IDUAPRIEM GOLD MINE ICMC RECERTIFICATION AUDIT - SUMMARY AUDIT REPORT

Iduapriem Gold Mine

Prepared for: AngloGold Ashanti Iduapriem Limited

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Name of Cyanide User Facility:	Iduapriem Gold Mine
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2 LOCATION AND DESCRIPTION OF OPERATION

AngloGold Ashanti Iduapriem Limited (AAIL) Gold Mine is located in the Western Region of Ghana, about 17 km southwest of Tarkwa.

The original Iduapriem Gold Mine started operating in June 1992 and was designed to treat approximately 2.4 million tonnes per annum (mtpa). The plant has undergone several expansions carried out since original commissioning. The most recent expansion works were completed and commissioned in November 2017, where the process was changed to a fully operational CIL (carbon-in-leach) process. The process plant now has a capacity to treat approximately 5.1 Mtpa, at a recovery of 96%, to produce about 253,000 ounces of gold per annum. The operation utilizes two Semi-Autogenous Grinding (SAG) Mills and two Ball Mills which run in two parallel closed circuits.

2.1 CRUSHING PLANT

Ore mined from “Ajopa”, Blocks 7 and 8, and “Block 3 valley” is hauled by means of 777 dump trucks to the crushing plant. Conventionally, the dump trucks do direct tipping into a 400 m3 Run-of-mine (ROM) bin that feeds a MK11 54-75 primary crusher (gyratory crusher) or is stockpiled (ROM stockpile) and fed to the ROM bin at a later time when not hauling from the pit. The crushed product is conveyed to a primary screen with a double deck, top deck screen size 100 mm x 100 mm and lower deck screen size 50 mm x 50 mm to improve mill throughput with intensive high powder factor blast material. The oversize material from the screen is conveyed to a secondary stockpile of 30,000 tons capacity. The undersize product joins a 5.1 km conveyor which sends the material to the CIL upgrade stockpile. With the help of apron feeders, feed is sent from the secondary stockpile to two GP550 secondary gyratory crushers. The secondary crushers operate in closed circuit with two sets of secondary screens. Screen sizes are 65 x 40 mm. The oversize material goes back to the secondary crusher for further size reduction. The undersize joins the 5.1 km conveyor to the 8,800 tonne CIL upgrade stockpile. A

pebble crushing plant (Scats Crusher) is mounted close to the 9000 tonne capacity CIL stockpile to treat scats generated from the mills.

2.2 MILLING

Iduapriem is running a CIL system with two conventional SABC (Semi-Autogenous Ball Mill Crusher) circuits and pre-leach thickening. Each circuit is in a closed circuit with one XD48 Knelson concentrator. Circuit # 1 has two dedicated thickeners (16 metre diameter supaflo) for pre-leach thickening, whilst circuit # 2 has one 24 metre diameter thickener also for pre-leach thickening.

A dual reclaim apron feeder, conveyor tunnel system is used to deliver the crushed product to two SAG Mills operating in parallel. The SAG Mill #1, (5.2 m Ø x 6.0 m Effective Grinding Length (EGL), 2500 kW motor) and Ball Mill #1, discharge into a common hopper. Slurry from the hopper is pumped to cyclone cluster # 1. In the same way, the SAG Mill # 2 (5.55 m Ø x 7.3 m EGL, 3750 KW motor) and Ball Mill # 2, have a dedicated discharge hopper, pumps and cyclones (cyclone cluster # 2). The cyclone overflow from each cluster reports to respective trash screens and underflows to respective distributor boxes.

Distributor box # 1 for circuit # 1 has three outlets, with the largest flow to the ball mill for further size reduction. The second outlet bleeds a stream to the gravity circuit scalping screen, while the third outlet allows SAG # 1 to be run in closed-circuit when Ball Mill # 1 is down for planned maintenance. The same arrangement is replicated for circuit # 2. The Ball Mill # 1 is a 4.3 m Ø x 7.0 m EGL overflow mill, with 2250 kW motor and Ball Mill # 2 is a 4.26 m Ø x 7.32 m Hardinge with 2250 kW motor.

The cyclone overflow material is de-trashed using two 25-meter square Delkor Linear Screens. The de-trashed slurry, known as thickener feed material, then reports to their respective thickeners which operate in parallel to allow density of slurry to be raised from 28% solids to 52% solids before it reports to the Leach Circuit.

2.3 IN-LINE LEACH REACTOR

A gravity circuit comprising two XD48 centrifugal (Knelson) concentrators and an In-line Leach Reactor (ILR – Series 1000) recovers free gold (gravity gold) by processing the dense particles from the cyclone underflow slurry. Each circuit has one Knelson concentrator and part of the cyclone underflow is bled to feed the Knelson concentrator.

The concentrator operates in batch mode. Once the pre-set cycle time (of 60 mins) has elapsed, the unit goes through a flush cycle time to discharge accumulated concentrates. The concentrates are flushed to the feed cone of the ILR for further treatment by intensive cyanidation through a batch-type ILR, where the gold is dissolved and electrowon onto steel wool cathodes in a dedicated electrowinning cell. Gravity gold accounts for approximately 38-40% of gold produced from the Iduapriem gold treatment plant.

2.4 LEACH

There are eleven Carbon-in-Leach (CIL) tanks with the first tank serving as a pre-leach tank. The CIL method of metal recovery involves leaching and absorbing gold in solution with activated carbon at the same time. Cyanide concentration of approximately 260 ppm (set point) and an average dissolved oxygen level of about 24 ppm are maintained in leach tanks # 1 and # 2. Cyanide and oxygen levels drop down stream. Additional cyanide and oxygen points (hydrogen peroxide) are located on leach tanks # 3 and # 4 to ensure leaching of the gold into solution is maximized. On average the leach contact time is between 14-18 hours and total gold recovery about 96%.

Carbon is used in the adsorption tanks to recover the gold cyanide complex ions out of solution as the carbon moves in counter current direction to the flow of the slurry. Carbon is continuously moved from tank to tank via recessed impeller pumps accumulating higher gold values in the process. Carbon is then recovered from leach tank # 2 for elution. Carbon can also be recovered from leach tank # 3 when leach # 2 is isolated or taken out of circuit for any reason.

2.5 DESORPTION

The Anglo American Research Laboratory (AARL) method is employed to get the adsorbed gold on the carbon back into solution form using about 3-5% caustic solution. The gold is then electrowon onto steel wool cathodes in an electrowinning cell.

The loaded carbon is recovered from leach tank # 2 into the acid wash column. This is then acid washed using 3% strength hydrochloric acid followed by water rinsing. The rinsed carbon is then transferred to the elution column where a caustic solution of 3-5% is circulated through the elution column via the heat exchangers until an elution temperature between 110°C – 120°C and an operating pressure of 300-400 kilo pascals (Kpa) is attained in the column.

The caustic solution is then directed into a pregnant electrolyte tank and water is used to wash the solubilised gold from the carbon into the pregnant electrolyte tank. The pregnant electrolyte is pumped through two electrowinning cells for gold deposition. Once or twice weekly the loaded steel wool cathodes are removed, calcined and smelted into Doré bullion. The barren carbon is transferred to the adsorption circuit or to the carbon regeneration kiln where it is thermally reactivated at 650°C in a horizontal, diesel-fired kiln. The reactivated carbon is collected in a quench tank and hydraulically transferred into adsorption tank # 7 (last CIL tank) through a carbon sizing screen.

2.6 TAILINGS AND PROCESS WATER

Phase 1A of the Tailings Storage Facility (TSF) was commissioned after 6 months construction work, which was started in November 2010. The tailing discharge is approximately 45-48% solids where it is allowed to settle out. The tailings discharge pipes are High Density Polyethylene (HDPE) lined steel pipes with a diameter of 450 mm and the decant return water pipes are 500 mm diameter HDPE. The decant water from the slurry is continuously pumped back to the process water concrete dam inside the plant, to minimize accumulation of water on the TSF, from where it is pumped to various sections inside the plant for reuse in the processing operation. Monitoring has shown the level of Weak Acid Dissociable (WAD) cyanide in the process water concrete dam is below 0.5 mg/l and therefore it is not a cyanide facility.

Normally all water from the TSF will be returned to the plant for re-use. When the capacity of water to the plant exceeds the plant capacity of about 680 m^3/hr, then the balance of the return water will be sent to the Waste Water Treatment Plant (WWTP) for treatment to the Ghanaian Environmental Protection Agency (EPA) water quality standard before being released to Block 3 or Block 4, disused pits used for water storage. Typically, a maximum of 1000 m^3/hr of water can be pumped from the TSF using two pumps. The WWTP can treat 450 m^3/hr.

2.7 CYANIDE DELIVERY

The cyanide arrives at the Orica Bag-to-Bulk facility, adjacent to the mine site, as a solid in briquette form. The Orica Bag-to-Bulk facility is fenced off, under lock and key, and public access is restricted. On request from the process plant, requirements for cyanide are scheduled, and batches of 20 tonnes of briquette cyanide are transferred from boxes into isotainers and transported to the process plant under security escort. At the plant, the 20 tonne batches of solid cyanide are sparged (dissolved) into a solution at the cyanide sparging facility. The

cyanide solution is then pumped out of the isotainer into the mixing and dosing tanks before being used in the leach process.

SUMMARY AUDIT REPORT

AUDITORS FINDINGS

Iduapriem Gold Mine is:	☒ **in full compliance with**	**The International Cyanide Management Code**
	☐ in substantial compliance with	
	☐ not in compliance with	

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Mine Technical Auditor	Marie Schlechter

COMPLIANCE STATEMENT

Iduapriem Gold Mine, Ghana has not experienced any cyanide incidents or compliance issues during the previous three year audit cycle.

NAME OF OTHER AUDITORS

Marie Schlechter (ICMI pre-certified Mine Technical Specialist).

DATES OF AUDIT

The Re-certification Audit was undertaken between 9 May 2022 and 12 May 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 (ICMI) and that all members of the audit team meet the applicable criteria established by the International Cyanide Management Code (ICMC) Verification Auditors.

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

The "International Cyanide Management Code For The Manufacture, Transport, And Use Of Cyanide In The Production Of Gold and Silver" (the Code) was developed by a multi-stakeholder Steering Committee under the guidance of the United Nations Environmental Program (UNEP) and the then, International Council on Metals and the Environment.

The Code is a voluntary industry programme for gold and silver mining companies, and companies involved with the production and transport of cyanide to gold and silver mining companies; it focuses exclusively on the safe management of cyanide. Companies that adopt the Code must have their operations, which manufacture

cyanide, transport cyanide or use cyanide to recover gold and silver, audited by an independent third party to determine the status of the Code's implementation. Those operations that meet the Code's requirements can be certified and are able to use a unique trademark symbol, which identifies the company as a certified operation. Audit results are made public to inform stakeholders of the status of cyanide management practices at the certified operation.

The objective of the Code is to improve the management of cyanide used in gold and silver mining and assist in the protection of human health and the reduction of environmental impacts (refer to www.cyanidecode.org). The Code is managed by the ICMI.

PRINCIPLE 1 – PRODUCTION

ENCOURAGE RESPONSIBLE CYANIDE MANUFACTURING BY PURCHASING FROM MANUFACTURERS THAT OPERATE IN A SAFE AND ENVIRONMENTALLY PROTECTIVE MANNER

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

☒ **in full compliance with**

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

☐ not in compliance with

Summarise the basis for this Finding/Deficiencies Identified:

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

The cyanide arrives at the mine from the Orica Bag-to-Bulk facility, adjacent to the mine site. From the 1 January 2020 the cyanide has been supplied to the Orica Bag-to-Bulk Facility from the Orica manufacturing facility in Australia. Prior to this the cyanide was supplied by Samsung from the TaeKwang Industrial Company manufacturing facility in the Republic of Korea.

The auditors observed the following:

Amendment to Contract No. AFR31320 between Samsung C&T Deutschland GmbH and AngloGold Ashanti Limited for the supply of solid sodium cyanide briquettes, Amendment 22, May 2018: valid from 1 November 2016 to 31 December 2019.

Agreement for the Supply of Products (Cyanide) between Orica Ghana Limited and AngloGold Ashanti Iduapriem Limited, 31 December 2019.

Orica's Cyanide Transfer Facility in Ghana was recertified under the Code on 16 August 2021.

TaeKwang Industrial Co., Ltd was initially certified on the 14 April 2008 and recertified on 24 July 2020.

Orica's Yarwun Production Facility was initially certified on 28 November 2006 and recertified on 17 September 2020.

PRINCIPLE 2 – TRANSPORTATION

PROTECT COMMUNITIES AND THE ENVIRONMENT DURING CYANIDE TRANSPORT

Standard of Practice 2.1: **Require that cyanide is safely managed through the entire transportation and delivery process from the production facility to the mine by use of certified transport with clear lines of responsibility for safety, security, release prevention, training and emergency response.**

☒ **in full compliance with**

The operation is

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

☐ not in compliance with

Summarise the basis for this Finding/Deficiencies Identified:

The operation is in full compliance with Standard of Practice 2.1; 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.

The operation has chain of custody records or other documentation identifying all transporters and supply chains responsible for transporting cyanide from the producer to the operation. There relevant Bill of Lading and Waybills were observed by the auditors.

Until the 1 January 2020 the cyanide was produced at the TaeKwang Industrial Company manufacturing facility in the Republic of Korea then transported to the port of Tema in Ghana, from where Vehrad Transport and Haulage Limited transported it to the Orica Bag-to-Bulk facility adjacent to the mine and then it was transported to the sparging facility at the mine. This supply Chain was certified as the part of the Samsung C&T Africa Supply Chain, which was initially certified on 12 July 2011 and most recently recertified on 15 June 2021.

Vehrad Transport and Haulage Limited was initially certified 14 July 2008 and most recently recertified on 23 September 2021.

After 1 January 2020 the cyanide was produced at the Orica manufacturing facility in Australia then transported to the port of Tema in Ghana, from where Stellar Logistics transported it to the Orica Bag-to-Bulk facility adjacent to the mine and then it was transported, again by Stellar Logistics, to the sparging facility at the mine. This supply chain was certified as part of the Orica West Africa Supply Chain, which was initially certified on 19 May 2011 and most recently recertified on 3 April 2018.

Stellar Logistics was initially certified on 14 April 2015 and most recently recertified on 22 November 2021.

PRINCIPLE 3 – HANDLING AND STORAGE

PROTECT WORKERS AND THE ENVIRONMENT DURING HANDLING AND STORAGE

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

The operation is

☒ **in full compliance with**

☐ **in substantial compliance with** **Standard of Practice 3.1**

☐ **not in compliance with**

Summarise the basis for this Finding/Deficiencies Identified:

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

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

The cyanide arrives at the Orica Bag-to-Bulk facility, adjacent to the mine site, as a solid in briquette form. On request from the process plant, requirements for cyanide are scheduled, and batches of 20 tonnes of briquette cyanide are transferred from boxes into isotainers at the Bag-to-Bulk facility and transported to the process plant. At the plant, the 20 tonne batches of solid cyanide are sparged (dissolved) into a solution at the cyanide sparging facility by filling the isotainer with a specified amount of water and waiting 2 hours for the briquettes to dissolve. The cyanide solution is then pumped out of the isotainer into the mixing and dosing tanks before being used in the leach process.

The cyanide sparging and storage facility and dosing lines to the leach section was designed by Orica, an ICMI certified cyanide producer, which also owns the cyanide Bag-to-Bulk facility.

There have been no changes to the facility since the previous re-certification audit.

It was confirmed during the site audit that the cyanide unloading, mixing and storage facility is located away from people and surface waters.

The cyanide sparging facility is located inside the security fence of the plant, inside a locked fenced area. The plant has strict access control for the plant and the sparging facility.

The liquid cyanide is unloaded on a concrete surface that can minimise seepage to the subsurface and the unloading area is designed and constructed to contain, recover or allow remediation of any leakage from the isotainer system.

It was verified during the site audit that the cyanide sparge isotainer is parked on a bunded concrete parking bay. Any spills from this area drain by gravity into the concrete bund for the mixing and dosing tanks.

The bund is equipped with a sump and automated pump system to recover any spillage back to the leach tanks.

There are systems in place to prevent the overfilling of cyanide mixing and dosing tanks. These systems are tested and maintained on a routine basis.

There are high level alarms for the mixing and dosing tanks which can be observed on the display at the facility. The tanks are equipped with level indicators. Interlocks in the mixing tank are in place to prevent the tank from running empty (7%).

The Programmable Logic Control Prefill set point is pre-set to give a target concentration of 30% w/w Sodium Cyanide (NaCN). The amount of water added for prefill is approximately 50 m^3, which raises the mixing tank level from approximately 7% to between 38% - 42% - depending on what the level was when prefill was started. Adjustment of the quantity added is not available to the driver or Shift Supervisor. If for some reason, the amount of water added exceeds the pre-set overfilled level, the raw water valve is automatically closed.

When transferring cyanide from the mixing tank, in transfer mode the control system stops the pump if the dosing tank level reaches high level (95%), or after the mixing reaches low level (7%), or after 10 seconds of low motor current (<15 amps).

The mixing and dosing tanks constructed of mild steel are located on a horizontal unit installed on a steel cradle bolted to concrete plinths and placed inside a concrete bund.

It was confirmed during the site audit that the secondary containments for cyanide mixing and dosing tanks is constructed of concrete that provide a competent barrier to leakage.

It was confirmed that the bund was in a good condition with no cracks noticed.

No solid cyanide is stored on site. The cyanide is stored as a liquid following the sparging and offloading activity in the mixing and dosing tanks.

The liquid cyanide is stored in two adjacent tanks that are; equipped with ventilation pipes, located in a secure area, and separate from incompatible materials such as acids, strong oxidizers and explosives and apart from foods, animal feeds and tobacco products.

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

The operation is

☒ **in full compliance with**

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

☐ **not in compliance with**

Summarise the basis for this Finding/Deficiencies Identified:

The operation is in full compliance with Standard of Practice 3.2; operate unloading, storage and mixing facilities using inspections, preventative maintenance, and contingency plans to prevent or contain releases and control and respond to worker exposures.

No solid cyanide is stored on site. The cyanide is stored as a liquid following the sparging and offloading activity in the mixing and dosing tanks.

The cyanide container is the isotainer that brings the briquettes to site for the sparging, which is only used and reused for this purpose.

The operation has developed and implemented plans or procedures to prevent exposures and releases during cyanide unloading and mixing activities such as the following that were observed by the auditors. It is noted that no solid cyanide is stored on site.

Cyanide Sparging Procedure, IPCN-049, Rev 7, 1 May 2021 - Section 6.6.7 Sparge Operations –

Cyanide Sparging Procedure, IPCN-049, Rev 7, 1 May 2021

Section 6.2.2 - Prefill the Dissolving Tank with Raw Water - states the required operation of valves, including specifically stating which valves should be open and which should be closed.

Section 6.2.5 - Connecting the Sparge Hoses to the Sparge Isotainer

Section 6.2.6 - Sparge Pump Selection.

Section 6.6.7 - Hosing - states that any spillage or drips of cyanide, including drips on the Sparge Isotainer must be hosed down prior to leaving the discharge bay. The hosed down liquid will then enter the tank bund by gravity from where it is pumped to the leach tanks.

Section 5 – Personal Protective Equipment (PPE) Level - lists the required PPE to be used during Sparging activities, including personal gas monitor (Hydrogen Cyanide), respiratory canister, rubber boot, chemical suit, chemical gloves, face shield.

Section 6.1.1 - Emergency / Cyanide Poisoning - In normal operation, the driver, Iduapriem operator and a buddy will be involved with sparging. If a cyanide emergency and/ or poisoning occurs, the affected person or the buddy shall undertake the following:

- Call on the two radio to raise the alarm.

- Operate a shower alarm pushbutton to raise the audible alarm.

- Enter shower, remove any contaminated clothing, wash contaminated skin and remain in shower until help arrives.

Cyanide Sparging Procedure, IPCN-049, Rev 7, 1 May 2021- Section 6.2.3 Caustic and Carmosine Dye Addition - after prefill requires addition of dye to the sparge vessel through the caustic hopper. It was observed during the site visit that the cyanide solution being dosed to the leach is red.

PRINCIPLE 4 – OPERATIONS

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

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

The operation is

☒ **in full compliance with**

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

☐ **not in compliance with**

Summarise the basis for this Finding/Deficiencies Identified:

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

The operation has developed written management and operating plans or procedures for cyanide facilities including unloading, mixing and storage facilities, process plants, and tailings impoundments.

The operation does not have any heap leach, cyanide treatment, regeneration or disposal systems.

The operation has the following:

- 42 Cyanide Procedures;
- 9 Environmental Procedures;
- 11 Emergency Preparedness Procedures; and
- 12 General Emergency Procedures.

This includes the following;

- Procedure for examination of personal protection equipment, IP-CN-004, Rev 7, 1 May 2021.
- Procedure for Cyanide PPE Decontamination, Storage and Disposal, IP-CN-005, Rev. 7, 1 May 2021.
- Procedure for Using Respiratory Canister with Full Face Mask, IP-CN-006, Rev 7, 1 May 2021.
- Procedure for Entry into Confined Spaces, IP-CN-10, Rev. 7, 1 May 2021.
- Procedure for checking Cyanide First Aid Kits, IP-CN-009, Rev. 7, 1 May 2021.
- Procedure for Buddy System, IP-CN-047, Rev. 7, 1 May 2021.
- Changing Over of Cyanide Dosing Pump, IP-CN-043, Rev. 7, 1 May 2021.
- Key Control and Access to the Cyanide Area, IP-CN-042, Rev. 7, 1 May 2021.
- Sampling, IP-CN-041, Rev. 7, 1 May 2021.
- Emptying Cyanide Spillage Bund, IP-CN-30, Rev. 7, 1 May 2021.
- Cyanide Sparging, IP-CN-049, Rev. 7, 1 May 2021.

TSF procedures include the following:

- AngloGold Ashanti Continental Africa Project, Greenfields TSF Operating Manual, June 2021.
- Procedure for Anti-drowning Safety Procedure for Plastic/HDPE Lined Earth Dams, AAIL/Pro Met/SOP 015, Rev. 07, January 2022.

- Procedure for High Density Polyethylene Pipe Welding, AAIL/Proc Met CIL/SOP 079, Rev. 8, November 2021.
- Procedure for Water Pumping Operations at the TSF, AAIL/Proc Met CIL/SOP 094, Rev. 5, October 2020.
- Procedure for Rescue of Drowning Victim(s) at Ponds and Plastic / HDPE Lined Earth Dams Proc, Met CIL/SOP 093, Rev. 4, January 2022.
- Procedures for Safe Access to pumps on Barges at Tailings Storage Facilities and Ponds, AAIL/Proc Met/SOP 083, Rev. 4, January 2022.
- Procedure for Starting up Pumps on Water Containments and Dams, AAIL/Proc Met/SOP 081, Rev. 10, May 2021.

The operation's plans or procedures identify and account for the assumptions and parameters on which the facility design was based and any applicable regulatory requirements as necessary to prevent or control cyanide releases and exposures consistent with applicable requirements.

The operation's plans or procedures include the following;

Procedure to follow when high Weak Acid Dissociable (WAD) cyanide levels are measured in the residue slurry, IP-CN-033, Rev 7, 1 May 2021 – this requires that the WAD cyanide must be kept below 50 ppm.

Procedure for emptying cyanide spillage bund, IP-CN-030, Rev 7, 1 May 2021 - if spillage is due to running water during mixing, it can be pumped to the leach tanks by the Reagent Operator after establishing the that the pH in the leach exceeds 10.5.

Greenfields TSF Operating Manual, AngloGold Ashanti Continental Africa Projects, June 2021 - freeboard required: The EPA permit instructs a minimum of 1.5 m freeboard, and the freeboard must never be less than this. It is required that the freeboard is recorded in the daily reports. The Minerals and Mining Regulations L.I. 2182 (June 2012) requires that the TSF is constructed to contain a 1:100 year 24-hour rainfall, with a minimum 1 m freeboard i.e. the minimum requirement by the Ghanian Regulations, whereas the design of the TSF requires a minimum freeboard of 1.5 m.

The operation's plans or procedures describe the standard practices necessary for the safe and environmentally sound operation of the facility including the specific measures needed for compliance with the Code, such as water management, inspections and preventive maintenance activities.

The operation inspects the following at unloading, storage, mixing and process areas, including tanks, secondary containments, leak detection systems, pipelines, pumps, valves, and ponds.

Plant Inspections.

Procedure for cyanide storage, dosing and first aid facilities checklist for weekly inspections, IP-CN-021, Rev. 7, 1 May 2021.

Weekly Inspection Checklist for cyanide storage, dosing and first aid facilities, includes Cyanide Sparging Facility, cyanide emergency cabin, cyanide delivery pipes and valve, cyanide management station and trailer, bund integrity inspection, emergency response trailer equipment inventory, emergency response cabinet equipment inventory, deviations report (deviations, action plan, person responsible, expected completion date, remarks).

Weekly Processing Plant Safety Inspection Checklist, CIL: includes bund areas, Circuit 1 and 2 SAG Mill 01 and Ball Mill 01 area (incl. bund area), structural integrity of bund areas (thickener, CIL and leach bund, desorption bund, ILR bund, mill bunds, cracks in the walls of the spillage dam, Emergency Showers (operational and none leaking), are fire extinguishers in place and ready, are emergency cabinets intact with the required contents.

Daily Inspection and Cyanide Sparging (Processing), includes PPE, safety showers, fire extinguishers, leakage check on the tank/pipelines/valves/pump, checks prior to cyanide sparging.

Structural Inspections.

Structural inspections of the Plant are undertaken every three years and include the following.

Inspectors and Engineers Co. Ltd, Report NO. IE/2020/SIM/AG001, Report on Structural Integrity and Visual Condition Assessment - SIMM Inspection Report, AngloGold Ashanti Iduapriem Mine, 27 July 2020. The report was signed off by Ing. Simon Andoh Acquah and Ing. Henry Kweku Adjei

Iduapriem Mine, Engineering Department, Corrective Action Plan for Structural Inspection & Maintenance Management (SIMM), 21 August 2020.

The Leach and CIL tanks on ring beams form a part of the Risk Based Inspection (RBI) program (Using AIC-ITP-01-18, API 653, API 650 and in accordance with Anglo American Inspection Laboratory criterion for Non Destructive Testing (NDT)). The result is that the tanks are drained and fully inspected, including thickness testing, on a three year rolling programme.

Inspection includes visual inspection of tank peripheral and welds, visual inspection on flanges, fasteners and other equipment's within tank perimeter, ultrasonic wall thickness measurement of cyanide dosing and dissolving storage tanks. The purpose of the measurement is to ascertain the integrity and wear rate of the tank. The report concluded that there were no obvious high wear rates per the measurement data collected on the tank surfaces, all results were below 20% wear rate. It was required that the cyanide tank be recoated as paint on pipes and tank surface was peeling-off. It was observed during the site audit that this has been completed.

Tailings Inspections.

- Daily tailings pipeline and TSF inspections: Daily Inspection Sheet, checks for pipe line leaks, signs of cracking, sloughing, weeping or piping, access to the decant barge, conditions of drains and sump, freeboard, daily rainfall (mm), relative density of slurry, number of hours deposited, wall where deposition took place, seepage around TSF, decant pump running hours, number of decant pumps operating, depth of pool below decant pump, distance of pool within 150 m from wall, condition of lights on the dam, are all electrical pumps in various sumps working.

- Weekly inspections: Health, Safety and Environment (HSE) Planned Inspection Sheet Weekly TSF Inspection Log Sheet - Inspects signs of instability, signs of crack, weeping or piping, pool size of facility, vegetation growth, availability of access for inspection, any infrastructure on facility, ground water monitoring around facility, comments.

- Quarterly Inspections: AngloGold Ashanti Iduapriem Limited (AAIL), TSF Environmental Audit Report 1st Quarter 2021, June 2021, Glocal Engineering Limited, inspects the TSF, TSF Ancillary Facilities: Water Treatment Plant, Tailings and Water Delivery System, Emergency Spillway Penstock, TSF Signage, Electrical Power Lines, Checks Tailings Characteristics, Tailings Deposition Management, Supernatant Pond and Decant Management, Tailings and Site Drainage Systems, Water Management, Construction and Maintenance Activities, Water Quality Monitoring, Survey Prisms - Structural Management, Piezometers Monitoring - Phreatic levels, embankment stability, general environmental condition, freeboard.

Annual TSF Inspections conducted by AngloGold Ashanti (AGA) Head Office (last audit was in 2019 due to Covid-19) - AngloGold Ashanti Limited Africa Operations Ghana, Iduapriem Gold Mine Tailings & Heap Leach Facilities Audit Report (June 2019), R Welff Senior Manager Geotechnical Engineering Tailings and Heap Leach Management.

Planned Maintenance.

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

Planned maintenance is undertaken using the SAP system. All equipment is listed in the system with the required frequencies for inspections. The inspections are undertaking by raising a job card. If the inspections detailed above identify any deficiencies the work to rectify this is undertaken by raising an 'ad hoc' job card.

Change Management

The operation implements procedures to review proposed changes to production processes, operating practices, or cyanide facilities to determine if they may increase the potential for cyanide releases and worker exposures and incorporate any measures necessary to protect worker health and safety and the environment.

Procedure for Change Management on Installations/Equipment's, IP-CN-046, Rev. 7, 1 May 2021. The procedure provides guidance on the management of risks that may result from any change to the environment, person, process, equipment, material or any other substances. The major components of the change management process includes the following: identify change, describe change inform management, approve change, conduct risk assessment, authorising plan, communicate and implement change, temporary / emergency changes, monitoring. The procedure includes table stipulating responsible parties that should approve specific types of changes, i.e. any changes to chemicals / reagents or their suppliers to be signed off by Senior Manager Processing/Plant Engineer/Senior Safety Officer/Senior Environmental Officer.

The operation has cyanide management contingency procedures for non-standard operating situations that may present a potential for cyanide exposures and releases including the following.

AngloGold Ashanti, Emergency Preparedness Plan for Greenfields Tailings Storage Facility, IDP Emergency Preparedness Plan GTSF_04, Rev 6, 16 November 2021.

Section 24. Lowering Tailings Pond Level - In the early stages of either a "piping" or overtopping scenario, the most effective action to reduce the threat of further development of the failure mechanism is to lower the level of water in the tailings pond upstream of the TSF, as fast as practical possible. The capacity of the TSF Pumps is 1000 m3 / hr.

Procedure to follow for cyanide management when major upsets occur, IP-CN-044, Rev. 7, 1 May 2021 - procedure describes the steps to follow for cyanide management when major upsets or delays occur in the normal processing of ore, such as failure of the water supply to the plant for extended periods, when the plant has to stop treating ore for safety reasons for an extended period, when the plant has to stop treating ore due to a governmental instruction or executive decision for an extended period, failure of the ore delivery system, stopping treatment due to ore shortage for extended periods, tailings dam failure, impacting on production for an extended period, damage to the circuit or disabling of the circuit due to act of God, making operation impossible or unsafe for extended period, extended services failure (such as compressed air / electricity), any event that may cause significant delay.

Procedure for abnormal conditions at the leach, CIL, or residue tanks, IP-CN-032, Rev. 7, 1 May 2021 - procedure dictates what actions are to be taken when abnormal conditions exist at the pre-leach, residue tanks or at CIL. These include when cyanide decontamination effluent is being pumped or drained to the residue circuit, when emptying leach/CIL tank, when low pH (below 10) is measures at the pre-leach, CIL tanks, a power failure occurs,

tailings delivery line failure, when the Senior Manager Processing or his delegate declares an abnormal conditions for whatever reason, when the TSF spills to the environment

The operation inspects the cyanide facilities on an established frequency sufficient to ensure and document that they are functioning within design parameters.

Plant inspections are conducted on a daily and weekly basis with structural inspections of the Plant every three years and inspections of the leach tanks undertaken on a rolling 3 year basis. The TSF is inspected on a daily, weekly, quarterly and annual basis. The TSF sumps are part of the leak detection system is inspected as part of the daily inspection. TSF is a raised construction and therefore no surface water diversion structures required to maintain the water balance.

The inspection reports and checklists identify the specific items to be observed and include the date of the inspection, the name of the inspector, and any observed deficiencies, the corrective actions are documented, and the records are retained.

The operation has the necessary emergency power resources to operate pumps and other equipment to prevent unintentional releases and exposures in the event that its primary source of power is interrupted.

In the event of an interruption of power the leach is held in the leach tanks, the cyanide solution is held in the pipeline, any leaks drain back to the bunded area for the mixing and dosing tanks. The tailings pipelines are equipped with valves which close in the event of power failure to prevent the flow back of tailings. Any leaks from the Tailings pipeline drains back to the 2000 m3 Emergency Spillage Dam.

The operation has 3 emergency diesel generation sets in the event of a power failure. 1 for the plant agitator, 1 to power the TSF pipeline taking slurry to the TSF, and 1 for the general plant e.g. lights etc.

The operation has another 2 emergency generator sets that are available at the TSF to power the pumps. In the event that the TSF needs to pump water during a power failure to maintain the freeboard the water will be pumped to Block 3 or 4 which are unused pits used for storing treated process water.

The generator sets are maintained and tested as part of the Planned Maintenance System.

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

The operation is

☒ **in full compliance with**

☐ **in substantial compliance with** **Standard of Practice 4.2**

☐ **not in compliance with**

Summarise the basis for this Finding/Deficiencies Identified:

The operation is in full compliance with Standard of Practice 4.2; introducing management and operating systems to minimise cyanide use, thereby limiting concentrations of cyanide in mill tailings.

The operation implements a program to evaluate cyanide use in the mill and adjust the addition rate to minimize its use.

The optimisation study is conducted annually on the ore that is mined to determine the free cyanide setpoint. The mine sometimes experiences changes in the ore mineralogy as well as changes in throughput rate and grade and therefore needs to determine the optimal setpoint to ensure optimal gold recovery. The test work performed seeks to assess the impact of cyanide on the leaching kinetics of the CIL plant as a way of optimising its usage without compromising recovery. The test work includes taking a sample from the leach feed after which it is filter pressed and oven dried to reduce the moisture content in preparation for bottle roll tests. The test results provide the plant with the optimum dosage rates. External test work is conducted when there is a change in ore blend from the various pits (forward planning).

In September 2021, drill core and crushed samples from AAIL were sent to the Minerals Engineering Department, the University of Mines and Technology for geometallurgical, rheological, settling, Gravity Recovery testing (GRG) characterisation, concentrate intensive cyanidation and GRG tailings CIL and Leach Well testing. The sources of the ore samples were from Ajopa, Block 3, and Block 7&8 (Cut 2 and Cut 6). The effect of different cyanide concentrations and leach time on Gold recovery were examined. All other plant conditions were maintained.

Daily manual titrations are conducted every 4 hours to confirm that the online cyanide addition system (TAC 1000) is working correctly. The TAC 1000 system takes a sample every 30 minutes to confirm that the cyanide addition is as per the setpoint.

Changes in the setpoint are recorded in the Shiftly Notebook and communicated by the Metallurgical Manager to the Shift Metallurgist. The setpoint is then adjusted on the TAC 1000.

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

The operation is

☒ **in full compliance with**

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

☐ **not in compliance with**

Summarise the basis for this Finding/Deficiencies Identified:

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

The operation has developed a comprehensive, probabilistic water balance. The operation uses OPSIM - Operational Simulation - used to forecast of water storage facilities on site and for calibrating storage facilities to ensure accurate results.

A daily spreadsheet is used to collect operational data that is included in the water balance on a monthly basis by the Senior Officer for Water Management. The team using the water balance on the mine has received training from the software developer. The water balance is probabilistic and is used by the mine to simulate wet and dry season scenarios into the future.

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

- Data for the amount of tailings that is pumped to the TSF.
- Direct rainfall and runoff is accounted for under the TSF inputs.
- Design storm duration of 24 hours event at 297 mm is used.
- Rainfall data is collected daily from 3 stations, namely at the Administration Block, at the TSF, and at Block 8 since early 2000. Rainfall data has been collected at the University of Mines and Technology Met Station rainfall data since January 1983.
- The amount of precipitation entering a pond or impoundment resulting from surface run-on from the up gradient watershed e.g. TSF, Block 3 and Block 4, including adjustments as necessary to account for differences in elevation and for infiltration of the runoff into the ground.
- Seepage to subsurface is included in runoff calculations. The first raise of the TSF is fully lined with HDPE.
- There are no discharges to the environment. There are no destruction or regeneration systems.
- The model can simulate a shutdown scenario (including the duration of the shutdown). This will mean that no tailings are sent to TSF.
- The pore retained moisture content (percentage of water retained in the slurry) is included in the model. The beach angle and phreatic level is included in the model.
- The effect is freezing and thawing conditions is not applicable.

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

The TSF has been designed with a minimum freeboard requirement of 1.5 m, it is operated accordingly and TSF water levels and freeboard are monitored daily. The water from the supernatant pond can be pumped to the Plant, Block 3 or the water treatment plant and subsequently Block 4. Two emergency generators are available to ensure pumping during a power failure.

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

Daily tailings pipeline and TSF inspections: Daily Inspection Sheet, checks for pipe line leaks, signs of cracking, sloughing, weeping or piping, access to the decant barge, conditions of drains and sump, freeboard, daily rainfall (mm), relative density of slurry, number of hours deposited, wall where deposition took place, seepage around TSF, decant pump running hours, number of decant pumps operating, depth of pool below decant pump, distance of pool within 150 m from wall, condition of lights on the dam, are all electrical pumps in various ss sumps working.

- Weekly inspections: HSE Planned Inspection Sheet Weekly TSF Inspection Log Sheet - Inspects signs of instability, signs of crack, weeping or piping, pool size of facility, vegetation growth, availability of access for inspection, any infrastructure on facility, ground water monitoring around facility, comments.

- Quarterly Inspections: AngloGold Ashanti Iduapriem AAIL, TSF Environmental Audit Report 1st Quarter 2021, June 2021, Glocal Engineering Limited, inspects the TSF, TSF Ancillary Facilities: Water Treatment Plant, Tailings and Water Delivery System, Emergency Spillway Penstock, TSF Signage, Electrical Power Lines, Checks Tailings Characteristics, Tailings Deposition Management, Supernatant Pond and Decant Management, Tailings and Site Drainage Systems, Water Management, Construction and Maintenance Activities, Water Quality Monitoring, Survey Prisms - Structural Management, Piezometers Monitoring - Phreatic levels, embankment stability, general environmental condition, freeboard.

Ponds and impoundments other than the TSF are all constructed with sumps and automated pumps that feed back to the Plant. Excess water is stored in Block 3 and 4 which are disused pits and whose capacity has never been exceeded.

The operation measures precipitation compares the results to design assumptions, and revises operating practices as necessary. The data is fed into the water balance on a monthly basis and used to compare design assumptions.

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

The operation is

☒ **in full compliance with**

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

☐ **not in compliance with**

Summarise the basis for this Finding/Deficiencies Identified:

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

The operation has not implemented measures (e.g., fencing, filling in collection ditches with gravel, and covering or netting solution in ponds and impoundments) to restrict access by wildlife and livestock to all open waters as the WAD cyanide does not exceed 50 mg/l.

The Process Plant compliance point is the tailings hopper inside the Plant that is sampled prior to the tailings being pumped to the TSF: An online WAD analyses (TAC 1000 analyser) is used for monitoring WAD cyanide.

Daily values are obtained. There were some exceedances in October 2020 due to a faulty pump, which was subsequently replaced.

Water in the pond on the TSF is shown to be below 50 mg/l. Process water in the Concrete Dam inside the Plant from where it is disseminated into the various processes in the Plant has been shown to be below 0.5 mg/l and therefore is not a cyanide facility.

The operation has shown that maintaining a WAD cyanide concentration of 50 mg/l or less in open water effective in effective in preventing significant wildlife mortalities.

Daily Inspection Logsheet Tailings includes daily checking for wildlife mortality. No wildlife mortalities were recorded since the previous recertification audit.

Environmental Field Sample Data Sheet (used during monthly water sampling) includes checking for wildlife mortality. No wildlife mortalities were recorded since the previous recertification audit.

If a wildlife mortality is reported, it will be reported and investigated in accordance with Iduapriem Mine, Wildlife Mortality Procedure IDP/ENV/P/013, Rev 2, 28 February 2022. The carcass will be sent to an external laboratory for examination.

It was confirmed to the auditors that no wildlife mortalities were recorded / observed in the period since the last recertification audit.

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

The operation is

☒ **in full compliance with**

☐ **in substantial compliance with** **Standard of Practice 4.5**

☐ **not in compliance with**

Summarise the basis for this Finding/Deficiencies Identified:

The operation is in full compliance with Standard 4.5 to implement measures to protect fish and wildlife from direct and indirect discharges of cyanide process solutions to surface water.

The operation does not have a direct discharge to surface water

Water from the Waste Water Treatment Plant is tested against the Ghanaian Standard for Discharge, before it is transferred to Block 4 (a disused pit) via a pipeline. Water from Block 4 is reused in the process when there is insufficient water from the TSF.

The auditors observed the monitoring data for the feed to and from the Concrete Dam in the Plant as well as where it enters the Block 4. All monitoring was below 0.5 mg/l WAD cyanide.

The mine can demonstrate that indirect discharges to surface water do not cause the in-stream concentration of free cyanide to exceed 0.022 mg/l downstream of any established mixing zone.

The operation monitors for cyanide in surface water downgradient of the site. Monthly water sampling is conducted in a Tributary of the Angonabeng Stream – all results were below 0.005 mg/l free cyanide.

Indirect discharges from the operation have not caused cyanide concentrations in surface water to rise above levels protective of a designated beneficial use for aquatic life as show by the surface water monitoring results.

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

The operation is

☒ **in full compliance with**

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

☐ **not in compliance with**

Summarise the basis for this Finding/Deficiencies Identified:

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

The operation implements specific water management or other measures to manage seepage to protect the beneficial uses of ground water beneath or immediately down gradient of the operation.

The floor and first rise of the TSF is HDPE lined and equipped with 10 underliner sumps that will collect any seepage below the liner and drain it to sumps on the side of TSF. There are also herring bone drains connected to 22 top liner sumps. Any seepage entering any of these sumps is pumped back on to the TSF. There are paddocks around the TSF that will collect any seepage from the walls of the TSF.

The operation monitors for cyanide in groundwater downgradient of the site and the operation can demonstrate that concentrations of WAD cyanide (or other species of cyanide for which there is a numerical standard established by the applicable jurisdiction) in groundwater at compliance points below or downgradient of the facility are at or below levels that are protective of identified beneficial uses of the ground water

Monthly groundwater monitoring is conducted at 69 groundwater monitoring locations over the mine area, 8 of these are around the TSF. The EPA cyanide level guidelines for effluent water are 0.2 ppm free CN and 0.6 ppm WAD CN, and 1.0 mg/l total cyanide. If the groundwater is used for drinking water this will be some distance from the site. The Ghanaian standard for drinking water is 0.07 ppm free cyanide. All the groundwater monitoring results observed were <0.005 mg/l WAD cyanide.

Seepage from the operations has not caused concentrations of cyanide in groundwater to exceed the level necessary to protect its beneficial use. The beneficial use is groundwater abstraction for drinking water and for livestock.

Mill tailings are not used as underground backfill.

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

The operation is

☒ **in full compliance with**

☐ **in substantial compliance with Standard of Practice 4.7**

☐ **not in compliance with**

Summarise the basis for this Finding/Deficiencies Identified:

The operation is in full compliance with Standard of Practice 4.7; Provide spill prevention or containment measures for process tanks and pipelines.

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

The Leach and CIL tanks are on ring beams and form part of the Risk Based Inspection program (Using AIC-ITP-01-18, API 653, API 650 and in accordance with the Anglo American Inspection Laboratory criterion for Non Destructive Testing (NDT)). The result is that the tanks are drained and fully inspected, including thickness testing, on a three year rolling programme.

The CIL and Leach tanks are located within a concrete bund together with the elution tanks. The mixing and dosing tanks are located on concrete plinths within a concrete bund. The ILR is located within a concrete bund. All of the bunds are equipped with sumps and automated pumps such that any spillage is pumped back into the process.

Secondary containments for cyanide unloading, storage, mixing and process tanks 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.

The mill and thickeners are not classed as a cyanide facilities as the concentration of cyanide in the process water is below 0.5 mg/l WAD cyanide.

No solutions from any spillage containments are released to the environment. The plant is designed with bunds for all tanks, which have sumps and pumps automatically returning any spillage to the process.

If leaks through the base of the Leach or CIL tanks are detected, when they are taken off-line and inspected every three years, remediation of any contaminated soil will be undertaken in accordance with CN-012 Procedure for Cyanide Spillage, Release of HCN. All other tanks have secondary containment.

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

The pipelines transporting cyanide solution from the cyanide dosing tank to the dosing point in Leach Tank 1 are located in a lauder such that any leaks will flow back to the concrete bund for the cyanide mixing and dosing tanks. Any solution within this bund is automatically pumped to process via Leach Tank 1.

The TSF pipelines are placed inside HDPE lined trenches draining back to the TSF or into a Emergency Spillage Dam adjacent to the Plant that is constructed of concrete. Any solution within this Dam is automatically pumped back into the process.

There are no areas where the cyanide pipelines present a risk to surface water.

All cyanide tanks and pipelines constructed of materials that are compatible with cyanide and high pH conditions. The tailings lines are constructed of an HDPE pipe inside a steel pipe, return water lines are HDPE lines. The dosing pipes are made of stainless steel and HDPE, with other process pipes are made of HDPE. The cyanide mixing, dosing, leach, ILR, and elution tanks are all constructed of mild steel.

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

The operation is

☒ **in full compliance with**

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

☐ **not in compliance with**

Summarise the basis for this Finding/Deficiencies Identified:

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

There have been no changes to the plant since the previous recertification audit.

The construction of the cyanide storage area was constructed by Orica as a turnkey project the QA/QC documentation has been retained. The QA/QC reports were observed for the TSF raises that have occurred since the last recertification audit.

QA/QC documentation for the rest of the Plant has not been retained, this is reviewed through a 3 yearly structural inspection.

The quality control and quality assurance programs address the suitability of materials and adequacy of soil compaction for earthworks such as tank foundations and earthen liners, the installation of synthetic membrane liners used in ponds, and for construction of cyanide storage and process tanks. This information is included in the QA/QC for the cyanide storage area and in the construction reports for the TSF land raises.

The quality control and quality assurance records have been retained for the cyanide storage area and the TSF land raises.

An appropriately qualified person reviewed cyanide facility construction and provided documentation that the facility has been built as proposed and approved. The quality control / quality assurance reports for the cyanide storage area were signed off by an appropriately qualified employee of Orica, the cyanide supplier. The quality control / quality assurance reports for the TSF land raises have been signed off by the Geotechnical Engineer and Principal Geotechnical Engineer from SRK.

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

A Structural Inspection of the Plant is undertaken on a 3 yearly basis by the company Inspections and Engineers included the following.

Inspectors and Engineers Co. Ltd, Report NO. IE/2020/SIM/AG001, Report on Structural Integrity and Visual Condition Assessment - SIMM Inspection Report, AngloGold Ashanti Iduapriem Mine, 27 July 2020. The report was signed off by Ing. Simon Andoh Acquah and Ing. Henry Kweku Adjei (Ing denoting a registered engineer in Ghana).

In addition, there is a 3 year rolling inspection of the base plates and shells of the CIL and Leach tanks. A tank is taken off-line, approximately once every two to three months. There are 11 tanks therefore they are inspected every 2 – 3 years. The inspection is undertaken using NDT techniques to show if there are any leaks and for the thickness of the metal etc.

The inspections include visual inspection of tank peripheral and welds, visual inspection on flanges, fasteners and other equipment's within tank perimeter, ultrasonic wall thickness measurement of cyanide dosing and dissolving storage tanks. The purpose of the measurement is to ascertain the integrity and wear rate of the tank. The reports concluded that there were no obvious high wear rate per the measurement data collected on the tank surfaces, all results were below 20% wear rate. It was required that the cyanide tank be recoated as paint on pipes and tank surface was peeling-off. It was observed during the site inspection that this has been completed.

Quarterly inspections of the TSF are undertaken by AAIL.

AngloGold Ashanti Iduapriem AAIL, TSF Environmental Audit Report 1st Quarter 2021, June 2021, Glocal Engineering Limited, inspects the TSF, TSF Ancillary Facilities: Water Treatment Plant, Tailings and Water Delivery System, Emergency Spillway Penstock, TSF Signage, Electrical Power Lines, Checks Tailings Characteristics, Tailings Deposition Management, Supernatant Pond and Decant Management, Tailings and Site Drainage Systems, Water Management, Construction and Maintenance Activities, Water Quality Monitoring, Survey Prisms, Structural Management, Piezometers Monitoring, Phreatic Levels, Embankment Stability, General Environmental Condition, and Freeboard.

Quarterly Inspections are also undertaken by Head Office: AngloGold Ashanti Africa Operations Iduapriem Gold Mine Tailings Storage Facility Surveillance Report, Quarter 4 2020, prepared by G. Mabula Principal Engineer Tailings, 26 January 2020, includes pond, freeboard, deposition, etc

Annual TSF Inspections are conducted by AGA Head Office (last audit was in 2019 due to Covid-19) - AngloGold Ashanti Limited Africa Operations Ghana, Iduapriem Gold Mine Tailings & Heap Leach Facilities Audit Report (June 2019), R Welff Senior Manager Geotechnical Engineering Tailings and Heap Leach Management,

Glocal undertake quarterly audits and Annual Audits of the TSF.

AngloGold Ashanti Iduapriem AAIL, TSF Environmental Audit Report 1st Quarter 2021, June 2021, Glocal Engineering Limited, inspects the TSF, TSF Ancillary Facilities: Water Treatment Plant, Tailings and Water Delivery System, Emergency Spillway Penstock, TSF Signage, Electrical Power Lines, Checks Tailings Characteristics, Tailings Deposition Management, Supernatant Pond and Decant Management, Tailings and Site Drainage Systems, Water Management, Construction and Maintenance Activities, Water Quality Monitoring, Survey Prisms - Structural Management, Piezometers Monitoring - Phreatic Levels, Embankment Stability, General Environmental Condition, Freeboard.

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

The operation is

☒ **in full compliance with**

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

☐ **not in compliance with**

Summarise the basis for this Finding/Deficiencies Identified:

The operation is in full compliance with Standard of Practice 4.9; to implement monitoring programs to evaluate the effects of cyanide use on wildlife, surface and groundwater quality.

The operation has developed written standard procedures for monitoring activities, including the following.

Iduapriem Mine, Surface Water Monitoring Procedure, IDP/ENV/P/019, Rev 2, 28 February 2022.

Iduapriem Mine, Groundwater Monitoring Procedure, IDP/ENV/P/018, Rev. 3, 28 February 2022.

The scope of these procedures is the extent of the AAIL operational area as defined in the Environmental Management Manual. These procedures are applicable to sampling of streams, rivers and containment systems. This includes responsibilities, PPE requirements, calibration of field equipment, sample procedures and field information, sample identification, quality control, sample preservation, sample shipment, analysis of samples, data management, water level measurement, well purging and sampling of monitoring boreholes, and sampling of drinking water boreholes.

Iduapriem Mine, Wildlife Mortality Procedure IDP/ENV/P/013, Rev 2, 28 February 2022. This procedure describes how to handle wildlife (including birds, reptiles, and mammals) and livestock mortality and AAIL's mining lease concession to establish the cause of death and put measures in place to avert recurrence.

Sampling and analytical protocols been developed by an appropriately qualified person.

Procedures were developed by Philp Nyoagbe, Snr Officer for Water Management - BSc in Geological Engineering (Major in Hydrogeology and Geotechnical Engineering) 17 years of experience, and Ruth Owusu Akyaw, Environmental Superintendent for Compliance - BSc in Chemistry, and 20 years' experience.

The procedures specify how and where samples should be taken, sample preservation techniques, chain of custody procedures, shipping instructions, cyanide species to be analysed and quality assurance and quality control requirements for cyanide analyses.

The sampling points are indicated on the Water Monitoring Map. The groundwater and surface water procedures specify how samples should be taken, sample preservation techniques, chain of custody procedures (sample submission sheet accompanies the samples to the external lab), shipping instructions, cyanide species to be analysed and quality assurance and quality control requirements.

Sampling conditions (e.g. weather, livestock,/wildlife activity, anthropogenic influences, etc.) and procedures are documented in writing.

Environmental Field Sampled Data Sheets are completed during sampling runs. On the form the sampler completes the date, time, sample number, field pH, conductivity, field turbidity, field dissolved oxygen, field temperature, total dissolved solids, weather conditions wildlife/livestock mortality, human activity, stater water level, casing height, remarks.

The monitoring is conducted at frequencies adequate to characterise the medium being monitored and to identify changes in a timely manner surface and groundwater monitoring is undertaken monthly.

WAD cyanide in the tailings is monitored daily. Wildlife mortality is monitored daily. Groundwater and surface water are monitored monthly.

PRINCIPLE 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.**

The operation is

- ☒ **in full compliance with**
- ☐ **in substantial compliance with** **Standard of Practice 5.1**
- ☐ **not in compliance with**

Summarise the basis for this Finding/Deficiencies Identified:

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

The operation has developed written procedures to decommission cyanide facilities at the cessation of operations.

Decommissioning Procedure, IP-CN-045, Rev 7, 1 May 2021. The procedure describes the planning required to ensure the safe decommissioning and decontamination of cyanide facilities within the metallurgical plant.

AngloGold Ashanti Iduapriem Mine Updated Mine Closure Plan 2021, September 2021.

The plan includes an implementation schedule for decommissioning activities. In addition, the operation has the following.

The Decommissioning Procedure describes the actions to be taken 12, 6 and 3 months prior to decommissioning to ensure that all cyanide storage areas, dosing pumps and pipelines as well as any cyanide contaminated equipment are made safe and decontaminated. It further describes the actions to be taken to decommission and safely dispose of any decontaminated cyanide equipment to prevent exposure to personnel and members of the public.

Section 4.3 of the Updated Mine Closure Plan deals with the stabilisation and rehabilitation of the currently active TSF. The previously decommissioned TSFs have already been rehabilitated during the life of mine.

Section 4.6.1 deals with the decontamination, decommissioning and demolition of the Plant and associated infrastructure. It requires that these facilities will be decontaminated to ensure that potential contamination is not washed into the environment by rainfall especially in line with the Cyanide Code.

Iduapriem Environmental Liability Estimate Q1, 2022 Final. The Closure Liability spreadsheet observed by the auditors detailed closure items, associated cost, start and finish date for each individual item. The spreadsheet contains detailed line items for the processing plant including cyanide sparging facility, leaching tanks, mills, pipelines to the TSF, processing ponds, emergency sump, and the TSF.

The Decommissioning Procedure is reviewed every 2 years. The Mine Closure Plan is updated every 3 years. These documents are updated as required following their review.

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

The operation is

☒ **in full compliance with**

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

☐ **not in compliance with**

Summarise the basis for this Finding/Deficiencies Identified:

The operation is in full compliance with Standard of Practice 5.2; establish a financial assurance mechanism capable of fully funding cyanide related decommissioning activities.

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

Iduapriem Environmental Liability Estimate Q1, 2022 Final - the operation has developed a detailed spreadsheet of the estimated cost to fully fund third party implementation of the cyanide related decommissioning measures to implement the closure plan.

The operation reviews and updates the cost estimate at least every five years and when revisions to the decommissioning plan are made that affect cyanide-related decommissioning activities - the Environmental Liability Cost spreadsheet is reviewed every quarter.

The operation has established a financial mechanism, through appropriate bank guarantees, approved by the applicable jurisdiction to cover the estimated costs for cyanide-related decommissioning activities as identified in its decommissioning and closure strategy. The bank guarantees are addresses to the Ghanaian EPA and updated annually.

PRINCIPLE 6 – WORKER SAFETY

PROTECT WORKERS' HEALTH AND SAFETY FROM EXPOSURE TO CYANIDE

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

The operation is

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

Summarise the basis for this Finding/Deficiencies Identified:

The operation is in full compliance with Standard of Practice 6.1 to identify potential cyanide exposure scenarios and take measure as necessary to eliminate, reduce and control them.

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

The operation has the following:

- 42 Cyanide Procedures;
- 9 Environmental Procedures;
- 11 Emergency Preparedness Procedures; and
- 12 General Emergency Procedures.

These include the following;

- Procedures for First Aid and Medical Treatment IP- CN-001, Rev 7, 1 May 2021.
- Procedure for Examination of Personal Protection Equipment, IP-CN-004, Rev 7, 1 May 2021.
- Procedure for Cyanide PPE and Tools Decontamination, Storage and Disposal, IP-CN-005, Rev. 7, 1 May 2021.
- Procedure for Using Respiratory Canister with Full Face Mask, IP-CN-006, Rev 7, 1 May 2021.
- Procedure for Entry into Confined Spaces, IP-CN-10, Rev. 7, 1 May 2021.
- Procedure for Checking Cyanide First Aid Kits, IP-CN-009, Rev. 7, 1 May 2021.
- Procedure for Buddy System, IP-CN-047, Rev. 7, 1 May 2021.
- Procedure for Decontamination IP-CN-013, Rev 7, 1 May 2021.
- Changing Over of Cyanide Dosing Pump, IP-CN-043, Rev. 7, 1 May 2021.
- Key Control and Access to the Cyanide Area, IP-CN-042, Rev. 7, 1 May 2021.
- Sampling, IP-CN-041, Rev. 7, 1 May 2021.
- Emptying Cyanide Spillage Bund, IP-CN-30, Rev. 7, 1 May 2021.
- Cyanide Sparging, IP-CN-049, Rev. 7, 1 May 2021.
- Emergency Procedure for Access of an Ambulance in the Event of an Emergency, IP-CN-002, Rev 7, 1 May 2021.
- CN-012 Procedure for Cyanide Spillage, Release of HCN, Rev 7, 1 May 2021.

It was confirmed that the individual procedures stipulates the required PPE. The Procedure for Cyanide PPE Protection Levels, IP-CN-035, Rev. 7, 1 May 2021 forms the basis for cyanide specific PPE to be used when

working with cyanide or cyanide reaction products by stipulating various levels of protection and the associated PPE to be worn.

Job Hazard Assessments are conducted when working in any of the cyanide areas, therefore requiring a Chemical Work Permit.

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

The Safety Officer emails the Section Leaders, requesting input, review and comments on procedures. The Section Leaders represents the employees in their respective sections and therefore provide input on their behalf.

Weekly mine-wide HSE Meetings are held, any changes or updates of procedures are communicated during these meetings.

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

The operation is

☒ **in full compliance with**

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

☐ **not in compliance with**

Summarise the basis for this Finding/Deficiencies Identified:

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

The operation has determined the appropriate pH for limiting the evolution of hydrogen cyanide gas during mixing and production activities.

The Procedure for Emptying Cyanide Spillage Bund, IP-CN-030, Rev 7, 1 May 2021 states that if spillage is due to running water during mixing, it can be pumped to the leach tanks by the Reagent Operator after establishing the that the pH in the leach exceeds 10.5.

The operation has identified areas and activities where workers may be exposed to hydrogen cyanide gas or cyanide dust in excess of 10 parts per million (ppm) (11 mg/m3) on an instantaneous basis and 4.7 parts per million (ppm) 5 mg/m3) continuously over an 8-hour period, as cyanide and require use of appropriate personal protective equipment in these areas or when performing these activities.

The Gas Reading Processing 2019 - 2022.xls spreadsheet showed the gas readings taken at the Elution, Leach tank, ILR, Cyanide Sparging Plant using a handheld monitor. All readings were below 4.7 ppm. Readings are undertaken once a month by the AAIL Environmental Department.

Signs were observed during the site audit showing the PPE to be worn in each of these areas, which includes a personal Draeger cyanide monitor.

Procedure When Cyanide Alarms activates at 4.7 ppm and Beyond, IP-CN-052, Rev. 0, 11 May 2022 describes the procedure to be followed when high level alarms are activated by means of fixed or personal gas monitors when working in a cyanide area. This requires that the area is evacuated and that a trained employee, in Level 3 cyanide PPE, barricade the area to prevent access and enters the area to determine the source of the high HCN. The area will be monitored until the HCN levels have dropped below 4.7 ppm and it is safe to return.

The facility uses monitoring devices in process areas and for activities involving the management of cyanide to confirm that workers are not exposed to hydrogen cyanide gas or cyanide dust exceeding 10 ppm on an instantaneous basis and 4.7 ppm continuously over an 8-hour period, as cyanide.

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

There are 5 fixed cyanide monitors, two of the 5 fixed monitors were only installed in February 2022 prior the April 2022 calibration. There is one monitoring at each of the following locations; Leach Tank, Cyanide Plant 1, Cyanide Plant 2, Tails Hopper, ILR The operation also has twelve personal HCN monitors and 5 multi gas (including HCN) monitors are also available for use. The monitors are calibrated every 6 months by are calibrated every 6 months by NEZO Oilfield Supplies Limited and the calibration records are retained for at least 3 years.

Warning signs have been placed where cyanide is used advising workers that cyanide is present, any additional PPE that must be worn e.g. personal monitors, and that smoking, open flames and eating and drinking are not allowed at the Cyanide Sparging Area, CIL, ILR, Elution, and TSF as the identified cyanide facilities.

The high strength cyanide solution is dyed for clear identification. Cyanide Sparging Procedure IPCN/049 section 6.2.3 caustic and carmoisine dye addition after prefill requires addition of dye to the sparge vessel through the caustic hopper. It was observed during the site visit that the cyanide solution being dosed to the leach is red.

Showers, low pressure eye wash stations and dry powder or non-acidic sodium bicarbonate fire extinguishers are located at strategic locations throughout the operation and they are maintained, inspected and tested on a regular basis. The safety showers and fire extinguishers are inspected during the weekly HSE Inspection, in addition, the fire extinguishers are checked monthly by the Emergency Fire Team.

Unloading, storage, mixing and process tanks, and piping containing cyanide is identified to alert workers of their contents, and the direction of cyanide flow in pipes is designated. The cyanide sparging tank and plant process tanks are colour coded in accordance with the plant's colour coding system, for identification. The reagent strength cyanide pipelines, process solution pipelines, the slurry pipelines, and return water pipelines are all identified by labels and flow direction indicated.

The Cyanide Safety Data Sheets are displayed on the gate at the cyanide sparging area and in the four emergency cabinets. The cyanide first aid procedure is displayed on the four emergency cabinets at the Plant and next to the first aid box at the TSF.

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

Iduapriem Mine, Accident / Incident Management Procedure, IDP/HSE/P/014, Rev. 9, 21 November 2020. This procedure details the procedure to report, investigate and manage actions associated with incidents and hazards to determine underlying causes in order to eliminate or reduce the potential of future recurrence by identifying and applying adequate control measures.

No cyanide exposure incidents have occurred in the period since the last certification.

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

The operation is

☒ **in full compliance with**

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

☐ **not in compliance with**

Summarise the basis for this Finding/Deficiencies Identified:

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

Water, oxygen, resuscitators, antidote kits and radios are available for use in the Plant and at the TSF. Four emergency cabins are available at the following locations; Cyanide Sparging Area, Acid Mixing Area, Top of CIL, and ILR. Oxygen, water, and radios are available at the TSF.

The site has Tripac-Cyano antidote kits at each of the emergency cabinets however, these are only administered at the Clinic by a trained medical professional.

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

The auditors observed the Weekly Inspections Checklist for Cyanide Storage, Dosing and First Aid Facilities The inspection includes the checking of the four emergency cabins.

The type of antidote kits used is Tripac-Cyano, expiry date February 2023. The antidote kit is stored in fridges inside the emergency cabinets and at the clinic.

The operation has developed Emergency Response Plans to address potential accidental releases of cyanide and cyanide exposure incidents including the following:

Iduapriem Mine Emergency Response Plan, 4_IDP_Emergency Response Plan-IDP/HSE/ERP/006, Rev. 8, 29 July 2020.

Operational Procedure - Iduapriem Processing Plant Emergency Response, Emergency Preparedness and Response Plan, EPP 001, Rev. 7, 1 May 2021.

Emergency Preparedness Plan for Greenfields Tailings Storage Facility, IDP_Emergency Preparedness Plan GTSF_04, Rev. 6, 16 November 2021.

The on-site capability includes four cyanide emergency cabins in the Plant as well as an emergency trailer, a dedicated cyanide emergency team is available per shift.

The on-mine clinic is fully equipped to handle cyanide emergencies. A Medical Doctor, and Medical Assistant are available or on call 24 hours per day to react to cyanide emergencies.

One ambulance is on standby at the Emergency Response Centre to transport emergency patients from the plant to the clinic and from the clinic to the local Accra Medical Centre, Tarkwa. A second standby ambulance is available at the clinic and equipped for emergencies.

The on-site clinic is equipped to handle up to 3 cyanide patients at one time. The Accra Medical Centre at Tarkwa can handle up to 10 cyanide patients and is available as back up.

The operation has developed the following procedure to transport workers exposed to cyanide to locally available qualified off-site medical facilities. Emergency Procedure for Access of an Ambulance in the event of an Emergency, IP-CN-002, Rev 7, 1 May 2021.

The procedure dictates the activities, which need to be performed when a cyanide emergency occurs at Iduapriem Gold Plant and when an ambulance will be required to enter the plant to collect possible cyanide exposed employees for transportation and further treatment at the Iduapriem Mine (Sam Jonah) Clinic.

The operation has informed local medical facilities of the potential need to treat patients for cyanide exposure. The operation is confident that the medical facility has adequate, qualified staff, equipment and expertise to respond to cyanide exposures.

Sam Jonah clinic is an on-site mine owned clinic and is involved in the emergency drills. This was confirmed during the interview with the Doctor. The Sam Jonah Clinic has an ongoing medical collaboration agreement with Goldfields Tarkwa Mine Hospital, which is linked to the Goldfields Tarkwa Mine, an ICMI certified Mine. The Sam Jonah Clinic in terms of the Ghana National Medical Protocols, can call upon Accra based hospitals should they be required.

PRINCIPLE 7 – EMERGENCY RESPONSE

PROTECT COMMUNITIES AND THE ENVIRONMENT THROUGH THE DEVELOPMENT OF EMERGENCY RESPONSE STRATEGIES AND CAPABILITIES

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

The operation is

☒ **in full compliance with**

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

☐ **not in compliance with**

Summarise the basis for this Finding/Deficiencies Identified:

The operation is in full compliance with Standard of Practice 7.1; prepare detailed emergency response plans for potential cyanide releases.

The operation has developed Emergency Response Plans to address potential accidental releases of cyanide and cyanide exposure incidents including the following:

Iduapriem Mine Emergency Response Plan, 4_IDP_Emergency Response Plan-IDP/HSE/ERP/006, Rev. 8, 29 July 2020.

Operational Procedure - Iduapriem Processing Plant Emergency Response, Emergency Preparedness and Response Plan, EPP 001, Rev. 7, 1 May 2021.

Emergency Preparedness Plan for Greenfields Tailings Storage Facility, IDP_Emergency Preparedness Plan GTSF_04, Rev. 6, 16 November 2021.

The Plans considers the potential cyanide failure scenarios appropriate for the operations site-specific environmental and operating circumstances.

Iduapriem Processing Plant Emergency Response, Emergency Preparedness and Response Plan, EPP 001, Rev. 7, 1 May 2021 includes the following:

Table 8.1, section 3.1 - Catastrophic Release of Hydrogen Cyanide.

Table 8.1, section 3.2 – Transportation Accidents.

Table 8.1, section 3.3 – Cyanide Released During Unloading and Mixing.

Table 8.1, section 2.0 – Fire or Explosion refers.

Table 8.1 section 6.1 – Hydrogen Cyanide Gas.

Table 8.1 section 3.5 - Pipe, Valve and Tank Failure.

Table 8.1 section 3.6 – Overtopping of Ponds and Impoundments.

Table 8.1 section 3.8 – Power Outrages and Pump Failures.

Table 8.1 section 3.7 – Seepage from Dams/ Ponds/ Blocks.

Table 8.1 section 3.9 – Failure of Tailings Impoundment/ Wall Failure.

The Plant does not have cyanide Treatment or Recovery Systems.

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

Transport from Tema to the Orica box to Sparge facility and from the facility to the mine is undertaken by Stellar Logistics a certified transportation company and detailed in Stellar Logistics, Route Risk Assessment - Barbex - AAIL Tarkwa, OPS-SOP-008-R6, 3 May 2022.

The Plans include:

Specific response actions, as appropriate for the anticipated emergency situations, such as clearing site personnel and potentially affected communities from the area of exposure, are included in the following: Iduapriem Mine Emergency Response Plan, 4_IDP_Emergency Response Plan-IDP/HSE/ERP/006, Rev. 8, 29 July 2020, Section 8.5 Process Plant Evacuation; and Procedure for Communication with Interested and Affected Parties, IP-CM-048, Rev. 07, 1 May 2021, which states that communication with affected communities will be undertaken by the Sustainability Department in terms of established procedures and communication avenues.

Procedure for First Aid and Medical Treatment for cyanide reagent exposures, IP-CM-001, Rev. 7, 1 May 2021., states that the Tripac Cyano Kit and the First Aid and Medical Treatment procedure must accompany the patient to the clinic where a trained medical official will administer the antidote.

Control of releases at their source, and containment, assessment, mitigation and future prevention of releases is described in the Procedure for Cyanide Spillage, Release of HCN, IP-CN-012, Rev 7, 1 May 2021, which describes the types of possible cyanide spillage or HCN releases and the procedure to follow in the event of such accident occurring

.

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

The operation is

☒ **in full compliance with**

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

☐ **not in compliance with**

Summarise the basis for this Finding/Deficiencies Identified:

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

The operation has involved its workforce and stakeholders, including potentially affected communities, in the cyanide emergency response planning process.

The primary strategy to involve the appropriate workforce and stakeholders in the emergency response process is through emergency mock drills. Training is given to communities regarding cyanide awareness, including if cyanide is found for it to be left and for the mine to be called. The emergency response is included in the cyanide induction training and refresher training conducted annually. The emergency response plan process is discussed during Toolbox meetings.

The operation has made potentially affected communities aware of the nature of their risks associated with accidental cyanide releases and consulted with them directly or through community representatives regarding appropriate communications and response actions. The Sustainability Department is responsible for communicating with the community including the appropriate emergency responses.

Sam Jonah clinic is an on-site mine owned clinic and is involved in the emergency drills. This was observed in the mock drill reports. The Sam Jonah Clinic has an ongoing memorandum of understanding with Goldfields Tarkwa Mine Hospital, which is linked to the Goldfields Tarkwa Mine, an ICMI certified Mine. An email was observed between the doctors at the two clinics confirming this. The Sam Jonah Clinic resident Doctor confirmed that in terms of the Ghana National Medical Protocols, he can call upon Accra based hospitals should he require them. The nearest hospitals with intensive care unit capabilities are at Cape Coast or Accra.

The operation has identified the Tarkwa Fire Brigade as the only external entity having an emergency response role, involved them in the cyanide emergency response planning process, and engaged in consultation or communication to keep the emergency response plans current.

The emergency response plans have been sent to the Fire Brigade, in addition they are involved in the mock drills. Consultation with the communities are though the stakeholder engagement process for the mine.

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

The operation is

☒ **in full compliance with**

☐ **in substantial compliance with** **Standard of Practice 7.3**

☐ **not in compliance with**

Summarise the basis for this Finding/Deficiencies Identified:

The operation is in full compliance with Standard of Practice 7.3 to designate appropriate personnel and commit necessary equipment and resources for emergency response.

The cyanide-related elements of the emergency response plans include the following:

Iduapriem Processing Plant Emergency Response, Emergency Preparedness and Response Plan, EPP 001, Rev. 7, 1 May 2021 (EPP) - Section 3 Management Roles and Responsibilities designates primary and alternate emergency response coordinators who have explicit authority to commit the resources necessary to implement the Plan.

The Members of the Emergency Response Teams (ERT) are identified on notice boards. The Plant ERT wear green hard hats for identification purposes. The Emergency Response Coordinators and members of the Emergency Response Team are trained in the procedures included in the emergency response plans regarding cyanide, including the use of necessary response equipment. This is stated in IP CN-003 Response to Emergency Conditions.

Figure 8.3 of the EPP details the Emergency Communication Structure, Figure 8.4 of the Plan details Level 1 Emergency Communication Structure. 24 hour contact information is detailed in Appendix A Section 11.1

Section 3 of the EPP, Management Roles and Responsibilities, specifies duties and responsibilities of the coordinators and team members specifies the duties and responsibilities of the co-ordinators and team members.

Appendix D of the Plan lists emergency response equipment including personal protection gear, available on-site.

Weekly Inspection Checklists for cyanide storage, dosing and first aid facilities, includes Cyanide Sparging Facility, cyanide emergency cabin, cyanide delivery pipes and valve, cyanide management station and trailer, bund integrity inspection, emergency response trailer equipment inventory, emergency response cabinet equipment inventory, deviations report (deviations, action plan, person responsible, expected completion date, remarks).

Section 3 of the Plan, Management Roles and Responsibilities, describes the role of external responders. The medical facility is the mine clinic adjacent to the Plant, which is part of the full chain mock drills. The Tarkwa Fire Brigade are the only external responder and are included in mock drills. The communities are not part of the emergency response.

The operation confirmed that external entities with roles and responsibilities identified in the emergency response plans are aware of their involvement and are included as necessary in mock drills or implementation exercises.

The Tarkwa Fire Brigade was included as part of a mock drill on 02 May 2022 with regards to a bush fire next to the Overland Conveyor.

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

The operation is

☒ **in full compliance with**

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

☐ **not in compliance with**

Summarise the basis for this Finding/Deficiencies Identified:

The operation is in full compliance with Standard of Practice 7.4 to develop procedures for internal and external emergency notification and reporting.

The Plan includes procedures and contact information for notifying management, regulatory agencies, external response providers and medical facilities of the cyanide emergency in the EPP: section 8.3 - Emergency Communication Structure.

The emergency response plans include procedures and contact information for notifying potentially affected communities of the cyanide related incident and any necessary response measures and for communication with the media.

Communications to communities are undertaken under the approval of the Managing Director as stated in IP-CN-044 Major Upsets. The Managing Director will then direct the sustainability department to contact the relevant communities through their chiefs. The Managing Director will contact the media directly.

The Senior Manager HSE is responsible for communicating with the Regulatory Agencies as detailed in EPP Figure 8.4 Level 1 Emergency Communication Structure.

The operation has a procedure for notifying the ICMI of any significant cyanide incidents, as defined in the ICMI's Definitions and Acronyms document. There have been no significant cyanide incidents that have occurred since the previous recertification audit.

IP-CN-051 Procedure for Notifying ICMI of a Cyanide Incident details that all significant cyanide incidents should be reported to the International Cyanide Management Institute (ICMI) within 24 hours of an occurrence through the Senior Manager Processing and the Managing Director.

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.

The operation is

☒ **in full compliance with**

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

☐ **not in compliance with**

Summarise the basis for this Finding/Deficiencies Identified:

The emergency response plans describe specific remediation measures as appropriate for the likely cyanide release scenarios, including the following.

IP CN-012 Procedure for Cyanide Spillage, Release of HCN Releases - neutralisation of solutions will be undertaken using hydrogen peroxide. Section 6 Procedure, Detoxification of cyanide waste/ spillage states that the hydrogen peroxide is stored in front of the cyanide plant beside the emergency cabinet.

IP CN-012 Procedure for Cyanide Spillage, Release of HCN Releases - neutralisation of solutions will be undertaken using 15% hydrogen peroxide. This is used until free cyanide is below titration level of 0.5 mg/l

This is taken to a suitable disposal site as determined through a risk assessment, or otherwise returned to the leach circuit. There is no scenario where drinking water would be contaminated as drinking water is not derived from surface water. Any contamination of groundwater would be detected and addressed by the groundwater monitoring before it affected any groundwater drinking sources. However, provision is made for an alternative water supply in IP CN-012 Procedure for Cyanide Spillage, Release of HCN Releases.

The emergency response plan prohibits the use of chemicals such as sodium hypochlorite, ferrous sulphate and hydrogen peroxide to treat cyanide that has been released into surface water or that has the potential to reach surface water

The EPP Section 5.1 states that "the use of Sodium Hypochlorite, Ferrous Sulphate and Hydrogen Peroxide is prohibited in treating spills that have entered surface water bodies."

The emergency response plans address the potential need for environmental monitoring to identify the extent and effects of a cyanide release, and include sampling methodologies, parameters and, where practical, possible sampling locations.

The EPP states that the monitoring locations will be identified through a risk assessment process.

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

The operation is

☒ **in full compliance with**

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

☐ **not in compliance with**

Summarise the basis for this Finding/Deficiencies Identified:

The operation reviews and evaluates the cyanide-related elements of its emergency response plans for adequacy on a regular basis.

EPP Section 4.6 details when changes to the document will be made including the following: - regulatory changes; new risk identified; resources or organisational changes; after drills, when changes have been identified; after an actual event; budget changes; technology changes; and major changes.

The emergency response plans are controlled documents which are reviewed every two years.

Mock cyanide emergency drills are conducted periodically

A drill schedule is created at the start of the year. For 2020 this was disrupted by COVID. A mock drill for a cyanide spillage was completed in 2020. The schedules for 2021 and 2022 were also observed. This included exposure to CN on top of the leach tank / rescue from height in 2021 and exposure to CN at the cyanide plant in 2022. A mock drill was conducted in May 2020 for a bush fire that included the local Tarkwa Fire Brigade.

There are provisions in place to evaluate and revise the Emergency Preparedness and Response Plan, as necessary, following mock drills and following an actual cyanide-related emergency requiring its implementation. No such incidents or situation have occurred since the previous audit and therefore no such evaluations been conducted.

PRINCIPLE 8 – TRAINING

TRAIN WORKERS AND EMERGENCY RESPONSE PERSONNEL TO MANAGE CYANIDE IN A SAFE AND ENVIRONMENTALLY PROTECTIVE MANNER

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

The operation is

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

Summarise the basis for this Finding/Deficiencies Identified:

The operation is in full compliance with Standard of Practice 8.1; train workers to understand the hazards associated with cyanide use.

The operation trains all personnel who may encounter cyanide in cyanide hazard recognition.

The Training Department is responsible for training all employees at the plant, TSF and mine.

Induction training includes cyanide awareness. Plant specific inductions also include cyanide awareness. Induction training is refreshed annually. There is also a separate Cyanide Awareness Training Module for new employees, with refresher training conducted every 2 years.

AngloGold Ashanti, Basic Cyanide Awareness & Cyanide First Aid Presentation is provided as face to face meetings and is also available on the LMS (online training system). A questionnaire must be completed after completion of training, there is an 80% pass rate.

The presentation includes: Orica Safety Data Sheet (SDS), historical use and release of cyanide, what is cyanide, how sodium cyanide is produced, cyanide chemistry, cyanide compounds/complexes, cyanide analysis, cyanide solution treatment, forms of cyanide, cyanide in mining (cyanidation-CN leaching), how AAIL manages cyanide under ICMC, hazards of cyanides (NaCN or HCN), Sodium cyanide on the mine-site, when cyanide enters the body, how a person may be exposed to cyanide, routes of cyanide entry into the body, cyanide poisoning, sodium/hydrogen cyanide poisoning, symptoms of cyanide poisoning, signs that a person has been poisoned, recognition of cyanide areas and relevant equipment, symbolic signs, safety precautions when in the vicinity of cyanide areas, key cyanide safety tips, how to respond to an emergency, cyanide basic first aid & medical treatment, cyanide spill response, cyanide packaging, PPE, basic cyanide first aid awareness section.

New-Mine-Wide Human Resource Development (HRD) Matrix per training attendance. The matrix includes all employees per Department. Lists the training required for each employee, including Cyanide Awareness and Basic Emergency Response including the ERT team.

Training records are retained for five years, after which they are archived.

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

The operation is

☒ **in full compliance with**

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

☐ **not in compliance with**

Summarise the basis for this Finding/Deficiencies Identified:

The operation is in full compliance with Standard of Practice 8.2; Train appropriate personnel to operate the facility according to systems and procedures that protect human health, the community and the environment.

The operation trains workers to perform their normal production tasks, including unloading, mixing, production and maintenance, with minimum risk to worker health and safety in a manner that prevents unplanned cyanide releases?

Employees are trained prior to working in the process plant, refresher training will be provided when the Supervisor deems it necessary or if an incident has occurred.

The training matrix identifies the operational related training required by each employee to perform their normal production tasks, e.g. processing plant operational overview, basic metallurgy, grinding mills circuit operations training, Gravity & ILR circuit operations, leach-CIL circuit operations, TSF operations training, and confined space entry and rescue (buddy system).

The training elements necessary for each job involving cyanide management are identified in the training materials.

Task training related to cyanide management activities is provided by an appropriately qualified person. The qualifications / certificates for Kojo Zakari, Senior HRD Officer (Process and TSF Training) were observed.

Workers are trained prior to working with cyanide. Employees work under supervision until they have received all the section specific training. Thereafter they can work unsupervised.

Refresher training on cyanide management is provided to ensure that employees continue to perform their jobs in a safe and environmentally protective manner. Induction training is refreshed annually. Cyanide Awareness Training Module is refreshed every two years. Task specific refresher training will be presented when the Supervisor deems it necessary or if an incident has occurred.

The operation evaluates the effectiveness of cyanide training by testing, observation or other means. Planned Task Observations are undertaken by the respective supervisors. The Planned Task Observations (PTOs) are scheduled for each supervisor who will then conduct the PTO on one of the employees working under his/her supervision. Observed: Planned Task Observation Schedule Processing Department, First Quarter 2022. Each supervisor must conduct as a minimum, one PTO per month.

Records are retained throughout an individual's employment documenting the training they have received and including the names of the employee and the trainer, the date of training, the topics covered, and how the employee demonstrated an understanding of the training materials. Training records are kept for 5 years on site after which time they are archived but still retained.

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

The operation is

☒ **in full compliance with**

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

☐ **not in compliance with**

Summarise the basis for this Finding/Deficiencies Identified:

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

All cyanide unloading, mixing, production and maintenance personnel are trained in the procedures to be followed if cyanide is released, including decontamination and first aid.

This training is included in the Cyanide Awareness Training Module which is provided to all new employees of the Plant, the TSF and the ERT.

This training is presented to all plant and TSF employees as well as the ERT.

The Emergency Response Coordinators and members of the Emergency Response Team are trained in the procedures included in the Emergency Response Plan regarding cyanide, including the use of necessary response equipment.

The operation has made external responders, such as local fire brigades familiar with those elements of the emergency response plans related to cyanide.

The only external responder is the Tarkwa Fire Brigade. The operation has provided them with a copy of the Mine Emergency Response Plan. The letter and photographs of the handover was observed by the auditors. The Fire Brigade was included in a recent mock drill held on 02 May 2022.

Refresher training for response to cyanide exposures and releases is regularly conducted. Induction training includes cyanide awareness. Plant specific inductions also include cyanide awareness. Induction training is refreshed annually. There is also a separate Cyanide Awareness Training Module for new employees, with refresher training conducted every 2 years.

Records are retained documenting the cyanide emergency response training, including the names of the employee and the trainer, the date of training, the topics covered, and how the employee demonstrated an understanding of the training materials. The records are retained for five years, after which they are still retained but archived.

PRINCIPLE 9 – DIALOGUE

ENGAGE IN PUBLIC CONSULTATION AND DISCLOSURE

Standard of Practice 9.1: **Promote dialogue with stakeholders regarding cyanide management and responsibly address identified concerns.**

The operation is

☒ **in full compliance with**

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

☐ **not in compliance with**

Summarise the basis for this Finding/Deficiencies Identified:

The operation is in full compliance with Standard of Practice 9.1; provide stakeholders with the opportunity to communicate issues of concern.

The operation provides stakeholder with information on its cyanide management practices and engages with them regarding their concerns.

There are 16 host communities around the mine.

Community Disclosure Report, January - June 2020, this report is communicated to the communities in a presentation format as set out in the Community Engagement Plan. The Report covers environmental and community aspects e.g. water, noise, blasting, cyanide, and other issues relating to the environment that should be communicated to the community. The information is communicated in a practical way to make it more understandable. The presentation is in English but is presented in the local language of TWI.

Distribution Q1-Q2 (Jan-Jun) Community Disclosure Report (2020) in October 2020. The feedback presentations are presented to the communities on a quarterly basis, as per a schedule.

Distribution List 2020 Q1 Disclosure Report & Covid 19 TWI Booklet, 17 April 2020. Meetings were not held during 2020 and 2021 due to the Covid pandemic. During this period, hard copies of the reports were provided to the communities.

Letter: Environmental Monitoring Report Disclosure Forum, to The Chief Programme Officer, EPA, 12 April 2019. This letter was sent to the Ghanaian EPA and host communities. The letter invites the reader to attend the disclosure exercise per the schedule and agenda provided. The agenda includes a discussion on Cyanide Awareness and Disclosure.

Environmental Monitoring Results Disclosure and Community Forum, Nkyemia Community Centre, 4 October 2019. Includes a section on Cyanide Education (what is cyanide, route of entry to the body, signs and symptoms of cyanide poisoning).

Environmental Monitoring Disclosure, Abompuniso Community, 21 October 2020. During the discussion on the disclosure of environmental monitoring results, cyanide related issues were discussed.

Community Complaints and Grievance Management Procedure, IDP/SUS/ECR/SOP/005, Rev. 5, 28 March 2022. The purpose of the procedure is to document the steps required to receive and resolve community complaints in line with the AGA Management Standard on Complaints and Grievance Management. Applies to all instances

of verbal or written complaints and grievances lodged by an individual or group from communities. Complaints and Grievance Register 2019 to 2021. No complaints related to cyanide were observed.

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

The operation is

☒ **in full compliance with**

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

☐ **not in compliance with**

Summarise the basis for this Finding/Deficiencies Identified:

The operation is in full compliance with Standard of Practice 9.3: make appropriate operational and environmental information regarding cyanide available to stakeholders.

The operation has developed a written description of how their activities are conducted and how cyanide is managed. This description is available to communities and other stakeholders.

During the community engagement meetings, a presentation is given to the communities regarding cyanide management at the mine. This is also disseminated to the communities as a hard copy

The operation disseminated information on cyanide in verbal form where a significant percentage of the local population is illiterate. The presentations to the local communities are given in the local language of TWI to enable all attendees to understand the contents of the presentation.

The operation makes information publicly available on confirmed cyanide release or exposure incidents. Confirmed cyanide incidents will be communicated to the affected communities, via the quarterly community engagement sessions / reports. They will also be communicated to the Ghanaian EPA and the Minerals Commission in writing. There is a Ghanaian Chamber of Mines WhatsApp group, where information regarding incidents reported to the Chamber of Mines is disseminated.

There have been no cyanide incidents since the previous recertification audit.

Iduapriem Gold Mine		October 2022
Name of Facility	Signature of Mine Technical Auditor	Date

Iduapriem Gold Mine		October 2022
Name of Facility	Signature of Lead Auditor	Date

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