

***INTERNATIONAL CYANIDE
MANAGEMENT INSTITUTE***

***Cyanide Code Compliance Audit
Gold Mining Operations***

***Summary Recertification
Audit Report***

***SEMOS(Société d'Exploitation des Mines
d'Or de Sadiola)
Sadiola Gold Mine
Mali***

14th – 20th October 2022

***For the
International Cyanide Management Institute
Cyanide Code***



Name of Operation: Sadiola Gold Mine

Name of Operation Owner: Allied Gold Corporation

Name of Operation Operator: Société d'Exploitation des Mines d'Or de Sadiola

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Location detail and description of Operation

Location Detail

The Sadiola Gold Mine is an open pit mine located in the Kayes region, 80 kilometres from Kayes town in Mali (West Africa).

Process Plant Description

The processing uses the conventional plant consisting of crushing, milling, leach adsorption and elution. The elution uses the AARL (Anglo American Research Laboratory) process. Solid sodium cyanide briquettes are delivered by ICMI (International Cyanide Management Institute)-certified trucks in containers, each holding 20 x one-ton boxes, and stored in a dedicated, customized cyanide warehouse. The briquettes are mixed to create liquid sodium cyanide which is stored in dedicated sodium cyanide storage tanks. The plant consists of two twin streams capable of processing soft oxide and soft sulphide with a limited number of hard components.

1. Ore reception section

The ore is loaded into the surge bins below which are apron feeders feeding mineral sizers at a variable speed that allow controlling the feed rate. The ore fractions prior to the milling are reduced to 100% passing 300 mm size from a maximum feed fraction size of 900 mm from grizzly bars on top of the bins. Each stream is capable to deliver a maximum of 400 tph (tons per hour) of ore.



2. Milling section operation

There are two primary mills receiving fresh ore from the ore reception by conveyor belt transportation. The primary mills can run on open or close circuit. The mills are running in open circuit when the underflow of the primary mill cyclones feeds the regrind mill. But when the cyclone underflow returns back into the mill, thus the mill is on close circuit. The ore is milled to obtain a product with a density of 1.45 to 1.50 containing a minimum 45 % of 75 microns. The mill product is diluted in the discharge sump to reach the required cyclone feed density between 1.35 and 1.40 depending on the ore type. The water pumped from TSF to the plant is used in the milling process. The WAD cyanide level is below detection limits (WAD cyanide <0.5ppm) and therefore the milling section, in terms of ICMI definitions, does not form a part of the scope of the recertification audit. The hydro cyclones (Krebs cyclones) classify the slurry to get an overflow with a minimum 80% of fractions minus 75 microns. The throughput averages 330 tph in open circuit and 270 tph in close circuit. The viscosity modifier is added into the mills when the slurry viscosity is above 80 kpa (kilopascals). A gravity plant installed since December 2008 consists of a screening facility, a falcon concentrator and a Gekko unit used for intensive cyanidation in the leach reactor. The pregnant solution is pumped to electrowinning in the smelt house and the solids residue back to the regrind mill.

3. Leaching section

The cyclone overflow passes through linear screens prior to discharging into the pre-oxidation tanks. There are EDR (Energy Designed Rating) pumps connected to the pre-oxidation tanks to supply oxygen through injection points on the pipeline. During sulphide ore treatment it is necessary to add some hydrogen peroxide in order to increase the dissolved oxygen concentration to the right level and maintain it. The pre-oxidation tank overflows into the surge tank where the lead nitrate is added at a rate of 300 g/t during sulphide treatment. No lead is added when processing oxide ore. The lime addition is performed in tank 1. An EDR pump is fitted to that tank as well. The slurry pH is controlled at 10.0 – 10.2 before sodium cyanide addition. The cyanide is added into the leach tank 2 at a concentration between 450 and 500 ppm for sulphide and 180 to 200 ppm for oxide. There are ten leach tanks on each stream with a capacity of 1350 m³ to assure the required residence time. Automatic cyanide analyzers are in line to control the cyanide concentration and dosing rate as closer as possible to the set point. No more cyanide is added downstream to maintain the concentration.

4. Adsorption section

The slurry overflows by gravity into adsorption vessels containing activated carbon except the first vessels used as grit catchers. The interstage NKM (North Kalgoorlie Mines) screens retain the carbon in the tanks. The carbon movement

upstream is performed with the carbon transfer pumps installed in each tank. There are height adsorption tanks in series with gravity flow. The last tanks are used for detoxification of residue slurry prior to pumping to slimes dam. The cyanide level in adsorption tank 5 is determined by the in-line cyanide analyzer and the results are used to predict the quantity of reagents required for an effective residue cyanide destruction. A WAD (Weak Acid Dissociable) cyanide analyzer is installed at the plant tail for optimization control of the cyanide neutralization process. The unit takes a sample every 30 minutes on each stream and measures the WAD cyanide level. EDR pumps are installed at the detoxification CIP (Carbon in Pulp) tanks in order to supply dissolved oxygen required for cyanide neutralization. Hydrogen peroxide 70% strength, sodium metabisulphite with solution RD from 1050 to 1070, and copper sulphate are dosed in the last CIP tank for the detoxification.

5. Residue section

A manual sample is taken every hour at the common residue line and sent to the chemical laboratory for free cyanide and WAD cyanide analysis. There are 6 pumps on each residue stream connected to the main residue line. After adsorption the slurry flows into linear screens for catching eventual coarse carbon leaving the circuit when the NKM screens are passing.

6. Tailing storage facility

After detoxification the residue is pumped from the residue tank to the slimes dam via a steel pipeline 500 mm inside diameter. The flow pumped per hour varies between 1200 to 1400 m³/hour (cubic metres per hour) with a pressure of 10 to 12 bars. The slurry is cycloned to remove the coarse fractions for impoundment wall building. The fine fractions from cyclone overflow run down to the pool. The decanted water is pumped to the plant via the return water dam or directly from a barge decants system with four submersible pumps capable of pumping 300 m³/hr each. There are underdrains and elevated filter drains for stability of the wall. Piezometers installed along the starter wall and vibrocores allow determining the level of water at the wall foundation.

7. Elution and regeneration

The Loaded carbon is pumped from second adsorption tanks to elution on a daily basis. The carbon is acid washed with hydrochloric acid, neutralized with caustic soda and washed with clean water before elution. The elution consists of heating the carbon, soak in hot caustic cyanide solution (1.5% cyanide and 3% caustic), and rinse with hot soft water. The gold bearing solution is pumped to electro winning in the smelt house and the eluted carbon is regenerated at 700°C and pumped back to the adsorption circuit to tank 6 or 7.



Auditor's Finding

This operation is

in full compliance

in substantial compliance* (see below)

X not in compliance* (see below)

with the International Cyanide Management Code.

* The Corrective Action Plan to bring the operation in non-compliance, into full compliance, is enclosed with this Summary Audit Report.

This operation was found in non-compliance with the Cyanide Code based on the audit findings discussed in this report under Standard(s) of Practice 5.2.

Audit Company: Eagle Environmental

Audit Team Leader and Technical Auditor (Mining): Arend Hoogervorst

Email: arend@eagleenv.co.za

Dates of Audit: 14th – 20th October 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.

Sadiola Gold Mine

Facility


Signature of Lead Auditor


Date

SEMOS Sadiola Mine


Signature of Lead Auditor

14th August 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:

AngloGold Ashanti (AGA) sold its majority share in SEMOS (Société d'Exploitation des Mines d'Or de Sadiola) to the Allied Gold Corporation, effective from 31 December 2020.

The site currently receives sodium cyanide from Vehrad Transport and Haulage who sourced the cyanide from Cyanco Alvin Plant, USA, ICMC (International Cyanide Management Code) certified 28 April 2023 and Cyanco's Global Ocean Supply Chain (recertified on 27 July 2022), TaeKwang Industrial Co., Ltd., (Taekwang) - ICMC certified 24 July 2020, and Tongsoh Petrochemical Corporation, Ltd., (Tongsoh) - ICMC certified 19 April 2023. Vehrad Transport and Haulage was recertified as an ICMI transporter on 23 September 2021 and recertified as a Production Facility for storage and repackaging on 15 September 2021.

The Auditor observed the Interim Cyanide Supply and Transport Agreement between SEMOS Sadiola and Vehrad Transport and Haulage dated 15 September 2022, signed 26 September 2022 (SEMOS-Societe D'Exploitation Des Mines D'Or De Sadiola) Sadiola) and 16 September 2022 (Vehrad). The scope of the agreement relates to the supply and transport of sodium cyanide in 1000 kg boxes packed into sea containers and delivered in a safe manner DD/DDP (Delivered Duty/Delivered Duty Paid) to site. The Interim agreement further requires the contractor (Vehrad) and all of its sub-contractors to abide by the principles and standards of the International Cyanide Management Code (ICMC) at all times. A formal contract will be drawn up with more specific reference to ICMI (International Cyanide Management Institute) requirements at a later date.

Previously, the site received sodium cyanide from ICMC-certified consignor, Samsung C&T Deutschland GMBH (Country acronym). The operation's contract with Samsung, a distributor, required that the cyanide be produced at a facility that has been certified to comply with the Cyanide Code. The contract between Samsung and AngloGold Ashanti ended on 31 December 2019. Samsung continued to supply cyanide (without a contract

with the new owner of Sadiola, Allied Gold Corporation, but under the same contract conditions) from 1 January 2020 until 9 January 2022. Samsung ceased the supply of cyanide from 9 January 2022 to March 2022 due to the closing of borders by ECOWAS (the Economic Community of West African States) for political reasons. The Samsung contract was not renewed.

All producers supplying Sadiola with sodium cyanide during the past three years were ICMC certified.

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:

Sadiola's Procurement Department Chain of custody documentation was reviewed, and records sampled, which included: - Purchase Orders, Producer invoices, Sea waybills, Packing Lists, Chemical Products Import Permits, Certificates of Analysis, and Delivery Notes. These documents confirm and identify transporters and participants in the transport of cyanide from the producer to the mine site. The document trails are complex, particularly because there are part shipments which, though they are on one Purchase Order, are delivered in separate batches. The Auditor is satisfied that no cyanide is lost during shipment, and transporters have been identified and are Cyanide Code certified.

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:

It was confirmed during the site visit and audit that there were no changes since the previous recertification audit. The facilities for unloading, storing and mixing solid cyanide have been designed and constructed according to cyanide producers' guidelines, applicable jurisdictional rules and other sound and accepted engineering practices for these facilities.

The replacement fibre glass cyanide mixing and storage tanks that were installed in 2013 were designed according to Fibre-Wound (SA) tank designs, specifying that cyanide solutions are the media stored, and referring to corrosive media as per SANS (South African National Standard) 10228 class II corrosion and BS (British Standard) 4994:1987. The tanks were constructed and fitted by Fibre-Wound (SA).

It was confirmed during the site visit that solid cyanide unloading, mixing and storage areas are located away from people and surface waters. There has been no change since the previous recertification audit. The cyanide mixing and storage tanks are located on a concrete surface that can prevent seepage to the subsurface. The site visit confirmed that the tanks are placed on raised solid concrete plinths on steel and concrete supports within a concrete bunded area to prevent subsurface seepage.

Solid cyanide briquettes are mixed into liquid cyanide at Sadiola. The mixing process is controlled from the plant control room. There are two level alarms, a high level alarm alarming in the control room at 90% and a "High High" level alarm similarly alarming at 95%. Once the "High High" alarm is triggered, the fill valve is automatically closed. The Sodium Cyanide mixing procedure is the procedure that manages the cyanide mixing process. Alarm and level indication equipment is checked by the instrument technician monthly using the PRAGMA (proprietary name) PMS (Planned Maintenance System).

The solid cyanide is stored in the original packaging, which includes plastic liners, in a bulk bag inside closed wooden boxes. The boxes are stored in a warehouse with adequate ventilation and protection from rain with impermeable concrete flooring. The mixing tank is ventilated through the filling chute. The gasses from the cyanide storage tank will escape via a ventilation pipe on top of the tank. Cyanide storage and mixing tanks are located within concrete secondary containments, providing a competent barrier to leakage. The solid cyanide storage area is located within the plant, which is fenced and access is security controlled. Furthermore, the solid cyanide storage and mixing area are fenced with controlled access. The solid cyanide is stored in a dedicated cyanide area separate from incompatible materials, such as acids, strong oxidisers and explosives, and apart from foods, animal feeds, and tobacco products.

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:

Sadiola's empty cyanide containers are destroyed by burning them in a safe area of the TSF. The Sodium Cyanide Make-up procedure states that a maximum of 40 empty boxes will be stored in the cyanide storage area before they are moved to the TSF box burning area, where the boxes are burnt under the supervision of a Security Officer. The procedure includes a form for signing over responsibility and for security accompanying the boxes to confirm the number burnt. Those signing to confirm the burning are the Security Officer, the Process Operator and the Truck Driver. A file with records was sighted and sampled burning on 31 January 2022 and 27 September 2022, and 17 July 2020 and 20 April 2020. The Cyanide Champion signs off the form finally and acknowledges the completed action.

With regard to the rinsing of empty cyanide packaging, Sadiola undertook a risk assessment in 2008, which demonstrated that it would be riskier to wash the cyanide containers than to burn them dry. There has been no change in this practice since the risk assessment in 2008. Sadiola Gold Mine does not use or dispose of empty cyanide drums.

No isotainers of liquid cyanide or liquid cyanide tanker trucks from vendors deliver liquid cyanide to Sadiola Gold Mine. The sea containers that deliver the cyanide boxes containing cyanide briquettes are swept out after destuffing and checked for residual cyanide before being closed and returned to the vendor. The Container Offloading procedure requires that the "destuffers" (trained staff removing cyanide boxes from the sea container using a fork lift) pick up any debris from the destuffing process (inside and outside of the container) and dispose of it into empty cyanide boxes, ready for burning.

There are no hoses or couplings, as cyanide mixing involves the use of pipes and permanent connections. All valves inside the cyanide mixing and storage area are automatically controlled from the control room. The Sodium Cyanide Make-up procedure requires that make-up is done by manually opening a wooden cyanide box and delivering the cyanide bag onto a bag cutter. The solution transfers are all done automatically using the PLC (programmable logic controller) system in the control room. The procedure also refers to the opening of the auto clean water feed valve.

In order to avoid puncturing or rupturing, cyanide boxes are moved by trained and experienced forklift truck drivers. Only two drivers are designated to move cyanide. The completed fork lift training schedule, including the two drivers, was sighted. The Cyanide Container Offloading procedure states in section 3.17 that the cyanide boxes must be stacked no more than 3 high in the cyanide storage area. It was confirmed during the site inspection that the boxes are stacked 3 high.

With regard to the timely cleanup of spills during cyanide offloading and cyanide make-up, both the Cyanide Make-up procedure and the Cyanide Container Offloading procedure require cleanup after unloading and make-up, respectively.

The Sodium Cyanide Make-up procedure states that, "...The supervisor MUST delegate a competent worker when he is not available for the buddy system...." The Special Cyanide Procedure Buddy System Procedure describes what the requirements are that a buddy must have (valid first aid certificate, cyanide knowledge, knowing the plant and cyanide areas, medically fit, physical abilities to perform a rescue, and competency to initiate an emergency alert.) and the roles of a buddy and the responsibilities of a buddy, including that he must be wearing the appropriate PPE (Personal Protective Equipment). The Sodium Cyanide Make-up procedure includes a section requiring the addition of dye (Allura red dye) to the cyanide mixing process for identification purposes. This has been a requirement since July 2019.

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:

The Plant has 24 Cyanide Specific Procedures and 126 Standard Operating Procedures (SOPs) that cover the operations of the Plant and TSF in place. There is a Sadiola Gold Mine Tailings Storage Facility Operation Maintenance and Surveillance Manual, revised in August 2021 by a Professional Engineer, which is used to manage the TSF.

There are 10 TSF Standard Operating Procedures: -

- 6.1 Operating the Barge System
- 6.2 TSF (Tailings Storage Facility) Operator Guidelines
- 6.3 Emergency - Overtopping Of The Tsf Wall
- 6.4 Emergency - Overflow Of Return Dam Wall Spillway
- 6.5 Safe Operations and Daily Maintenance Of The Hydraulic Excavator
- 6.6. Cyclone Moving Procedure
- 6.7 Piezometer Monitoring Procedure
- 6.8 Cyclone Operation Procedure
- 6.9 Operation of The Blending Plant
- 6.10 TSF Supervisor Responsibilities

The Special Cyanide Procedure - Detoxification Plant Start-up and Shut-down and High WAD Control, was sighted and reviewed. The objective of the procedure is to ensure

correct and safe methods are used when the operation of the Detoxification plant is required and when high WAD values above 50 ppm occur. The Detoxification plant is located immediately before the residue tank containing tailings going to the TSF. Manual sampling is done every 2 hours, and if the WAD cyanide is above 50 ppm, then the Detoxification plant is started.

In the Sadiola Gold Mine Tailings Storage Facility Operation Maintenance and Surveillance Manual, Section 4.3.4 Hydrology, states: - "...The mean annual precipitation (MAP) on site is 853mm, and the mean annual evaporation (MAE) is 1 597 mm. A design storm having the 1 in 100-year 24-hour recurrence interval of 182 mm is assumed. The highest recorded 24-hour maximum storm precipitation is 145 mm, which occurred in 1991. It is clear that there is a negative water balance, and the Diamou river is the additional raw water source...." In Table 5.2 Water Management Parameters, it is stated that the minimum required freeboard on the Beach is 1 metre; the vertical wall freeboard is 1 metre, and the horizontal beach distance is 100 metres. No discharges to surface water take place.

The Plant conducts both operational and planned maintenance inspections. The operational Cyanide Safety Plant Monthly Inspection Sheets and inspection files (covering pipes, pumps, bunds, tanks, safety signs, fixed HCN detectors, and Operators) were sighted and sampled: - 2022: 30 September, 28 February, - 2020: 28 March, 27 October. It was confirmed that the PRAGMA On Key 5 planned maintenance system is in use, and the PRAGMA system was audited electronically.

On the TSF, Daily inspections are conducted covering leaks, delivery lines, deposition, vertical freeboard, signs of wildlife and dead animals, wall integrity, and erosion supernatant pond level. Inspection files covering 2020 and 2022 to date were sighted. Inspections sampled were: - 2020: 3 April, 17 April, 25 April, 7 February, 16 February, and 21 February. 2022 – 6 October 2022, 13 October.

TSF weekly

Weekly Checklists cover: - under drains, valves greased, was delivery line inspected for leaks, were leaks reported? signs of seepage? Ratholing or erosion in the wall? perimeter fence in good condition? Warning signs displayed? Safety issues on penstock cages? Checklists sampled for 2020 were w/b 27 April, 10 February, 17 February, and for 2022 were w/b 10 February and 3 October.

Monthly Checklists include: is the pool away from the wall? Width of the wall? Are underdrains clean? Have the weekly checklists been submitted to the foreman? Does RWD have sufficient capacity? Are outer walls intact? Are delivery lines and valves in good condition? Is the perimeter fence in order? Any dead animals? Checklists sampled were: - 2020 - W/b 30 April, 30 June, and 2022: - w/b 23 August, w/b 10 October, 31 August.

A TSF External Audit is done every 3 years. The report, Sadiola Gold Mine Tailings Storage Facility External Audit, dated June 2020, by Philip Steenkamp, Pr. Eng. Under Conclusions, Mr Steenkamp states, "... The TSF shows no signs of instability, and with some additions and adjustments to the monitoring system, this can be assured. The TSF is considered safe to be operated until 2022 with the development of a deposition plan...."

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



necessary release prevention measures. Three examples of change management exercises were sighted and reviewed: -

- a Cyanide Set Point Change Management Report dated 22/10/2022 for the Leach dosing tanks. The form was signed by the Safety Officer and the Environmental Officer.
- a Change Management Report for the use of Allura Red Dye in Cyanide Mixing. The form was signed by the Safety Officer and the Environmental Officer, and
- a Change Management Report for the replacing of a Mono pump with a Bredel pump at the elution area dated 20 October 2022. The form was signed by the Safety Officer and the Environmental Officer.

In the case of an upset in the operational water balance that presents a risk of exceeding the design containment capacity or problems identified by monitoring or inspection, the emergency procedure - cyanide related incident - failure of TSF and other cyanide facilities, would be consulted. The emergencies covered include: -Residue pipeline leak; Return Water Pipeline leak; Return Dam failure; Barge decant pipeline leak; Pipeline leak; TSF wall damage (minor and major); TSF wall failure; and overtopping of the Return Water Dam. All of these might be anticipated or responded to through operational water balance iterations.

In the case of temporary closure or cessation of operations due to situations such as work stoppages, lack of ore or other essential materials, economics, civil unrest, or legal or regulatory actions, the Shutdown of Leach Section procedure would be used. The procedure states the steps to be taken in the event of a planned shutdown of the leach section to prevent overflows and spillages. Specific mention is made that the cyanide pumps must be stopped.

Malian law requires minimum service levels to be maintained during a strike or unrest action. The participants are required to meet before the strike starts and prepare a plan for minimum service levels which includes safe management of cyanide and other SHE (Safety, Health and Environment) factors. The participants must include: - mine management, union representatives, the workers, and the Labour Inspectorate.

PRAGMA PMS inspection records for all tanks were sighted electronically for the whole period since the last recertification audit. Some tanks, Cyanide mixing, cyanide storage and elution, have been converted to fibreglass and are not subject to thickness testing. All tanks are subject to visual inspections by fitters on a two-weekly and monthly basis. The visual inspection includes checks for leaks, corrosion and cracking, as appropriate. Leach tanks (24 in total) and CIP tanks (16 in total) are subject to annual thickness testing - sighted electronic reports of thickness testing carried out by internal staff on a scheduled basis. Scheduling may be interrupted or delayed if urgent tank repairs need to be carried out. The monthly operations inspection for the cyanide mixing and storage includes tanks.

All bunds and secondary containments are included in the PRAGMA PMS and are inspected monthly. The visual inspection is governed by a checklist which includes checking for deep cracks, deformation, bund wall damage, exposure of reinforcing and floor integrity. Electronic records were sampled for three years of monthly inspections for reagent, CIP, Leak, Gecko, and elution bunds. The monthly inspection for the cyanide mixing and storage includes bunds as per Code requirements.



From a maintenance perspective, pumps and pipes are listed separately on the PRAGMA system. For pipelines, pumps and valves, the monthly inspection for the cyanide mixing and storage includes pipelines, pumps and valves for leakage. Cyanide dosing and transfer pumps have weekly fitter inspections and two weekly electrician inspections. Spillage pumps have two weekly fitter inspections and monthly electrician inspections. There are 6 residue pumps on each of the two modules, and they are subject to daily and two weekly inspections by fitters and electricians. The residue pumps are subject to 6 monthly servicing when they are taken offline. The residue pipeline has shiftly pipe patrol inspections where faults are reported by exception. Five river raw water pumps are inspected by fitters monthly, as are two associated lifting pumps and four high lifting pumps. The one pollution dam pump has monthly fitter and electrician inspections.

The only valves on planned maintenance are in the Residue section (fitter monthly) and elution (instrumentation monthly). All other valves are on a breakdown maintenance regime. Inspection records were sampled electronically for pumps over the last three years. At the TSF, Daily TSF pipe patrol inspections are conducted for leaks and failures and reporting by exception. A pressure-based leak detection system for the TSF pipeline is programmed in the PCL (programmable logic controller) system. In Engineering, valves and residue pumps are included in PRAGMA daily inspections. All other valves are on a breakdown maintenance regime. Inspection records were sampled electronically for all pumps over the last three years.

With regard to ponds and impoundments, the Pollution control dam operation and emergency control procedure requires that the dam be kept at a minimum freeboard of 2m, cyanide kept below 50 ppm WAD cyanide and 0.5 ppm free CN, and a pH at a minimum of 7. Dam levels are measured electronically and with instrumentation results reported electronically in the control room. At the TSF, daily inspections were sampled where TSF freeboard and return dam levels are recorded. Quarterly surveillance reports include TSF freeboard inspection and reporting. Surface water diversions are inspected by the Environmental Department, which checks them for physical integrity after the end of the rainy season.

PRAGMA system generates the inspection schedule sheets. Engineering maintenance schedules are in place and were determined by interviewing and obtaining inputs from the Maintenance Foremen and using suppliers' recommendations. PRAGMA reports are produced monthly and on an "as required" basis. Over-inspections are scheduled in the PRAGMA system for supervisors. Operational inspections include monthly safety officer and management inspections, Shift Foreman shift inspections and daily reagent Foreman inspections. Wildlife inspections are carried out daily and are included in the checklists. It is concluded that the operation inspects cyanide facilities on an established frequency sufficient to assure and document that they are functioning within design parameters. The TSF is inspected daily, weekly, monthly, and quarterly, and annual reviews are conducted. The inspection reports were reviewed and reported in detail. It is concluded that the operation inspects TSF facilities on an established frequency sufficient to assure and document that they are functioning within design parameters.

Operational inspections: include specific checklist items (indicated above), date, section, and the inspector's name. Deficiencies are recorded in the PRAGMA system for follow-up. Maintenance inspections include the date, section, and name of the inspector.



Deficiencies are described on a job card, where the task is defined, the origin, the required action, the responsible person, feedback, date, and signature are included. Data from the artisans' hard copy job card documents are loaded onto the PRAGMA system and form the basis of the historical equipment maintenance records.

PRAGMA-based preventative maintenance programs are implemented and activities documented to ensure that equipment and devices function as necessary for safe cyanide management. Full maintenance and inspection records of all plant (and mine) equipment go back for 16 years since the PRAGMA Planned Maintenance (PMS) was first introduced.

The Inspections / Planned Maintenance is on an electronic schedule that was electronically reviewed. A job card is raised to ensure timeous repair when any deviations are recorded during the inspection. The cyanide critical equipment listing was sampled for the three-year period covering the time back to the last recertification audit. The record-keeping was found to be thorough, and frequencies only varied where abnormal events occurred to change schedules, such as priority repair work or shortage of available staff for various reasons. The PRAGMA system also includes an over-inspection category for engineers and foremen where over-inspections are scheduled monthly to check that work processes are correctly carried out, clearance certificates obtained, and correct PPE used, and they are encouraged to use their experience to check tasks and equipment ("look, listen, feel"). This was noted as a best practice as it had not been observed in PMS systems before.

The Engineer reported that the Mine generates all of its own power. The mine's generators can produce a maximum of 17 megawatts. The operation uses between 10-12 megawatts, with a peak of 13 megawatts. Thus, there is spare capacity if some of the generators should fail or have problems. All generators are included on the PRAGMA PMS system and are subject to planned maintenance inspections based upon running hours, such as 500, 1000, 4000, 12000 and 28000 hours. There is a generator at the TSF which can run 2 of the 4 pumps at the RWD, if there is a power failure and pumps are needed to prevent overtopping. This generator is included in the PRAGMA PMS

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:

The mill has been treating lower-grade oxide stockpile reserves since March 2018 and continued until 2020. In early 2021, when the Allied Gold Corporation took over from AngloGold Ashanti, Sadiola commenced re-mining from the Tambali pit. Exploration also started concurrently. Samples from the exploration work were sent to external

laboratories for ore characterisation and reagent consumption testing. Cyanide optimisation test work is being done when different ores are to be fed through the plant, and checks are needed on cyanide consumption requirements.

Once the oxides were going through the Plant, optimisation studies were carried out to optimise cyanide consumption. A cyanide usage optimisation report was undertaken on 22 June 2022. The usages tested were 150 ppm, 160 ppm and 170 ppm, and it was concluded that the optimal rate was 170 ppm. Sadiola is currently adding 0.3 kg/t (kilograms per ton) against a budget of 0.4 kg/t. Bottle roll tests are confirming the optimal addition rate. Cyanide addition is reviewed daily during the Production meeting and adjusted as necessary.

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:

Sadiola Gold Plant contracted iLanda Water Services CC to develop and update the Probabilistic Water Balance for the plant. A water balance was developed using Remis (a Database containing 25 years of local rainfall statistics) and GoldSim (probabilistic software providing stochastic programming).

The Probabilistic Water Balance, which was commissioned in May 2022, is incorporated in an Excel spreadsheet base designed for easy use and management. The plant loads tonnage deposited and rates of deposition, target underflow of cyclones, number of cyclones that operated, running time, utilisation of cyclone, bypass hours, operational utilisation, rainfall data, evaporation data, ring main wall freeboard, RWD (Return Water Dam) levels, borehole levels at the TSF and water quality data, phreatic levels, and piezometer graphs into the spreadsheet. The model makes use of 25 years of actual site rainfall data. The design storm is included in the stochastic calibration of the rainfall used in the model, but generally, a design storm having the 1 in 100-year 24-hour recurrence interval of 182 mm is assumed. The evaporation data is based on local conditions and processed by the GoldSim software. The model includes the effect of preceding rainfall to calculate run-on, runoff and infiltration into the ground. Daily time steps are used to take account of preceding rainfall. Mali is in a tropical climate belt. The thermal equator, which matches the hottest spots year-round on the planet based on the mean daily annual temperature, crosses the country. Thus, freezing and thawing issues are not applicable. The model calculates seepage into the TSF and interstitial water in the TSF. No discharges to surface water exist. The system is water deficient and cannot afford to lose water.



The TSF is a valley dam, and the phreatic surface is not affecting the water balance of dam stability, provided that the pool continues to be managed away from the wall as per the recommendations by the TSF consultants.

The operating procedures and the Sadiola Gold Mine Tailings Storage Facility Operation Maintenance and Surveillance Manual incorporate inspection and monitoring activities to implement the water balance and prevent overtopping of ponds and impoundments and unplanned discharge of cyanide solutions to the environment. Daily, weekly, and monthly TSF Inspection Checklists for Sadiola TSF are completed by the TSF operator. The checklists include; pipeline (inspection for leaks), valves, signs, conditions of underdrains and solution trenches, rainfall, incidents, and seepage around the TSF. The ponds and impoundments are designed and operated with adequate freeboard above the maximum design storage capacity determined to be necessary from water balance calculations.

The plant's pollution control dam is operated at minimum freeboard of 2 m, the TSF a minimum freeboard of 1 m, and the Return Water Dam a minimum freeboard of 1.7 m.

The resulting reports focus on overtopping risks for the RWD, the TSF Freeboard, and the Plant Pollution Control Dam (PCD). If the calculations raise any probability of spills, the software will generate mitigation measures that can be applied to reduce or eliminate the risk. The risk reports are generated monthly. Reports for June – September 2022 were sighted and reviewed.

2019 – 2022

Previously, the plant contracted iLanda Water Services CC to run the GoldSim model on their behalf and submitted the necessary data on a monthly basis. The consultant sent back a Monthly Water Balance Update Report containing the probability of spill at the Return Water Dam - 0%, TSF Freeboard (probability of freeboard below minimum levels risk - 0%), 24-hour power failure at the tailings storage facility, and effect of plant upset, e.g., reduced density concluded the risk was negligible. The operation measures precipitation, compares results to the design assumptions and revises operating practices as necessary.

Precipitation is recorded at three points on a daily basis (Mine Village, Semos Offices, Sadiola Village). The annual tailings inspections consider the rainfall statistics when revisiting the operating practices. Monthly water balance reports are generated and reviewed by the Plant Management.

This was deemed by the Plant and the consultant as a cumbersome method of generating the risks. In order to move the management of the Water Balance to the Plant, the consultant designed a more user-friendly model, based on the Excel spreadsheet and incorporating the stochastic rainfall scenario generator from the GoldSim software.

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:

Referring to the WAD cyanide samples at the compliance point, which is the cyclone overflow at the deposition point at the TSF, there have been occasional exceedances, but these have been caused by equipment faults and ore and blend variations. The investigation reports that were sighted confirmed this. The Auditor is satisfied that the WAD cyanide levels are well controlled and exceedances are small. Thus, there are no additional measures required to restrict access by wildlife to the TSF open waters and the beach. The whole TSF area is fenced all around. The operation measures precipitation, compares results to the design assumptions and revises operating practices as necessary. Precipitation is recorded at three points on a daily basis (Mine Village, Semos Offices, Sadiola Village). The annual tailings inspections consider the rainfall statistics when revisiting the operating practices. Monthly water balance reports are generated and reviewed by the Plant Management. There were no exceedances of 50mg/l WAD cyanide at the Pollution Control Dam (PCD). WAD cyanide results for the PCD from 1 January 2020 - October 2022 were sighted. All values were below 12 mg/l WAD cyanide. and thus, there are no additional measures required to restrict access by wildlife to the TSF open waters.

Sighted WAD results from:

A. Cyclone overflow

WAD cyanide values in graphic form were observed. All results were below 50 mg/l WAD cyanide, except for the following exceedances: -

2020

2 x Exceedances

1. 9th February – exceedances of 54 mg/l WAD cyanide

The investigation revealed that feed ore was mixed with portions of an old sulphate material stock on the ROM pad, which consumed more cyanide. The Metallurgy team communicated with the ROM pad team in charge of feeding the plant to stop blending that type of material into the plant feed.

2. 10th March - exceedance of 58 mg/l WAD cyanide

The 10th March investigation showed that the feed ore was contaminated by some high cyanide consuming ore. The corrective action was to communicate with the ROM pad team to not feed cyanide consuming ore to the feed blend.

2021

1 x Exceedance

1. 9th August – exceedance of 56 mg/L WAD cyanide

The investigation report found that the WAD cyanide analyser was faulty. The blow back system was malfunctioning. The problem was corrected.

2022

1 x Exceedance

17 May – exceedances 73 mg/L WAD cyanide

The investigation report showed that the analyser was over-reading the WAD cyanide value, confirmed by manual control. The problem was fixed by the instrument technician.

B. Pool Edge



The values never exceeded 50 mg/l WAD cyanide for the period from 1 January 2020 to October 2022. Maximum values were: 2022 - 3mg/l WAD cyanide-31 July 2021:33 mg/l WAD cyanide-21 October 2020 - 11 mg/l WAD Cyanide- 9 January.

C. Return water dam

All WAD cyanide values were below 5 mg/l WAD cyanide. Maximum Values were:- 2020 – 2.6 mg/l WAD Cyanide on 5th May. 2021 – 2.1 mg/l WAD cyanide on 14 August 2022 – 2.1 mg/l WAD cyanide on 27 June.

At Sadiola, maintaining a WAD cyanide concentration of 50 mg/l or less in open water is effective in preventing significant wildlife mortality. No wildlife mortalities have been recorded in the last 3 years. The Auditor reviewed the TSF inspections for 2020, 2021 and 2022, and confirmed that there were no mortalities reported during the period. It was noted that there is no heap leach in operation at Sadiola.

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:

The operation does not have a direct or indirect discharge to surface water. The nearest river was approximately 56 km from the site. There are no indirect discharges to surface water, and no surface water systems in the vicinity of the plant or TSF. This was verified during the site inspection. Surface water samples from streams are sampled during the wet season when they flow. All values since recertification were below the limits of detection of 0.01 ppm WAD cyanide. The operation is not engaged in any remedial activity to prevent further degradation and restore beneficial use because cyanide concentration levels in surface water are below the limits of detection.

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 has extensive bunds and concrete surfaces to prevent seepage from spillage to groundwater. The TSF is equipped with underdrains to collect seepage. Drainage channels drain into paddocks to prevent surface seepage. Procedures require any cyanide spills to be cleaned up urgently.

The operation monitors for cyanide in the groundwater downgradient of the site. Groundwater Sampling is conducted once a month and analysed for total cyanide. The legal limits are 1mg/l Free Cyanide and 1mg/l Total Cyanide as CN.

The community drinking water boreholes are also monitored and compared to the WHO (World Health Organisation) drinking water standard of 0.7 mg/l. total cyanide. Monitoring results for 2019 to 2022 were sighted, and all values were below the limits of detection of 0.01 mg/l total cyanide. Upstream borehole data (2020 - 2022) was also sighted. All values were less than the limits of detection of 0.01 mg/l Free WAD cyanide and total cyanide. Borehole data downstream of the PCD (Pollution Control Dam) was sighted, and all values were less than the limits of detection of 0.01 mg/l Free, WAD and total cyanide (2020 - 2022). The borehole data downstream of the TSF indicated that all values were less than the limits of detection of 0.01 mg/l Free and total cyanide (2020-2022).

Sadiola does not use mill Tailings for underground backfill. The operation is not engaged in any remedial activity to prevent further degradation and restore beneficial use because cyanide concentration levels in groundwater are below the limits of detection.

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:

With regard to spillage prevention, there has been no change from the previous recertification audits. The cyanide storage and make-up area and the leach, CIP, residue, elution and acid wash areas are equipped with bunds. This was confirmed during the site visit.

The standard civil foundation drawings for tanks were sighted during the certification audit. Main treatment plant residue disposal concrete detail sheet 3 DRG 2050034003C0825 rev 2 dated 24/3/95 was sighted, indicating that a solid layer of 300mm concrete is cast below the tank base. This drawing is typical of the Anglo-American Technical Service Standard for tank foundations at the time of building, and it is extrapolated that all tanks are based on this concept and thus are equipped with an impervious foundation for the tank base.

Reports were sighted dated May 2018 for leach tank 2A, confirming that an impervious concrete foundation was in place while replacing the tank bottom as part of maintenance. A statement was made during the interviews by Senior Planner Scheduler Lassana Samba



Konate, who confirmed that he had observed the solid concrete impervious layer after the removal of the steel tank bottom plates.

All secondary containments for cyanide unloading, storage, mixing tanks and various process tanks (Leach, CIP (Carbon in Pulp), Elution, Caustic cyanide make-up, Eluate Storage-Sadiola, Eluate Storage-Yatela, Gekko (proprietary name) Cyanide make-up, and Gekko electrowinning storage) 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. There are no tanks on the plant without secondary containment.

The Plant is designed with sumps and pumps returning all spillage to the Sadiola process tanks. Sump pumps in all secondary containments are automated, except for the sump pump in the high-strength storage and mixing bunds which are manually operated. The Anti-pollution dam is inspected daily, and the PCD operation and emergency control procedure includes monitoring and taking samples daily. Any solution is pumped back into the Sadiola process plant. This was verified during the site visit.

All reagent strength cyanide pipelines either run over a bunded area or have a launder to contain any spillage. The cyanide solution transfer lines for the Gekko Intensive Leach Reactor (ILR), the elution pipes, and the leach cyanide dosing pipelines are custom-designed George Fisher Pipe-in-pipe systems equipped with leak detection sight glasses. This was observed during the site inspection.

TSF pipelines are maintained by thickness testing and are part of the PMS system of maintenance. The HDPE TSF pipeline runs within an earth berm to contain any spillage. Daily pipe patrols are in place for the TSF pipeline in use. Daily inspection files and records were sighted and reviewed. Leaks are reported immediately to the Supervisor and Engineering Department for repairs. The TSF ring main systems and cyclone feed pipes are placed inside the TSF footprint. This was confirmed during the site inspection.

No areas where cyanide pipelines present a risk to surface water and needing special protection have been found. No pipelines crossing surface water were identified, which was confirmed during the site inspection.

The Cyanide Storage Tank and Cyanide Mixing Tanks are made from fibre glass and designed according to Fibre-Wound (SA) tank designs, specifying that cyanide solutions is the media stored and referring to corrosive media as per SANS (South African National Standard) 10228 class II corrosion and BS (British Standard) 4994:1987. The tanks were constructed and fitted by tank specialists, Fibre-Wound (SA). Cyanide tanks and pipelines are constructed of materials compatible with cyanide and high pH conditions. The cyanide reagent strength pipelines are made of mild steel and HDPE (High-Density PolyEthylene). The Leach, CIP and Residue tanks are constructed of mild steel., which is compatible with cyanide and high pH conditions. The TSF pipelines are constructed of mild steel and HDPE, which are also 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 construction and /or substantial modifications of cyanide facilities changes were made to the Plant since the previous recertification audit. The TSF is a "work in progress" and is being continuously developed. This is monitored and managed through the inspection system and checks and balances from the consulting Geotechnical Engineer. It has been confirmed that electronic Quality Assurance/Quality Control (QA/QC) records have been retained and are still accessible.

Evidence for the previous audits was that appropriately qualified personnel have reviewed cyanide facility construction and provided documentation that the facility has been built as proposed and approved. TSF QA/QC records are reviewed on-going by the consulting Geotechnical Engineer during periodic inspections.

The AGA Sadiola Mine Visual Structural Audit by DRA dated Feb 2015 was sighted in the previous audit. The report identified various structural issues and made recommendations, including a work priority list. The most urgent cyanide-related issue was the maintenance of leach tanks. The Mine embarked on a program to do structural maintenance on the leach tanks. The work was completed at the beginning of 2019, addressing the cyanide-related issues over a 3-year period, as per the report recommendations.

The AngloGold Ashanti Sadiola Mine Visual Structural Audit dated November 2020 by Carel Van Heerden Pr, Tech. Eng: (Reg No. 9770078) of DRA Projects was sighted. The report states, "... The plant, which is approximately 23 years old, has been subject to normal wear and tear, modifications and additions and corrosion/degradation all as would be normally expected for this type of installation. The audit covered both structural steel and reinforced concrete building elements in the following principal plant areas: The observations and recommendations have been made in accordance with Anglo American Best Practice Guideline BPG S003: "SIMM Guidelines For Plant Structures".... Most of the recommendations made in the 2015 SIMM audit report were found to be implemented."

Due to the remedial action taken by the Mine, it is concluded that the issues identified as risks have been remediated and, with ongoing low-priority recommended maintenance and repairs and planned maintenance, the plant can be operated within established parameters consistent with the Code's Principles and Standards of Practice.

There were no Quarterly TSF surveillance inspections since August 2019 owing to border closures through political issues and the Covid-19 pandemic. However, in August 2021, Knight Piésold (KP) conducted stability analyses for the TSF embankment, and a buttress was recommended where the minimum stability Factor of Safety (FoS) was low. The recommended main wall buttress was constructed and completed in January 2022. An assessment of the as-built buttress and current tailings beach geometry has been undertaken to confirm the works have been undertaken in accordance with the design intent and to assess current stability. The latest as-built survey, conducted in early

February 2022, indicates: "...The main embankment buttress has been effectively constructed to the design elevation and width, and the as-built crest levels in other sections are also generally higher than the design levels." (Reference: Knight Piésold Consulting Memorandum dated 28 February 2022, Ref: - PE22-00218, signed by Jim Luo, Principal Geotechnical Engineer and Brett Stevenson, Principal Engineer.

A TSF External Audit is done every 3 years. The Sadiola Gold Mine Tailings Storage Facility External Audit report, dated June 2020 by Philip Steenkamp, Pr. Eng., was sighted under "Conclusions", Mr Steenkamp stated, "... The TSF shows no signs of instability, and with some additions and adjustments to the monitoring system, this can be assured. The TSF is considered safe to be operated until 2022 with the development of a deposition plan...." The above-mentioned reports confirm that continued operation of the TSF within established parameters will protect against cyanide exposures and releases.

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 operation has developed written standard procedures for monitoring activities. Sampling and analytical protocols have been developed by appropriately qualified personnel. The procedure, Taking Water Samples for Cyanide, is used for taking groundwater or surface water samples for testing cyanide content. The procedure was developed by Mr Demba, Chemist and Environmental Coordinator for Sadiola Gold Plant. It was observed that he has a Diploma de Matrise de Chimie dated 9 October 2007 from the University of Bamako, giving a BSc in Applied Chemistry.

The procedure specifies how and where samples should be taken, sample preservation techniques, chain of custody procedures, and transfer to the laboratory for analysis. The procedure specifies the steps to be taken during normal monitoring sampling. There is also a quality control/ quality assurance system in place to check cyanide sample results. The Sadiola field data form was sighted, including ICMI requirements of sampling conditions such as weather, livestock//wildlife activity and anthropogenic influences.

Groundwater sampling is conducted on a monthly basis. Surface water sampling is conducted monthly during the rainy season when the streams are flowing. Tailings discharge sampling to the TSF from the cyclone overflow is conducted daily. Wildlife mortality monitoring is conducted daily. There is no procedure for wildlife monitoring, but the requirement is built into the TSF daily inspection checklists. Monitoring is conducted at frequencies deemed adequate to characterise 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 operation has developed written procedures to decommission cyanide facilities at the cessation of operations. The Cyanide Facility Decommissioning Procedure, Revision 05, dated February 2022, was reviewed. The procedure stipulates the requirements for decommissioning and decontaminating of the cyanide-related facilities and infrastructure. The Plan includes an implementation schedule for decommissioning activities. Specific measures and requirements are stipulated in the procedure for 12 months, 6 months and 3 months before closure. The procedure was revised in February 2020. The next revision date is scheduled for February 2025.

Standard of Practice 5.2

Establish a financial assurance mechanism capable of fully funding cyanide-related decommissioning activities.

in full compliance with

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

X not in compliance with

Basis for this Finding/Deficiencies Identified:

The AngloGold Ashanti Sadiola closure plan Update, dated March 2018, was sighted. The Plan included dates culminating in Full closure in January 2022. Demolition/transfer of infrastructures with updated Decommissioning costs of \$21,799,932, which include cyanide decommissioning based upon the guidelines from the decommissioning and decontamination procedure, was sighted.

No evidence was provided of an Allied Gold Corporation (New owners took ownership on 31 December 2020) approved Closure Plan, including Cyanide Decommissioning and Decontamination Costs. Closure and cyanide decontamination cost estimates need to be provided, which are approved/supported by the new owners of Sadiola.

No evidence was provided regarding the proposed review and updating time schedule of cyanide-related decommissioning cost estimates under the new owners, Allied Gold Corporation. It is necessary to know if the operation plans to review and update the cost estimate at least every five years and that this will be approved by the new owners, Allied Gold Corporation.

The Malian Government does not require money to be physically put into an account or Trust or for financial guarantees to be provided. No evidence was provided of a financial mechanism approved by the applicable jurisdiction to cover the estimated costs for cyanide-related decommissioning activities as identified in its decommissioning and closure strategy and approved by the new owners of Sadiola. Evidence is required of a financial mechanism approved by the applicable jurisdiction to cover the estimated costs for cyanide-related decommissioning activities as identified in its decommissioning and closure strategy and approved by the new owners of Sadiola.

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. It is not clear if the operation has established a financial mechanism to cover estimated cyanide-related decommissioning activities after the change of ownership from AngloGold Ashanti to Allied Gold Corporation or if closure provisions have been transferred from AGA to Allied Gold Corporation. Evidence is required of the mechanism, other than self-insurance or self-guarantee, to cover estimated costs for the cyanide-related decommissioning activities as identified in its decommissioning and closure strategy.

The Statement of Financial Strength (Report of factual findings - agreed upon procedures on financial information of AngloGold Ashanti) prepared by Ernst and Young Accountants (signed by Tima Norkie, registered Auditor and Chartered Accountant) dated 26 November 2015 was sighted. The statement is based upon the AGA Group IFRS annual financial statements for the financial years 2010 to 2014 using the specific criteria required by the ICMI. The operation needs to confirm how it will fund the cost of cyanide decommissioning (and Closure). If the operation is going to use self-assurance or self-guarantee as a financial assurance mechanism, the operation needs to provide a statement by a qualified financial auditor that it has sufficient financial strength to fulfil this obligation, as demonstrated by an ICMC-accepted financial evaluation methodology.

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 Auditor reviewed a sample of cyanide procedures to verify that the tasks were conducted in a manner that minimised worker exposure. The procedures included: -

- *Special Cyanide Procedure Sodium Cyanide Make-up*
The procedure to follow during the mixing of cyanide as well as disposal of empty cyanide boxes (burning)Cyanide Container Offloading Procedure
- *Cyanide Container Offloading Procedure*
The procedure to follow during the unloading of the shipped containers that were used to transport the cyanide boxes to the mine.
- *Special Cyanide Procedure Cyanide Equipment Detoxification/Decontamination*
The procedure regulates and controls cyanide handling and detoxification of waste cyanide equipment and cyanide equipment for repair.
- *Special Cyanide Procedure Cyanide PPE Decontamination*
The procedure regulates and controls the safe Cyanide Detoxification of Waste Cyanide on Personal Protective Equipment (PPE).
- *Special Cyanide Procedure Plant Personal Protective Equipment*
The procedure describes the PPE to be worn when working in the different sections of the plant. Milling section, ILR (Intensive Leach Reactor) Section, Leach, CIP Elution sections, Residue Sections, etc.
- *Special Cyanide Procedure Cyanide Areas Access Control*
The procedure regulates and controls access to Cyanide areas, lists the areas that are controlled by "tag", and can only be entered by authorised personnel.
- *Special Cyanide Procedure Entering and Working in Confined Spaces*
The procedure stipulates the requirements for when work needs to be conducted in a confined space area.
- *Special Cyanide Procedure Buddy System Procedure*
The procedure stipulates the requirements to be a buddy and the roles and responsibilities of the buddy.
- *Special Cyanide Procedure Safe Making of Reagents Pipes, Pumps and Vessels*
The procedure stipulates the requirements when making safe equipment before maintenance.

The procedures require, where necessary, the use of personal protective equipment and address pre-work inspections.

The operation solicits and actively considers worker input in developing and evaluating health and safety procedures. Training sessions with plant employees are held when new procedures are implemented. A Toolbox talk report sighted, referred to Health & Safety discussions regarding the safety of lifting equipment and risk assessments and the use of the SLAM (Stop, Look, Assess, Manage) system. Plant Management decides when a new procedure is needed. The Cyanide procedures are drafted by the Cyanide Champion (after consultation with the relevant section workers and supervisor), and it is then circulated to Plant Senior Management for approval. Daily Health and Safety Meetings based on scheduled topics (2020, 2021 and 2022 cyanide safety monthly topics such as buddy system, reaction to cyanide siren, use of mask and filter, cyanide first aid five steps,

cyanide species, and emergency communication were sighted.) are held with plant employees. Monthly HOD (Heads of Department) Mass Health and Safety Meetings are held with employees where issues around health and safety are discussed. Task Risk Assessments involve the staff in the section involved. Mini Risk Assessments, including the appropriate workers, are conducted before each job.

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 operation has determined the appropriate pH for limiting the evolution of HCN gas during mixing and production activities, where the pH is controlled at 10.2. The leach feed pumps and the cyanide dosing pumps are interlocked with the pH so that it shuts down at pH < 9.5. The pH procedure specifies the pH parameters. And controls it at 10 to 10.2 in Leach Tank 1. The Special Cyanide Procedure Sodium Cyanide Make-up, requires the addition of caustic soda to 2%.

The operation has identified areas and activities ("hot spots") where workers may be exposed to cyanide in excess of 10 ppm on an instantaneous basis and 4.7 ppm continuously over an 8-hour period and requires the use of personal protective equipment in these areas or when performing these activities. Plant & TSF HCN Gas monthly surveys indicate that 32 locations around the plant and 6 areas around the TSF are monitored on a monthly basis for HCN gas. Results were reviewed in the Surveys file containing records from 2019 to 2022. The highest observed reading was 2.6 ppm in Leach Tank 1B.

PAC 7000 personal HCN gas monitors must be used in the following areas:- Cyanide mixing and storage area, Leach and CIP section, residue section, ILR section, elution section, acid wash section, cyanide offloading area, as identified by signs at these locations.

PAC 7000 and 8000 personal HCN gas monitors are used when entering a cyanide area. Signs were observed showing when a PAC 7000 or 8000 must be used. Some 48 PAC 7000 and 8000 personal HCN gas monitors are used on the plant and are issued to Plant, Engineering, TSF, Procurement, Laboratory and Safety staff. It is also identified within the procedures what PPE must be used, including PAC 7000 and 8000 monitors. The monitors have an alarm at 4.7 ppm and 10 ppm. The first alarm identifies when face masks must be fitted. These are carried by all employees entering a cyanide area. The second alarm identifies when an area must be evacuated. The PAC 7000/8000 electronic register, indicating calibration expiry dates, was reviewed. The dates in the register change colour automatically to indicate pending calibration requirements. The register



also indicates who has been issued a particular unit and when a unit is taken out of service.

The training certificate for Michael Camara (Cyanide Champion) for the standard procedure, service, maintenance and repair of Dräger PAC 8000, X-am 5000 and Polytron gas monitoring equipment, valid from 8 August 2022 to 8 August 2024, was sighted. Records are retained for at least one year, but going on to three years, as per ICMI requirements. Hydrogen cyanide monitoring equipment is maintained, tested and calibrated as directed by the manufacturer, Dräger, (6 monthly) by the Cyanide Champion who is certified by Dräger to calibrate and maintain the equipment.

During the period of the Covid-19 Pandemic and the closure of the Mali borders by ECOWAS (Economic Community of West African States) for political reasons, the Cyanide Champion worked with an X-dock 6300 automatic calibration machine because he could not travel to refresh his calibration training with Dräger. The machine was certified for calibration from 2020 to 2023.

The Auditor observed the calibration file and sampled calibration records, including examples of calibrations undertaken for the last six months. The register showed when the last calibration was undertaken and when the next one was due. Maintenance is done, as required, by the Cyanide Champion, who has been trained. Complicated maintenance will result in the replacement of the unit.

During the site inspection, warning signs were observed on the plant, placed at appropriate locations throughout the site, indicating necessary personal protective equipment that must be worn and that smoking, open flames and eating and drinking are not allowed. Warning signs at the entrance of the TSF covering necessary PPE and that smoking, open flames and eating and drinking were not allowed were sighted during the site inspection. Additional signs, including at the penstock and the RWD, were also observed.

Currently, all solid cyanide that is mixed for plant use has the red dye, Allura, added during the mixing process. This is included in the Make Procedure. Sadiola commenced adding dye from the ICMI notice in 2019 and has continued the process since then, with all briquettes supplied by various manufacturers.

Showers, low-pressure eye wash stations and dry powder fire extinguishers are located at strategic locations throughout the plant, where cyanide is used, and they are maintained and tested. The use of safety showers was confirmed, and several were tested during the site inspections. Safety shower inspections are conducted monthly. Monthly inspection files were sighted, and records were sampled for 2020 (February, October, December) and 2022 (January, March, and July (Noted faults on the Eluate and Elution showers and the Job Card for both repairs were included under deficiency comments.)). A monthly fitter planned maintenance is done on all the showers. This was confirmed during the electronic review of the PRAGMA PMS system.

The dry powder fire extinguishers are inspected monthly and serviced annually as detailed on the individual fire extinguishers. Monthly Inspections were sampled for: - 2020: the plant in July, May, and November. In 2022, monthly inspections covering the plant for April, June, and January were sampled. The Inspection file was sighted.

The storage, mixing, and process tanks and piping are colour-coded (orange with a purple band for the solution tanks and orange for the piping) to alert workers of their contents.



The tailing pipelines are marked showing they contain poisonous water and have the direction of flow arrowed every hundred metres. They are also marked with arrows showing the direction of flow which was confirmed during the site inspection.

The SDS (Safety Data Sheet) for sodium cyanide in French and English is kept in the Cyanide Champion's office and is located in the Cyanide Mixing and Storage Area. First aid procedures are also located in each of the first aid cabinets. This was confirmed during the site inspections

There are 10 first aid cabinets throughout the plant, including: - the Cyanide Mixing and Storage Area, Cyanide Off-Loading Area, Control Room, Top of the Leach Tanks, Leach 4A, 5B, Elution, TSF, Laboratory, the Intensive Leach Reactor, and the Emergency Station. The locations and contents were confirmed during the site inspection. A cyanide emergency trailer is parked near the plant entrance gate and contains a cyanide SDS.

Exposure incidents are reported, evaluated and investigated using the OHS (Occupational health & safety) Incident Reporting / Investigation procedure. No cyanide-related incidents or lost time / near-miss incidents occurred since the last recertification audit. An example of a Lost Time Incident (LTI) was reviewed. Hot water spurted out on an Operator and burned his lower abdomen down to his knees during the cleanup of the Elution "A" side strainers on the night shift on 13th February 2022. The investigation Report included: - the Executive Summary, Events leading up to the Incident, during the Incident, Basic Cause, Contributing factors, Absent or failed factors, Conclusions and observations, 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 potable water, medical oxygen, resuscitators, and TriPac antidote kits at each of the 10 first aid cabinets throughout the plant, including at the unloading, mixing and storage areas, top of the leach tanks and TSF. The cabinets are all inspected monthly. The clinic at the village also has stocks of TriPacs and additional antidotes in the form of Hydroxocobalamin. It was confirmed during the site inspection that there are mandown alarms at all of these locations and throughout the plant. There are radios and telephones available, and cell phones are carried by the operators and supervisors for normal and emergency communication.

First Aid equipment is inspected on a monthly basis as per the inspection procedure, PPE and cyanide antidote inspection. The First Aid equipment file for the Plant dating from 2018 – 2022 was sighted and reviewed. The inspections cover the 10 cyanide first aid cabinets, which include their contents (cyanide PPE, medical oxygen, antidotes, and

resuscitators). The clinic inspection file covering 2016 – 2022 was reviewed, covering First aid, PPE and antidotes. It was confirmed that the antidote is kept in a fridge in all 10 cyanide cabinets, as required by the manufacturer. Cyanide antidote kits are replaced through the hospital, which obtains the kits from an external vendor 3 months before the expiry date. All antidote kits expire on the same date, simplifying the replacement schedules and deliveries from South Africa. The current Emergency Preparedness and Response Plan, which includes responses to cyanide exposures, was sighted.

The operation has its own onsite capability to provide first aid and medical assistance to workers exposed to cyanide.

Sadiola has an onsite medical facility that will respond to all emergencies, including workers exposed to cyanide. The control room will inform the medical facility of an emergency involving cyanide. The hospital will send an appropriately equipped ambulance to the plant to recover the patient and take them to the hospital, 10 minutes from the Plant. The Medical Procedure, Medical Response and Preparedness During a Cyanide Emergency, was sighted, along with the Inspection file containing inspection records dating from 2018 – 2022. Sadiola also has a fully equipped clinic on site.

An interview with the staff at the Sadiola Medical Facility was conducted. The facility functions as a hospital, with overnight beds and provides a wide range of medical services. It can treat cyanide patients, and its medical staff are trained to provide the specialised care and treatment required by cyanide patients. The current preference is to treat any cyanide patients from the Sadiola mine "in-house" and not send them to local hospitals, which do not have the trained staff and resources to treat cyanide patients. The medical facility has an isolation ward facility that can function for both cyanide and Ebola isolation.

The Medical Director of the Sadiola Mine Hospital has established a dialogue with the medical head of the Pasteur Clinic in Bamako. The two doctors agreed that the Pasteur Clinic could accept cyanide patients referred by Sadiola Hospital and that the Bamako Clinic was adequately equipped and staffed to deal with cyanide patients. It was agreed that Sadiola Hospital would send cyanide antidotes with any cyanide patients referred. This was agreed in an email from Professeur DIANGO, Pasteur Clinic, to Dr Etang Malcolm Ayuk, Health Services Manager, Sadiola Hospital, dated 18 October 2022.

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:

Sadiola has an Emergency Preparedness and Response Plan in place to address potential accidental releases of cyanide and cyanide exposure incidents. The Plan includes emergency procedures to respond to Cyanide Related Incidents, including: - Catastrophic Release of Hydrogen Cyanide; Cyanide Release During Unloading and Mixing; Cyanide Release During Fire and Explosion; Handling of cyanide spillages; Overtopping of Ponds and Impoundments; Power Outages and Pump Failures; Uncontrolled Seepage; Failure of Cyanide Destruction System; and Failure of TSF and Other Cyanide Facilities.

Cyanide transport is now handled by Vehrad Transport and Haulage, Tema, Ghana. Planning for response to transportation-related emergencies, transportation route(s), physical and chemical form of the cyanide, method of transport (i.e., truck), the condition of the road, and the design of the transport vehicle are all included in the Vehrad Transport and Haulage Transport Management Plan for Sadiola Mine.

The Emergency Preparedness and Response Plan (EPRP) includes clearing site personnel by requiring in the Emergency Procedure Cyanide Related Incidents-Catastrophic Release of Hydrogen Cyanide, in Section 4.5, "...Evacuation – all personnel not involved in the emergency to be upwind and out of the emergency area..." There are no potentially affected communities within the area of exposure that would need to be evacuated. The medical procedure, Medical Response and Preparedness During a Cyanide Emergency, includes the use of cyanide antidotes and treatment measures for cyanide exposure. The procedure, Control of releases at their source, includes containment and assessment mitigation and future prevention of releases. All emergency scenarios include descriptions of the response actions to the events. Containment of cyanide is included in the cyanide-specific scenarios in the cyanide emergency procedures. Future prevention of releases is identified after the investigation of the causes of the releases using the investigation procedure.

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 Sadiola workforce is involved in the emergency response planning process through training and drills and monthly cyanide topics. This was confirmed during the review of cyanide drills, toolbox talks and monthly safety mass meeting minutes. The workforce and Sadiola Medical Facility are also consulted through feedback sessions following cyanide mock drills.



There are no potentially affected communities adjoining the mine, but the mine holds regular quarterly meetings with 8 villages around the mine which include information sessions on cyanide and emergency response.

Local response and medical agencies will not be used in cyanide emergencies as they are not equipped or trained to deal with them. The local Civil Protection organisation are the only outside responders involved in the emergency planning and response process. The Civil Protection organisation has received specific training regarding emergency incidents, including hazardous chemicals. They have been on site undertaking an orientation and awareness visit, the most recent of which was on 29 May 2022.

There is a Malian External Services Contact list in the Plan, which includes telephone numbers for stakeholders who may need to be contacted depending on the circumstances of the incident/emergency.

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 the emergency response team are detailed in the Plan. The onsite team commander is the plant manager or the plant engineer, and the explicit authority to commit resources is part of their managerial authority in liaison with the Services Manager. There are 11 Emergency Response Plant Team members, whose details, including names, photos, and telephone numbers, are posted on the notice boards and first aid boxes, separate from the Plan, and throughout the Plant. Details are also included in the quarterly newsletter, Sadiola News.

The Plan's Section 8, Escalation Points and Incident Levels, describes three levels of incidents with guidelines on action, and responsibilities, and relevant authority for each level of Incident.

In the Plan, Section 7, Plan Training and Testing, includes reference to the training matrix for the Emergency Response Team. The Training matrix for the emergency response team was sighted and reviewed and is detailed in 8.3 below. Typically, refresher training for the emergency response team members is conducted bi-annually as per Section 7, but this was delayed through the Covid-19 Pandemic. Refresher training was conducted in 2022.

The call-out procedure and contact information are in the Contact Section of the Plan, and the Chemical Emergency Response Team call-out Procedure. Emergency Response Team posters with contact names and telephone numbers on notice boards were verified during the site inspection.



A section in the emergency file contains contents lists of the cyanide first aid boxes from 1 to 11. Checklists for the Cyanide Emergency cabinets are filed separately by the Cyanide Champion. There is a PPE and Cyanide Antidote Inspection Procedure in place, and Inventory lists are included for all sections, and the cyanide emergency trailer, is included in the Plan. The Cyanide Champion is responsible for ensuring that all cyanide emergency equipment is inspected and available.

No outside responders are used during cyanide emergency situations. Communities do not participate in the emergency responses but are given information on cyanide. Medical facilities are operated by the mine.

No outside entities are involved in the emergency response. The mine medical facility is part of the Plan response and emergency drills. It was confirmed that the Sadiola Medical Facility is involved in full-cycle emergency drills. The local Civil Protection organisation are the only outside responders that are potentially involved in the emergency planning and response process. The Civil Protection organisation have received separate specific training with regard to emergency incidents, including hazardous chemicals. They have been on site undertaking an orientation and awareness visit, the most recent of which was on 29 May 2022.

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:

The Plan, in section 8, Escalation Points and incident levels, discusses emergency scenario escalation levels 1, 2 and 3, where notification for each level, including management, regulatory agencies, and external response providers, is specified. The Plan includes a section, Section 10, including Malian External Services Telephone names, numbers, and media relations contacts covered in the Plan. The Public Relations Manager has full details of key community members and contacts. The Community Cyanide Committee is also used as communication contacts.

The Procedure, Cyanide Incident Notification to ICMI, requires the operation to notify ICMI of any significant cyanide incidents. The procedure defines these as per the ICMI listing (pages 6 and 7 of the ICMI Definitions and Acronyms document). The procedure requires initial notification within 24 hours and further salient information to be provided within seven days. The procedure includes a reporting template specifying:- the Incident date, the nature of the Incident, where and when did it happen? How did it happen? What are the health, safety and environmental impacts? What the remediation mitigation is, and who the contact person is on the mine site for further information.



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:

The Plan cross-references to the procedural file containing neutralisation and the decontamination methodology in the procedure, Cyanide spillage solids and liquids. The Special Cyanide Procedure, Handling of Cyanide Spillages, states that sodium hypochlorite, ferrous sulphate and hydrogen peroxide (cyanide treatment chemicals) shall not be used to treat cyanide that has been released into surface water unless human life is threatened. Neutralisation of cyanide is carried out using treatment chemicals which are kept in the chemical store. Further detailed instructions on mixing ratios of ferrous sulphate and dispersion ratios are included in Section 4.7 Neutralisation Process, in the Procedure, of 4_SAD_MET_ Emergency Procedure – Cyanide Related Incidents - Catastrophic Release of Hydrogen Cyanide. The cyanide emergency procedure covering catastrophic releases also states that all spill cleanup debris and contaminated media shall be disposed of in the TSF. Neutralisation testing is done using starch iodide test paper to ensure complete neutralisation of cyanide. In an emergency, Sadiola Mine can supply drinking water via a water tanker sourced from the Mine's Water Treatment Plant.

The Procedure, Taking Water Samples for Cyanide, is used for taking groundwater or surface water samples and is also used for both normal and emergency sampling. A Plan of all sampling locations, surface water and groundwater, was sighted and reviewed. Depending upon the cyanide release, the environmental manager may choose additional sampling locations.

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, Section 6.0 Plan Maintenance and Change Management details under what circumstances (e.g., after implementation of the Plan, following recommendations from a drill, technical innovations, or legal or as a result of regulatory requirements) the



Emergency Preparedness and Response Plan will be updated. In addition, it will be reviewed every 3 years as per the document control procedure.

Mock drills are normally undertaken quarterly, but this has been disrupted by the Covid-19 Pandemic. A full cycle drill (drill report sighted) was undertaken where the scenario was that a team of contractors were working to rehabilitate the shelters in the reagent storage area. Simultaneously, the cyanide process mixing was being undertaken. While in the process of taking back the empty cyanide bags, the wind blew, and a contractor inhaled the residual dust from an empty bag. The worker was conscious but was experiencing contamination symptoms. He alerted his supervisor, who raised the alarm. The good points arising from the drill include: - contractor supervisor knew what action to take; workers responded promptly; Emergency Response Team reacted in 5 minutes; Security assisted by opening the gates and directing the ambulance; and the alarm was in good working order.

Points for improvement include: - the clinic doctor came alone and was not wearing PPE; the Control Room operator could not get the clinic on the phone due to network issues; tar road to the clinic was in bad condition; The first aiders were not assisted in doffing their PPE; and only one First aider was in the ambulance to assist the victim.

A cyanide spill drill could not be completed due to Covid-19 Pandemic, but a chemical (peroxide) spill drill was carried out on 18 March 2022. The scenario suggested that while transporting drums full of peroxide, the forklift operator was speeding and lost control of the machine. A drum fell, causing a large spill of peroxide. Good points – The team were able to control and contain the chemical spill; communication steps were followed; Areas of improvement – some of the reagent make-up workers did not comply with the call-out procedure, and use of water to mitigate the risk of fire without following the communication steps is considered as a short cut.

Section 6, Plan Maintenance and Change Management, details when the Emergency Preparedness and Response Plan will be updated. In addition, it will be reviewed every 3 years as per the document control procedure. Section 6.7.5 details that the Plan must be updated after it is used for an actual event. Reviews of the Plan have been undertaken, but only minor changes have been made.

There have been no actual cyanide-related incidents requiring the implementation of the emergency response procedures that have occurred during the past ICMC recertification period. It has, therefore, not been necessary to evaluate or revise any of its emergency response procedures.

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:

A separate cyanide induction, "Sodium Cyanide Awareness and Safe Handling", is given to all persons working on the plant. It includes a section on cyanide awareness and the following topics: -

- What is cyanide, and what are its uses?
- Cyanide exposure routes to the body,
- symptoms of poisoning,
- first aid and medical treatment,
- Cyanide PPE, and
- basic emergency response and treatment.

All engineering, security, store, and operational staff in the plant are included in the cyanide first aid training. A written and oral pre-test is 100%, and post-tests are conducted. The pass mark for both is 80%. Once training is completed, an employee is issued with a badge to confirm the training has been successfully completed.

Refresher cyanide training is conducted when an employee returns from leave. He or she must undergo cyanide refresher training and is not permitted to commence work until the refresher is successfully completed. Refresher cyanide training must be completed at least annually.

All records are kept by the Training Department from the start of the employee's employment for 20 years (local legislation requirement), but, in practice, records are kept permanently in a storage container. Interviewees' training records and assessments were sampled.

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:

All personnel involved with tasks involving cyanide equipment where solutions and pulp contains more than 0.5ppm WAD cyanide receive training using the standard and cyanide procedures as source material. Competence is assessed using Planned Task Observations (PTOs). The task training matrix for the Metallurgy Department was sighted and reviewed.



The SOPs (Standard Operating Procedures) are used for training, followed by verbal testing and PTOs. A matrix indicating training requirements for all the various job descriptions on site was sighted and reviewed.

Training is provided by the Plant Training Officer, who has completed the "Train the Trainer" course, an Internal auditor course, and is an ex-foreman in the plant with 26 years of experience. A card-based control system is in place to ensure that a new employee received task / area-specific training before being allowed to operate or do maintenance on a cyanide section.

SOP training, once completed, is only repeated if the SOP is changed or if PTOs are conducted and identify worker-specific training deficiencies. The Plant training officer conducts refresher training using SOP procedures. All supervisors are required to complete a minimum of 4 PTOs per month. The effectiveness of cyanide training is evaluated using Planned Task Observations (PTOs). On-the-job training techniques followed by PTOs are used. Illiterate personnel are tested verbally and checked in the field using PTOs. Deficiencies are addressed through retraining. Foremen conduct PTOs using the SOPs.

All records are kept by the Metallurgy Department from the start of the employee's employment for 20 years (local legislation requirement), but in practice, records are kept permanently in a storage container. The records include the names of the employee and the trainer, the date of training, the topics covered, and if the employee demonstrated an understanding of the training.

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:

A special plant emergency response team (ERT) with special training is in place to react to cyanide emergencies, including cyanide releases. Although all personnel are trained in basic cyanide first aid, they are not all involved in emergency response activities.

Posters with emergency team members' names, contact numbers, and photos were sighted throughout the Plant during the site inspection.

The ERT training matrix, including HCN Gas Monitoring, confined space rescue, advanced cyanide first aid, Use of Self-Contained Breathing Apparatus (SCBA), the Emergency Response Plan, Cyanide First aid, and HAZCHEM handling, was sighted.

The clinic will be contacted by the Control Room operator, in the event of a cyanide emergency, who will dispatch the ambulance and trained doctor/nurse to the plant to assist the ERT. Mock drills are conducted involving all personnel as a part of the training process.



The Sadiola Mine medical facility is involved in the emergency response plan. No community members are involved in the Emergency Response Plan. The local Civil Protection are not directly involved in the cyanide emergency response plan but can provide support if requested. On 2nd June 2022, 12 members of the Civil Protection Department, based at Kayes, visited the Plant for an orientation and inspection visit.

The Emergency Response Plan specifies refresher training frequency as bi-annually. Normally, refresher training for the emergency response team members is conducted bi-annually but this was delayed through the Covid-19 Pandemic, Refresher training was conducted in 2022. Updated training certificates (22 September 2022) for 13 members of the ERT, confirming refresher training, were sighted.

All records are kept by the Metallurgy Department from the start of the employee's employment for 20 years (local legislation requirement), but in practice, records are kept permanently in a storage container. The records include the names of the employee and the trainer, the date of training, the topics covered, and if the employee demonstrated an understanding of the training.

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 interrupted the programme of face-to-face contact with stakeholders. However, despite this, some engagement sessions were held. Usually, Quarterly sessions are held with the 8 villages around the Sadiola mine (Sadiola, Farabakuta, Medine, Sirimana, Neteko, Borokone, Tabakot, and Sekokoto). Each village sends 4 people as representatives.

A meeting with the villages' representatives was held on 18 March 2021, which included a discussion on cyanide and confirming that Sadiola's new owners, the Allied Gold Corporation, were committed to keeping the communities informed on cyanide, cyanide transport and cyanide management. This was the first community meeting after the Covid-19 pandemic restrictions. The meeting was held in French and Bambara (the local dialect). A further meeting was held on 21-23 April 2022 to induct new members of the Committee, give cyanide training to new members, and refresh old members.



An orientation visit was held for 23 military personnel from Bamako on 24th May 2022. 12 members attended the orientation of various ranks. A stakeholder orientation visit was arranged for Kayes Civil Protection Services staff on 2 July 2022.

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:

A presentation including cyanide awareness was developed in French and is given to the attendees in the local languages of Bambara and Malinke. A significant number of attendees were not literate. A hard copy of the presentations is available on request.

Plant activities were demonstrated during site visits to the plants, and flow sheets were distributed to participants (An example was sighted). The participants included current contract or casual workers who were interested in understanding more about the process from the point of view of progressing employment prospects.

A newsletter used to be distributed but was stopped during the Covid-19 pandemic. The newsletter, Sadiola News, was re-started in December 2021 and is published in French. This publication is available to all stakeholders and the Public. The previous AngloGold Ashanti (AGA) reporting structure was no longer available once the Mine was sold to the Allied Gold Corporation.

In the site Emergency Preparedness and Response Plan, Section 11, Emergency Notification of Surrounding Communities, states,"... The Incident Controller in consultation with the Managing Director will instigate incident notification to nominated authorities for surrounding communities via the External Phone list located in Emergency Response Plan....."

Sadiola has not had any cyanide incidents (Health, Safety or Environmental) in the 3 years since the last recertification that required reporting on a public level; thus, no reports were made.

To replace the previous AGA reporting structure, SEMOS reinstated the quarterly "Sadiola News" newsletter in French. This will be used to communicate information on any cyanide incidents after they have been thoroughly investigated. Each newsletter will have a regular cyanide column dedicated to reporting on cyanide and providing information and education on cyanide management. The December 2022 issue was sighted, which included contact information on the plant chemical team, cyanide first aid, chemical spills and ABC first aid, and news relating to the Cyanide Code. Other additional publication methods, such as a sponsored article in a Malian national newspaper or other publications, are being considered.

