recommendations emerging from the mock drill included the need for quarterly refresher training to speed up responses; the spill response was weak and needed refreshing; minor equipment items (tarpaulin and torch and batteries) were found to be missing, and an HCN monitor was found to be not calibrated. All the action items have been completed except for the delivery of the missing items.

A TSF Cyanide Emergency Drill Report was reviewed. The scenario was that at 14h38, a by-passer saw a spillage from the TSF pipeline at 4.0 Km. He immediately called the Process Plant control room and reported the spillage. The Report included the Scenario timeline and sequence of events, strengths and shortfalls and recommendations. A debriefing session was held with all the participants to discuss responses and areas of improvement.

The Trainer is present at all drills: He is with the Emergency Coordinator, and any shortfalls identified during the drill are addressed. A training requirement was identified during the drill: "Conduct a refresher training on cyanide first aid treatment " and this was completed. Emergency training has been carried out, and competency assessments were undertaken via Trainer's observations. More detailed records will be kept for future training.

9. DIALOGUE: Engage in public consultation and disclosure.

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

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:
Dialogue meetings are two-way dialogue sessions involving both dissemination of information and the answering of questions on cyanide.
Stakeholders identified were: The Prefect, The Mayor, Chiefs of villages, youth representatives, women representatives, Government representatives, and community union members.
The Communication forums identified and established included meetings. The local radio station is used, and every community meeting is used for interviews and is broadcasted. The meeting minutes are all discussed in radio programmes. The meetings include presentations supported by a knowledgeable Metallurgist. Photographs of meetings and plant visits were sighted. The meetings included presentations, in French and the local language, on the subject of the risk of cyanide. Meetings also include demonstrations of cyanide safety equipment.
Pipeline communication meetings include informing the community that the pipeline contains dangerous chemicals and the risks associated with spills and pipeline breaches. Photos of a visit to the pipeline as part of the community and stakeholder dialogue were sighted.
In the past, the main concerns raised regarding cyanide were based upon ignorance and fear. The mines efforts to correct misconceptions and present facts about safety management of cyanide seemed to have reassured the community that the mine is managing the cyanide as safely as possible. False information regarding the pipeline was spread and was addressed in the meetings and corrected.
Cyanide awareness training is conducted during meetings. A flyer issued, including the routes of entry, clinic address, emergency procedures in case of spill, symptoms, different cases of poisoning, contact telephone numbers, and location of the mine, was sighted. The leaflet was presented to meetings on 9 February 2020 and in December 2020. Community meetings are held monthly, and joint community/ cyanide meetings are held three monthly. Burning issues raised are addressed immediately and treated as urgent.

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

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:
Dialogue meetings are two-way dialogue sessions involving both dissemination of information and the answering of questions on cyanide.
Stakeholders identified were: The Prefect, The Mayor, Chiefs of villages, youth representatives, women representatives, Government representatives, and community union members.
The Communication forums identified and established included meetings. The local radio station is used, and every community meeting is used for interviews and is broadcasted. The meeting minutes are all discussed in radio programmes. The meetings include presentations supported by a knowledgeable Metallurgist. Photographs of meetings and plant visits were sighted. The meetings included presentations, in French and the local language, on the subject of the risk of cyanide. Meetings also include demonstrations of cyanide safety equipment.
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Standard of Practice 9.3: 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 9.3**

□ not in compliance with

Basis for this Finding/Deficiencies Identified:
A flyer issued, including the routes of entry, clinic address, emergency procedures in case of spill, symptoms, different cases of poisoning, contact telephone numbers, and location of the mine, was sighted. The leaflet was presented to meetings on 9 February 2020 and December 2020. The literacy levels are very low. Thus, Bambara and Fulani, the local languages, are used to explain presentations prepared, initially, in French. Pictograms and photographs are also used for presentations and explanations.

Local Doctors also visit the Mine to get more knowledge on cyanide and attend refresher training.

The General Manager reports all incidents to the Regional Head Office in Bamako, and the Authorities, in the case of relevant incidents. All incidents are also reported in the SharePoint system, which is available to all Barrick Mines. The Malian Ministry of Environment investigates relevant incidents on-site and also makes the information available publicly.

Barrick will put incident information on their website, which is publicly available. The Environment section of the Barrick Sustainability Report, which includes a section headed, Cyanide Controls, was reviewed. This describes the Company's Signatory status to the ICMC (International Cyanide Management Code) and reports that there were no significant cyanide-related incidents in 2020. The website address is:

https://www.barrick.com/English/sustainability/environment/default.aspx