INTERNATIONAL CYANIDE MANAGEMENT INSTITUTE

Cyanide Code Compliance Audit
Gold Mining Operations

Summary Recertification
Audit Report

Barrick
Bulyanhulu Gold Mine
Tanzania

20th – 25th June 2022

For the
International Cyanide Management Institute
Cyanide Code

Name of Operation:	Bulyanhulu Gold Mine
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Location detail and description of Operation

Location detail

The Bulyanhulu gold mine is located in Northwest Tanzania, in the Kahama district of the Shinyanga region, approximately 55 kilometres south of Lake Victoria and approximately 150 kilometres south west of the city of Mwanza, a regional business and economic hub. The Bulyanhulu process plant has the capacity to process an average of approximately 3,300 tonnes of ore per day (approximately 1.1 million tonnes per year) operating 24 hours a day on a 365 day per year basis.

The mine consists of an underground mine, a process plant, waste rock dumps, tailings containment, water management ponds and associated facilities. The backfill plant gets its material from the Float Process, and therefore there is no cyanide in the backfill going underground. The mine is an underground trackless operation, using long hole as its principal stoping method. The mine was stopped in 2017 due to a concentrate export ban, and 90% of all employees were retrenched. during the period 2017-2020, the plant was only reprocessing tailings from TSF (Tailings Storage Facility). In 2020, the underground Mine resumed normal production, and currently, the Process Plant is treating fresh ore from underground and has re-employed 1077 employees (71 ex-patriots and 1006 nationals).

Bulyanhulu is a narrow-vein gold mine containing gold, silver and copper mineralisation in sulphides. Mineralisation of Bulyanhulu is associated with steeply dipping Argillite units referred to as Reefs. To date, several distinct reefs have been identified, including Reef Zero, Reef One and Reef Two. The Bulyanhulu life-of-mine is currently estimated to be more than 25 years, based on its proven and probable gold reserves of 7.64 million ounces.

Process Plant Description

The run of mine ore (ROM) is hoisted from underground and deposited at the ROM pad at an F100 of 350mm (millimetre). From the ROM the ore is reclaimed using front-end loaders and fed into the primary jaw crusher which reduces the size to P100 of 125mm. A secondary cone crusher crushes the ore further down to P80 of 40mm before depositing it onto the crushed ore stockpile. The crushed ore is reclaimed from the crushed ore stockpile using vibrating feeders into the SAG (Semi-Autogenous Grinding) mill feed conveyor at a controlled feed rate. The feed ore to plant contains gold, silver and copper. The mill and crusher sections of the Plant are not considered to be cyanide facilities in terms of ICMI (International Cyanide Management Institute) definitions, as the solutions contain less than 0.5 mg/l (milligrams per litre) WAD (Weak Acid Dissociable) cyanide

The feed grade is between 6.5 – 10.0 g/t (grams per ton) of gold and 0.3 – 0.5% of copper The plant recovers the metals using gravity, flotation and Carbon In Leach (CIL) processes. The sulphide minerals mined are mainly pyrite (FeS_2) and chalcopyrite ($CuFeS_2$). The plant recovers these valuables using gravity and flotation processes. Free milling gold and electrum particles are recovered using gravity techniques and intensive cyanide leaching reaction followed by electro-winning to produce doré bars.

The primary cyclone overflow is sent to rougher flotation cells. The rougher tailings are thickened and disposed of at the TSF or used as underground paste backfill material. There is a provision for sending rougher tailings to the CIL plant for leaching if not needed for underground paste backfill, and if the tailings grade is higher than desired. The rougher concentrate is sent to a falcon concentrator for gravity gold recovery. The falcon concentrate is leached, using an intensive cyanide leach reactor (ICR), while falcon concentrator tailings are returned to the regrind mill cyclone closed circuit for regrinding and classification, before advancing to the cleaner flotation circuit. The ICR tailings are rinsed before being returned to the flotation cleaning circuit. All rinse water is directed to the CIL circuit. The ICR concentrate is sent to the electrowinning circuit, which is followed by smelting to produce the gold doré bars.

The cleaning circuit consists of 4 stages which operate in counter current mode. The first stage cleaner tails are sent to the cleaner scavenger cells while the concentrate is advanced to the second cleaner stage. The concentrate from the second cleaner is sent to the third cleaner while the tailings are returned to the first cleaner. The concentrate from the third cleaner is sent to the fourth cleaner while the tailings are returned to the second cleaner. The fourth cleaner tailings are returned to the third cleaner while the concentrate is directed to the concentrate thickener. The cleaner scavenger tails stream is fed to the CIL plant for gold extraction to produce doré.

The concentrate thickener underflow is pumped to a Larox filter via a stock concentrate storage tank to produce a cake of 8.0 -10% moisture content. The final concentrate is loaded into containers. Bulyanhulu Process Plant produces between 40.0 – 70.0 tonne of concentrate per day, containing approximately 80.0 -280.0g/t (grams per tonne) gold, 150.0 – 250.0g/t silver and 11.0 – 25.0% copper. The recovery varies between 85.0 – 93.0% for gold and 75.0 – 95.0% for copper.

The tailings from the CIL circuit are directed to the cyanide destruction INCO (International Nickel Company) process which destroys cyanide to less than 50ppm (parts per million) WAD cyanide before depositing it onto the TSF. The CIL plant operates 24 hours a day on a 365-day-per-year basis at 92% availability.

Auditor's Finding

This operation is

X in full compliance

☐ in substantial compliance *(see below)

☐ not in compliance

with the International Cyanide Management Code.

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

This operation has not experienced compliance problems or significant cyanide incidents during the previous three-year audit cycle.

Audit Company: Eagle Environmental

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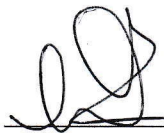
Names and Signatures of Other Auditors:

Name: Dawid M. L Viljoen Signature  Date: 9 DEC 2022

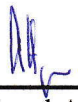
Dates of Audit: 20th – 25th June 2022

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

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

Bulyanhulu Gold Mine  14 December 2022

Facility | Signature of Lead Auditor | Date



Audit Findings

Principle 1 - PRODUCTION AND PURCHASE
Encourage responsible cyanide manufacturing by purchasing from manufacturers that operate in a safe and environmentally protective manner.

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

X in full compliance with

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

□ not in compliance with

Basis for this Finding/Deficiencies Identified:
The audit period under consideration is from 25th June 2019 to 24 June 2022. Cyanide is currently supplied by Hebei Chenxin Pty Ltd, an ICMI (International Cyanide Management Institute)-certified cyanide producer. Cyanide was also supplied during this period by Orica Australia Pty Ltd (Orica), also a certified cyanide producer. Orica supplied cyanide for 2019 and 2020 and Hebei Chenxin from the start of the contract (1 November 2019). Hebei Chenxin is currently the only supplier. The site inspection confirmed that all cyanide stored in the cyanide warehouse is labelled as from Hebei Chenxin Pty Ltd.
Barrick employs a Procurement Partner, TCL Supply Chain Limited based in Mauritius, to manage the purchase of cyanide from Hebei Chenxin. TCL Supply Chain Limited is not involved in any of the product stewardship services and activities of cyanide purchase and transport. TCL Supply Chain Limited only handles the financial paperwork of the cyanide purchase and is paid a commission for the work done for Barrick. TCL Supply Chain Limited is not deemed to be an independent distributor of cyanide as defined by the ICMI. Thus, it is not deemed necessary that TCL Supply Chain Limited be a part of the supply chain as defined by the ICMI.

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

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

X in full compliance with

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

□ not in compliance with

Basis for this Finding/Deficiencies Identified:
The sodium cyanide is transported by Hebei Chenxin Transport (an ICMI certified road transporter) from Yuanzhao Road, Yuashi County, Shijiazhuang City, through Chins via road to the port of Quiidad (Hebei Chenxin Transport China Supply Chain). It is then shipped to the Port of Dar es Salaam by Maersk. At the port of Dar es Salaam, it is transported to Bulyanhulu Gold Mine by FFT (Freight Forwarders Tanzania), an ICMI-certified road transporter.
Two Chain of Custody document packs were sampled. One covering a delivery in 2020 and one covering a delivery in 2022. The first document pack covered the delivery of 10 containers, (the second of a shipment of four on a purchase) dated 29 November 2019. The document pack included a Maersk Bill of Lading (dated 24-03-2020), a Hebei Chenxin Company Commercial Invoice dated 21 March 2020, and 10 Delivery Manifests from Freight Forwarders Tanzania Ltd for the 10 shipping containers of 23,600 kgs each of sodium cyanide. There were no travel documents covering the sodium cyanide transport in China (but covered by the Hebei Chenxin Transport China Supply Chain). The second document pack covered the delivery of 10 of 40 containers of sodium cyanide on a purchase order (dated 13 September 2021), a Hebei Chenxin Company Commercial Invoice dated 20 November 2021, and 10 Delivery Manifests from Freight Forwarders Tanzania Ltd for the 10 shipping containers of 23,600 kgs (kilograms) each of sodium cyanide. There were no travel documents covering the sodium cyanide transport in China (but covered by the Hebei Chenxin Transport China Supply Chain). It was confirmed that all relevant participants of the cyanide transport supply chain were ICMI-certified.

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

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

X in full compliance with

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

□ not in compliance with

Basis for this Finding/Deficiencies Identified:

Applicable Evidence included in the recertification audit of 2015

A new cyanide mixing plant was constructed. The new CIL Plant was built and commissioned in June 2014.

The plant was designed by MDM Engineering (proprietary name) and the original contract between African Barrick Gold and MDM required the plant to be designed for cyanide-specific use and to be ICMC (International Cyanide Management Code) compliant.

Design files were sighted and sampled, including P&IDs (Piping and Instrument Drawings) for Reagents 1 Cyanide and caustic, the cyanide tank mechanical design drawing - detail of the Cyanide make-up tank. The drawings include mechanical and material specifications. Also sighted was the tank foundation drawing indicating the use of a reinforced concrete layer on the top of the foundation for the tanks.

The Design has not materially changed, but some corrective improvements were made since construction, such as replacing mild steel pipes with pipe-in-pipe HDPE (High Density Poly Ethylene) cyanide solution pipes.

During the site inspection, it was confirmed that the solid cyanide warehouse and the cyanide mixing, and storage facility were located away from people and surface waters. It was confirmed that no liquid cyanide is supplied or delivered. The Mine uses solid 98% cyanide briquettes and mixes the Sodium Cyanide briquettes to the required solution strength. The cyanide mixing facility is equipped with ventilation openings on top of the tanks. The building is open at the front, sides and back to assist with ventilation of the area. The cyanide mixing and storage areas' bunds, built from concrete, were observed during the site inspection to be in good condition with no significant cracks present.

The cyanide mixing and storage tanks are located adjoining the solid cyanide store which are located separately from other chemical stores. There are no animal feeds and tobacco products on site.

The solid cyanide store has a concrete floor, and the entry is equipped with humps to prevent water from entering, The sides of the galvanised sheeting route rainwater to the outside of the cyanide storage floor area. No water in the store or water damage to the cyanide boxes was noticed during the site inspection. The dry solid cyanide box store is equipped with ventilation slots in the roof apex (which appeared to be retrofitted to an old store). It is deemed sufficient for ventilation. No HCN (Hydrogen Cyanide) gas levels were measured during the site inspection.

The cyanide mixing and storage tanks are all equipped with level sensors. Step 15 of the Sodium Cyanide Mixing Procedure partially automates the mixing process to minimise the risk of overfilling - "…15. After completing cyanide addition, ensure the manual water dilution valve 4167-V03 is open, and then ask CRO (Control Room Operator) to initiate COMPLETE CYANIDE MIX on the SCADA (**S**upervisory **C**ontrol **A**nd **D**ata **A**cquisition) system. The PLC (**P**rogrammable **L**ogic **C**ontroller) will open the auto water addition valve and the tank will fill to 90%..."

The dry cyanide store is located inside a high-security area and the store is double locked. One key is kept at the security department and a second, different key is kept by the Storeman. They both have to be present when unlocking the store. It was confirmed

during the site inspections that the cyanide store was locked, and the mixing area is also fenced, and locked, and includes the empty cyanide store yard. It was further confirmed during the site inspection that the store is located separately from oxidizers and explosives and apart from foods, animal feeds and tobacco products. Only cyanide boxes were stored in the dedicated cyanide storage facility.

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

X in full compliance with

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

□ not in compliance with

Basis for this Finding/Deficiencies Identified:
No liquid cyanide is delivered and all cyanide used is mixed from solid briquettes. Procedures governing Mixing Sodium Cyanide, Cleaning Cyanide Dry Spill, Cyanide Cleaning Liquid Spill, and Unloading Sodium Cyanide Boxes, were sighted and reviewed.
All empty cyanide boxes and cyanide bags are incinerated in the onsite incinerator according to the incinerator standard operating procedure. The incinerator location was observed during the site inspection and it was noted that the empty cyanide storage yard was inside the cyanide mixing area, which was locked.
A risk assessment was undertaken which indicated that triple rinsing plastic cyanide bags and liners created an unacceptable cyanide gas risk, as opposed to dry incineration. This is included in the procedure for cyanide mixing.
Both the unloading cyanide boxes procedure and the cyanide mixing procedure require timely clean-up of any cyanide spills.
The unloading cyanide boxes procedure includes a task step requiring the clean-up of the inside of the sea container before its return to the vendor. Sweepings are placed into empty cyanide boxes for disposal and any cyanide briquettes found are cleaned up using the Dry Cyanide Spill Clean-up procedure.
The sequence of opening and closing of valves and couplings for mixing of cyanide solution is detailed by valve and coupling identification number in the Cyanide mixing procedure.
The unloading cyanide boxes procedure includes the arrangement of cyanide boxes in two-row columns, leaving a two-foot pathway between two-row columns for inspection and a maximum stacking of three boxes high.
The Mixing Cyanide procedure includes specific responsibilities for participating individuals, and the sentry, and the PPE (Personal Protective Equipment) that must be used. In Section 3, Responsibilities, it states the following: - "…Two trained, competent and authorized operators will be assigned by (the) Shift Supervisor to perform cyanide

mixing. The warehouse officer and security officer will be responsible to make sure that cyanide boxes are transported from the shed to the mixing area safely. The shift Supervisor will assign a competent third operator to act as a sentry during mixing practice. The sentry is responsible for observing cyanide mixing from a safe distance and for notifying the CRO(Competent Reagent Operator) and Shift Supervisor in case of an emergency. And if possible, attend the causality...” Also specified in the Mixing Cyanide procedure is the requirement to add food dye (carmoisine) to the cyanide mixing tank.

Principle 4 - OPERATIONS
Manage cyanide process solutions and waste streams to protect human health and the environment.

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

X in full compliance with

The operation is
- □ in substantial compliance with **Standard of Practice 4.1**
- □ not in compliance with

Basis for this Finding/Deficiencies Identified:
There are approximately 250 operational procedures, which include 20 cyanide-specific procedures. Engineering maintenance is subject to permit to work, confined space entry permit, and hot work permit procedures. Use of Job Safety Environmental Analyses (JSEA) is undertaken, using a template. A JSEA is done for any new or irregular tasks. Engineering uses cyanide-specific procedures. Cyanide sampling and incineration are included in environmental procedures.
The paste TSF re-mining operation was completed at the end of 2020. The clean-up operation of the site continues. The underground ore treatment and deposition commenced at the end of 2020 when the re-mining project ended.
Fraser Alexander Tailings (FAT) was the TSF Operating Contractor until 31 April 2022 and was replaced by Paragon Tailings (PT) on 1 May 2022. The Paragon Tailings Takeover report dated 13 May 2022, describing the handover between FAT and PT of the site, was sighted. FAT procedures for operations of TSF included penstock operation, pool positioning, construction of catwalks, and modification of the day wall. The Paragon list of procedures included Walkway installation, install freeboard poles, manual cleaning of solution trench, connecting and disconnecting of pipes and valves, opening, and closing of valves, installation of piezometer support poles, manual wall packing, penstock operation and penstock sleeving, were sighted and sampled.
SLR Consulting (proprietary name) prepared the Operation, Maintenance and Surveillance Manual for the TSF Cell No.4, SLR, dated June 2020, and authored by J Wall and A James (Pr. Eng.). The Report was reviewed. The FAT Standard Operating

Procedure: Operating the re-mining pump station, used until the end of 2020, was sighted.
Stability analyses were done in 2019, resulting in the building of rock buttresses on the North, South, West, and East walls, which are now completed (sighted during site inspection). Vibrating wire piezometers were installed and are functional. Functional data is available and data integration into reports is in progress. The original Piezometers are still functional.
Annual TSF inspections are done, and formal reports are issued for action. The 2019 / 2020 report was sighted and sampled. The 2020 / 2021 report is currently being finalised. The Covid-19 pandemic impacted upon the production of the annual report in 2020 / 2021. Quarterly TSF reviews are done, and formal reports are issued for action. These were sampled. The Tailings & RWD (Return Water Dam) Quarterly Review and annual audit Q1-2022, presented by A James, Engineer of Record from SLR was sighted and sampled.
The Operation, Maintenance and Surveillance Manual for TSF Cell No 4 includes the design storm depth of 4150mm (72 hour, 1:100 year); the design freeboard (1.9 m minimum total freeboard); the design freeboard for return water dam 3 measured from spillway invert to embankment crest (1m) and process water quality arriving at TSF must be less than 50 ppm WAD cyanide and at a pH of 8-10. It was also confirmed during site inspection that no discharge to surface water exists.
In the Plant, there is a CIL Cyanide Detoxification Process Upset Safe Work Procedure which states, "…If the concentration is confirmed in either Detox tank which feeds Detox tank #04 or at any TSF spigot discharge it be (sic) above 50ppm, the CIL plant operation should be stopped…"
Plant Inspections include the following:
-CIL Log sheet, which includes the monitoring of pH and recording of Sodium Cyanide ppm at the CIL every 2 hours.
-CIL & Detox Shift Start Check-up list. The checklist includes the following items: safety, cyanide, PPE, leakages on pipelines and valves, cyanide concentrations in tanks, pH readings, condition of gas detectors, safety showers and eye washes, and WAD cyanide analyser inspection. Sampled 31 October 2020, 31 August 2020, 19 October 2021, 20 May 2022, and 1 March 2022.
-CIL Elution Shift Start Checklist. This checklist checks the following items: - Check status of pumps, valves, bunds for spillage or dead birds, safety showers and eye wash stations, gas detectors, level of Cyanide and Sodium, Hydroxide (Caustic Soda) in discharge solution. Sampled 20 June 2022, 2 April 2022, 16 January 2022, 17 December 2020, 30 August 2020, and 23 March 2020.
-CIL Reagents Mixing Check-up List, (includes the cyanide mixing and storage tank area). The checklist includes the following items: HCN (Hydrogen Cyanide) detector; safety showers and eye wash; check for any leakages in tanks, pipes, valves and pumps, any spills, respective PPE (Personal Protective Equipment) required for reagent mixing including OxySoc (medical oxygen dispenser), check bund status, and the cyanide mixing tank level after water addition. Sampled 19 June 2022, 7 February 2022, 16 April 2020, and 26 August 2020.

-Operational Bunds inspection checklists include all bunds in the plant and cover cracks in walls, floors, contents of bunds, wildlife, sump pump, bund capacities, and PVC (Polyvinyl chloride) liner condition. Files for May 2022, and April 2021 were sampled.
TSF Inspections include the following:
- Daily FAT daily inspections for 2021, including the following items: leaks on pipes, seepage, spillages, wildlife, rainfall, and cyanide gas. Sighted and sampled the files from 30 January to August 2019, January 2020, and inspections for April 2021.
- The FAT Technical Operational Risk Auditing System (TORAS) records for February 2022 were sighted. Evidence was sighted that TORAS was being used, referring to the electronic continuous database covering July 2019 to April 2021, May to June 20, and April 2022 were further sampled.
- Paragon daily inspections from 16 May to 14 June 2022 were sighted and sampled. Checks include site access control, pipeline, penstock, underdrains, piezometers, freeboard, and silt trap.
- The Paragon daily Team Leader shift report: deposition was sighted. Reports from 30 May to 18 June 2022 were sampled and included additional information on pool depth, water elevation and valves.
- The Paragon Supervisor's daily report was sighted and sampled from 1 May to 19 June 2022.
- The Bulyanhulu daily TSF report is circulated to the Plant and Paragon, including critical TSF information detail. The report for 20 June 2022 was sampled.
- The Paragon TSF weekly report: week 24, 13 to 19 June 2022, was sampled. The Report includes 6 sections: - Overview, Human Resources, Health & Safety, Technical, Red flag issues, and General. The report consolidates TSF management data and is circulated to Management, TSF staff and the Plant.
- The Mill tailings planned general inspections, covering the HDPE liners, the pipelines, joints, vegetation, and other defects on tailings pipelines outside the TSF fence to the process plant were sighted. Report sampled were for 19 June 2022, 24 April 2021, and 26 December 2020
-The Paragon TSF Monthly report was reviewed. This uses daily, and weekly reports covering freeboard, drains, flows, piezometers and deposition cycle and tipping areas. May 2022 was sampled.
-The Paragon Dam Management System report, including all standard technical graphical presentations of the TSF dated 31 May 2022 was sighted and sampled.
-The Monthly SHE (Safety, Health & Environment) Rep inspection - deposition dam for 31 May 2022 was sighted.
-The 2022 Barrick TSF Plant Foreman inspection checklists were sighted and sampled, which include items such as: - main embankment, condition of liners, pipeline and valves, electrical and surface water collection structures, mortality, and reasons for ponds being under or over operating level.
-The Quarterly Site Inspections include the following: environmental issues, slurry delivery, basin slope, freeboard, deposition, pool control, penstock, underdrains, and return water dams. The Memo: Quarterly Site Visit (Q2/Q3-2021) was sighted, including the action sheet and progress on tasks identified during the quarterly inspections. The action tracker system was reviewed, including the items identified in the quarterly

inspections, which is updated weekly.
- The Barrick Mining plc – Bulyanhulu Gold Mine, Minutes of Quarterly Review of Operation of Tailings, Storage Facility No.7, (May 2019 – October 2019) was sighted.
- The Tailings & Return Water Dam Quarterly Review and annual audit Q1-2022 Presented by A James, Engineer of Record from SLR, was sighted and reviewed.
-The Annual Report on the Operation and Monitoring of the Bulyanhulu Tailings Storage Facility No.4 for the Period Tailings Management Annual Audit, 2019-20, Prepared by: City Engineering Company Limited Submitted on: May 4, 2021 was sighted and reviewed.
-The Geotechnical inspection: Bulyanhulu Geotechnical Investigation, including CPTu (Cone Penetration Test), VW (Vibrating Wire) and Seismic Testing, Sampling VW (Vibrating Wire) Piezometers with Telemetry, August 2020 to October 2020 were sighted and reviewed.
It was confirmed that the TSF equipment is part of the SAP ("SAP" is a proprietary name) PMS (Planned Maintenance System) system.
The Plant has a Management of Change procedure in place. It was confirmed that final approvals for change implementation are signed off by the Head of Department, General Manager, and the Regional Manager. Discipline-specific impact questions are completed by the Functional Area Representative, e.g., Environment or Health and Safety. This indicates if the person participated in the formal risk assessment, completes the review date, and can add any comments. The Management of Change (MOC) document for the Plant Upgrade, dated 4th April 2020, was sighted. The upgrade project included major work done on the primary and secondary crushers for after the plant re-start in 2020. The MOC was signed off by Frank Ngoroma, Environmental Manager, and Mayunga Balele, Safety Superintendent.
With regards to procedures for non-standard operating situations that may present a potential for cyanide exposures and releases, there are a number of procedures and systems in place. Weekly Water Balance meetings are held where management decisions are made in terms of action required to manage water balance issues and issues based on inspections and monitoring regarding the water balance. It is noted that the operation does not have a heap leach facility and therefore does not require procedures to cover the water balance issues related to a heap leach. It must be noted that the plant's water balance is water negative. Start/stop procedures covering normal, abnormal, and emergency situations would be used as appropriate. The following procedures may be used: -
- New CIL Elution Cycle (Elution Sequence and Shut Down) Safe Work Procedure, and Detox Circuit Operation & Shutdown Safe Work Procedure (these two procedures include contingency procedures for situations when a temporary closure or cessation of operations may be necessary).
- New CIL Circuit Start-up (Area 4131) Safe Work Procedure,
- CIL Emergency action procedure to an area known or assumed to have high HCN level,
- CIL Cyanide Detoxification Process Upset Safe Work Procedure,
- CIL Circuit Start Up Safe Work Procedure,
- CIL Circuit Shutdown Safe Work Procedure,

The scenarios include temporary closure or cessation of operations due to situations such as work stoppages, lack of ore or other essential materials, economics, civil unrest, or legal or regulatory actions will be evaluated by special Management meetings/workshops when anticipated to happen, and scenario-specific strategies will be considered and implemented as appropriate.

The site has moved from the PRONTO (PRONTO is a proprietary name) electronic PMS to an SAP-based (SAP is a proprietary name) PMS system in April 2021. A contractor was employed to manage the seamless switch from one system to the other. In addition, a spreadsheet-based system was established to run parallel and include both sets of asset numbers (PRONTO and SAP) to aid in the transition. The transition project ran from October 2020 to April 2021.

It was reported that all assets have been transferred from PRONTO to SAP, although there were a few minor problems where some data was lost.

When the Plant was re-started, the then Project Manager undertook a survey of the Plant infrastructure to assess its fit-for-purpose status. Although no formalised Structural Report was produced, a number of projects were put in place, including the construction of a new CIL Plant. Various reports, drawings and plans were sighted showing design and quality control functions.

Underground mining was put on "care and maintenance" during the period when concentrates could not be sold as a result of Government regulations. This resulted in the stopping of the mills and flotation (non-cyanide facilities). The re-mining section-maintained operations, utilising the new CIL plant, as normal, and including usual Planned Maintenance activities.

General planned inspections are conducted throughout all areas of the Plant daily and reported weekly by boilermakers and fitters. These include visual inspections for leaks, corrosion, and physical damage in pipes, flanges, welds, and tanks. Boilermaker and fitters' inspections were sampled during the electronic review of the PMS.

All tanks (which include cyanide mixing and storage tanks, CIL tanks, elution column, detox tanks and tailings tanks) are inspected visually by the boilermaker annually looking for leaks and failures of the welds. The tanks have NDT (**n**on-**d**estructive **t**esting) thickness testing conducted on them, annually, by mechanical engineers who test the tank thickness, welds and associated pipes. The engineer's report includes thickness reports and observations on the condition of the tanks. A "Report on in-service of Cyanide Plant Tanks at Bulyanhulu Gold Mine" by Engineer W Edwards of Movic Engineering, dated April 2022 was sighted. The Report was the basis for the recommendation to replace the Cyanide Storage Tank. Sighted Boilermaker weekly inspection of cyanide mixing tank w/o 2072679 dated 5/12/2020.

Operational Bund inspection checklists include all bunds in the plant and cover items such as: - cracks in walls, floors, contents of bunds, wildlife, sump pump, bund capacities, and PVC liner condition. The Bund inspection checklist files were sampled for May 2022 and for April 2021. The re-mining section pumping station bund faults are reported by exception. The Mill tailings planned general inspections covering the HDPE liners, the pipelines, joints, vegetation and other defects on tailings pipelines outside the TSF fence to the process plant, were sighted. Reports for 19 June 2022, 24 April 2021, and 26 December 2020 were sampled.

It was confirmed that ponds 1, 2 and 3 leak detection systems are inspected daily. The operation does not have leach pads, but leak detection systems are used within the linings of the TSF.
It was confirmed that pipelines within the Cyanide/SMBS (Sodium Metabisulphite) circuit are NDT Thickness tested. The "NDT Report for the Cyanide/SMBS solution pipeline circuit of Bulyanhulu Gold Mine" by Engineer W Edwards of Mwanza Modern Company was sighted. Inspection of valves are included in the General Weekly area inspections by the boilermakers and the fitters. However, these are only visual external inspections and most valves are replaced on breakdown. Operational inspections were sampled for 31 October 2020, and 31 August 2020. The checklist includes the following items: - safety, cyanide, PPE, leakages on pipelines and valves, cyanide concentrations in tanks, pH readings, condition of gas detectors, safety showers and eye washes, Inspection documents further sampled included: - WAD cyanide analyser inspection, 2 monthly Fitter inspection of pumps, 2-week inspection of the Detox pump, and 4-week Fitter inspection of a Cyanide pump.
A combined team consisting of Environmental, Process, Engineering, and TSF staff carries out a weekly inspection of the TSF which includes the return water ponds and the physical integrity of surface water diversions. If issues are identified during the inspection, appropriate members of the team will facilitate repairs, changes or corrective actions. Sighted examples of inspection reports from this initiative.
It was confirmed that the Process Plant and TSF are inspected on an established frequency sufficient to assure and document that they are functioning within design parameters.
A review of the artisans' document packs for planned maintenance inspections confirmed that they included: - the specific items to be observed, the date of the inspection. the name of the inspector, and any observed deficiencies noted. Any corrective actions are noted in the document, or a new repair job card is raised for the corrective actions. Specific examples of various job cards were reviewed.
It was reported by the E & I (Electrical and Instrument) Supervisor that there were four standby generators in the Plant which were only used for lighting, running the rakes in the leach tanks and operating instrumentation and the SCADA, in the event of a National Grid power failure. These are automatically operated when the Grid power fails, and when it comes back on again. If the Plant needs more power to use pumps to manage Water Balance problems, assistance can be requested from the mine. The mine has over 25 various-sized generators which are capable of running the whole mine without ore hoisting, or the mine and ore hoisting but without the process plant, but not all facilities simultaneously. The four plant generators are maintained and tested electrically using the Plant's SAP PMS system. The various Mine generators are all maintained and tested by the Mine's SAP PMS system, as the mine is the only employer of diesel mechanics. The mine's diesel mechanics also maintain and test the diesel aspects of the Plant's generators.

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

X in full compliance with

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

□ not in compliance with

Basis for this Finding/Deficiencies Identified:
The re-mining of the old TSF was completed during 2020. Cyanide optimisation test work was done as per the project feasibility studies and reported for previous audits. The CIL Cyanide Dosing Optimization Procedure was sighted and reviewed. The procedure's purpose is to: - "… to give some guidelines on CIL circuit cyanide dosing in order to avoid some overdosing that might result in higher HCN gas formation..."
The procedure includes Bottle roll tests which direct cyanide automatic controlled dosing rates controlled by a TAC 1000 automated online analyser. Regular bottle roll tests are required to accommodate ore changes and variations. The recommended cyanide dosing adjustments are signed off by the Process Plant Manager or his delegate before their implementation.
Optimisation and characterisation test work since 2021 focused on the underground ore source, which is the long-term ore feed to the plant. Life of Mine is estimated to be until 2050.
The electronic files, including bottle roll test results done on daily composite leach feed samples, were sighted and reviewed. Cyanide concentration is at the 2000 ppm Sodium Cyanide standard for daily samples. The results indicate recoveries at the standard conditions. If recovery changes significantly, special tests are done at varied cyanide concentrations for optimisation purposes. Daily bottle roll results for 2022, 2021, and 2020 were sighted and sampled.
Optimisation test work by the Plant Metallurgist was done around Dec 2020. This comprised gravity and cyanide leaching test work on underground samples from the ROM pad at 1500, 1800, 2000, 2500 and 3000 ppm as Sodium Cyanide in leach. A cyanide concentration of 2500 was found to be optimal
External test work is done and a Report on Bulyanhulu Preg-robbing tests dated 31 May 2022 by Maelgwyn Mineral Services Africa, covering specific underground ore sources with high carbon content and high cyanide consumption was sighted.
Characterisation test work on different underground samples is also carried out. The tests are conducted as the mining progresses to different areas. These tests were conducted from 2021 onwards as the underground mining replaced the re-mining source.
The Report, Geo-Met Test work, dated August 2021 was sampled. The test work covered process optimisation, including cyanide concentration, Preg robbing tests, and grinding time tests.
The cyanide solution dosing controls on the plant include feedback control where the primary control is based on values obtained from the TAC 1000 (proprietary name) automated cyanide analyser. The set point is set and automatically controls the cyanide addition via an automatic flow control valve, fed from a ring main reagent strength (20% NaCN) pipe system and cyanide feed pump.

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

X in full compliance with

The operation is □ in substantial compliance with **Standard of Practice 4.3**

□ not in compliance with

Basis for this Finding/Deficiencies Identified:
The Mine has used the GoldSim software model for its comprehensive probabilistic water balance (PWB) since 2017. The scope of the PWB covers the whole mine area, TSF ponds and all other water ponds. Hydrology run-off calculations are done using HEC-HMS (a numeric computer program) algorithms, fed with the rainfall data, which then produces an input file to GoldSim, where the probabilistic model is run. The automatic weather station data is also used. An update of the model now embeds inputs to simplify use and includes the re-mining operation and the TSF 4. An historical evaporation database is used in the model to predict probable evaporation for the specific date of the run. The model is updated on a 6 monthly basis. Data is inputted as it becomes available through the links. The model was last updated at the end of May 2022.
Currently, the ponds are surveyed weekly and the results, along with other water balance data, are discussed at a weekly water management committee meeting, where action plans and maintenance issues are discussed and finalised. The committee will update a comprehensive dashboard which includes pond freeboard values, maximum volume for all water ponds that would prevent overtopping, and show capacity available before overflowing. The dashboard includes graphs assisting the management of pond volumes. The graph indicates maximum and minimum pond volumes, covering the dry and wet seasons, on a weekly basis. Scenarios are generated in the model, including evaporators, freshwater feed from Lake Victoria, data from the Bulyanhulu weather station, and other sources. The model uses a statistical probabilistic precipitation generator to develop 100 precipitation time series data to produce the same range of wet daily rainfall for return frequencies.
The model uses the probabilistic precipitation generator to produce a number of different events from the 100 year dry, to the 100 year wet, year. Although the model originally included the 1:50 year, 24 hour storm event, that has now been replaced by the more versatile and accurate probabilistic precipitation generator. The model makes provision to input different rainfall scenarios and storm events to predict outcomes and test operating parameters. The model setup incorporates the new TSF 4, including seepage, and as-built data of 0.05% in case of any losses through the liner. Tanzania does not experience freezing or thawing conditions due to its hot climate.
The Environmental Management Plan Update (EMPU) dated June 2015 was sighted. This includes the TSF 4 and pond 3 and the Programme: Water Management and

Monitoring. Table 8.6 specifies pond levels for the different ponds covering the wet and dry seasons.
Simon Sholl, GoldSim Water Balance Specialist, reported, "…Stochastic rainfall and probability analysis (predictive runs) allow the mine to determine the risk of overtopping of dams." He added, "...The model allows for the input of extreme storms, which have been calculated from representative historical rainfall, to be inserted into the stochastic rainfall record…"
The TSF return water dam pumps' power is supplied from the Tanzanian Grid. In case of a Grid power failure, the site has sufficient standby generators to run the entire plant.
The Model uses continuous updating by inputting the monthly rainfall data from the weather station via the HEC-HMS model which creates the input file for GoldSim. The output from GoldSim is used to review the pond freeboard parameters on a weekly frequency, using the pond survey and rainfall data in the predictive section. This information is integrated with the EMPU.

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

X in full compliance with

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

□ not in compliance with

Basis for this Finding/Deficiencies Identified:
The WAD cyanide values were reviewed, and exceedances were identified, investigated and remedial action was taken. The major exceedances were due, mostly, to operational issues in the detoxification plant. As the exceedances were managed and rectified and the frequency of occurrences was low, the auditors deem the open waters to be at less than 50mg/l for most of the time and therefore no measures to restrict access by wildlife are necessary. However, the TSF is fully fenced with access control. There are no heap leach facilities on site.
The TSF spigot discharges have been the compliance points since re-certification in 2019.
2019 to 2022: Average WAD cyanide - 7.07 mg/l. Twenty-seven Exceedances were recorded and investigated: Average exceedance level - 89.6 mg/l. The investigations include Date, Time, Description of the Cause, Remedial Action done to rectify the position, and Comments. The causes mostly include operational issues in the detoxification plant (SMBS feed, oxygen plant down, SMBS Shortage).
Settling pond, Return Water Ponds 1, 2 and 3, (WAD cyanide mg/l) check samples for WAD cyanide in open water: **2019 to 2022**: All WAD cyanide values were below 50 mg/l.

TSF Spigot (WAD cyanide mg/l) sampled daily by Fraser Alexander Tailings and Paragon Tailings staff and submitted to the laboratory immediately - compliance sample to be less than 50 mg/l WAD cyanide or reported otherwise.
TSF 4 Pool: All WAD cyanide values were below 50 mg/l, with 22.5 Mg/l the highest value.
The daily Barrick TSF inspections checklist is done by the Bulyanhulu Process Plant Foreman. The checks include wildlife observations and no mortalities have been recorded 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.

X in full compliance with

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

□ not in compliance with

Basis for this Finding/Deficiencies Identified:
There is no direct discharge to surface water and the nearest river, the Bulyanhulu river, is 5kms away.
Cattle Pond monthly WAD cyanide values
Results and graphs for 2019, 2020, 2021, and 2022 to date of audit were sighted and no sample exceeded 0.022 mg/l WAD cyanide. Values are less than limits of detection.
Borehole WAD cyanide values
All values are below the limits of detection.
Quarterly WAD cyanide sample levels for Buly river upstream (W1) and downstream (W2):
Results and graphs for 2019, 2020, 2021, and 2022 to the date of the audit were sighted and no sample exceeded 0.022 mg/l WAD cyanide. Values are less than limits of detection of 0.01 mg/l WAD cyanide.
Quarterly Sample WAD cyanide levels Lake Victoria (W4)
Results and graphs for 2019, 2020, 2021, and 2022 to the date of the audit were sighted, and no sample exceeded 0.022 mg/l WAD CN. Values are less than the limits of detection of 0.01 mg/l WAD cyanide.
All values were less than the limits of detection, indicating that there is no indirect discharge to the surface waters. No indirect discharges from the operation have caused cyanide concentrations in surface water to rise above levels protective of a designated beneficial use for aquatic life. Some interlaboratory calibration exercises were carried out to confirm equipment accuracy.

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

X in full compliance with

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

□ not in compliance with

Basis for this Finding/Deficiencies Identified
It was confirmed during the site visit that the CIL plant is equipped with concrete bunds and spillage recovery systems to prevent and manage seepage. All TSF return water dams are lined and the process plant uses a detoxification section to reduce cyanide in the tailings to less than 50 ppm WAD cyanide. The new TSF is lined and equipped with underdrains to recover any seepage which is pumped to the silt trap.
Beneficial uses for groundwater are primarily mining with one borehole used for drinking water. The legal standard for groundwater is in place in the Environmental Management Act (Water Quality Standards) Regulations 2007 and it stipulates a Cyanide (CN) limit of 0.2 mg/l total cyanide. (This is the drinking water standard.) The backfill plant gets its material from the Float Process, and therefore there is no cyanide in the backfill going underground.
Quarterly Borehole samples up gradient (analyse for total, free and WAD Cyanide) since the last recertification audit
-TMB 01 - All values were below limits of detection
-TMB 11 - All values were below limits of detection
Quarterly Borehole samples down gradient (analyse for total, free and WAD Cyanide) since the last recertification audit
- TMB 25 - All values were below the limits of detection
- TMB 26 - All values were below the limits of detection
- TMB 24 - All values were below the limits of detection
- TMB 22 - All values were below the limits of detection
All values are less than the limits of detection of 0.0019 WAD cyanide.
Borehole RMB 109 at a community downstream of the TSF that is used for drinking water. The results of quarterly samples from 2019 to the date of this audit indicated that all values were below the limits of detection.

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

X in full compliance with

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

□ not in compliance with

Basis for this Finding/Deficiencies Identified:

With regard to spill prevention and containment, the following were confirmed during the 2015 certification audit of the new CIL: -

- Civil drawings of cyanide mixing and storage tanks were sighted
- On the CIL civil drawings, it was confirmed that the two spare CIL tank civil foundations were equipped with a concrete impervious layer on top.
- The Detox tank civil drawings sighted confirmed an impervious layer in the tank foundations.
- The Pregnant and Barren solution tanks were reported to be placed on impervious concrete plinths by Daniel Kalemela, Acting Maintenance Section Leader. He was present at the time of their construction of the tank foundations.
- The process water tank was sighted and it was confirmed that there was an impervious layer in the tank foundations.
- It was confirmed during site inspection that all tanks are placed inside bunds.

No changes have been made to the spill prevention program since 2015, and this was confirmed during the 2022 site inspection.

Bund Data

The bund data was included in the 2015 re-certification audit. No changes have been made to the bund designs or volumes since 2015. This was confirmed during the 2022 site inspection.

- CIL bund volume: 1000m^3, largest tank 1600m^3, linked to the pre-leach thickener bund.
- Detox bunds: Volume 850m^3, Largest tank 550m^3.
- Elution bund: volume 80m3, Largest tank eluant 25m^3,
- Cyanide mixing and storage bund volume 90 m^3, largest tank 80m^3,
- Water storage bund: 1450m^3, largest tank Process Water Tank 1000m^3.
- The Pre-leach thickener bund is linked to the CIL bund of 1800m^3. The Thickener volume is 1600 m^3 and is ICMC compliant as it is linked to the CIL bund.

The CIL plant was built with all sections placed inside bunds equipped with sump pumps returning any spillage back to the process. Thus, no need for procedures exists. This was confirmed during the 2022 site inspection, and no planned discharge to the environment exists. It was further confirmed that there are no operational tanks that do not have secondary containment.

Process Solution Pipelines

The cyanide dosing pipelines are running in a pipe-in-pipe system where it crosses bare soil, while the other pipes are installed above competent concrete bunds. The new cyanide line to the Barrick inline leach reactor is equipped with a secondary containment pipe-in-pipe system. The cyanide pipeline to the caustic cyanide tank is equipped with a secondary containment pipe-in-pipe system. All other low-strength cyanide-containing pipes are part of the PMS inspections as a preventative measure. The secondary containment was all confirmed during the site inspection.

Tailings pipelines are contained in an HDPE (High Density Poly Ethylene) -lined trench, and return water pipelines are also placed inside the trench. Tailings lines at the TSF are

placed inside the berms to contain any spillage. Tailings lines run in an HDPE-lined trench and in a pipe-in-pipe system where roads cross the pipelines. All tailings pipelines are included in the operational inspections and/or the SAP PMS (Planned Maintenance System). The re-mining pipelines are installed in the same lined trenches as the TSF lines and are inspected, as for the TSF and return water pipelines. Currently, the re-mining lines are not being used, as the re-mining operation was completed. No risk to surface waters from pipelines exists, which was confirmed during the site inspection. All cyanide pipelines and tanks are constructed with HDPE and mild steel which are compatible with cyanide and high pH conditions.

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

X in full compliance with

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

□ not in compliance with

Basis for this Finding/Deficiencies Identified:
Previous 2015 recertification audit evidence
"…Quality control and quality assurance records have been retained for cyanide facilities. Appropriately qualified personnel reviewed the construction of the cyanide facilities and provided documentation that the facility has been built as proposed and approved. The previous certification audit confirmed that there was documentation that the facility had been built as proposed and approved." It was reported that the drawings are available on the Bulyanhulu Server.
The SLR Construction Quality Plan for Bulyanhulu TSF 4 Wall lift 4, dated 10 September 2019 was sighted. The Quality Plan includes section WRSPO1 Tailings Wall Rise; section WRPF02 Geotextile Material; section WRPS03 Cladding material; and section WRPS04 Access ramp wearing coarse material.
The Report, "Bulyanhulu Tailings Disposal Facility Wall Raise Number 3 Close Out Report", and the Report, Bulyanhulu Tailings Disposal Facility Wall Raise Number 4 Close Out Report, both by Fraser Alexander Tanzania, were sighted and sampled. The Reports include quality control inspection lists used for the wall raises, covering: - Survey, Wall building, Geofabric, and Pipe laying. Quality Assurance/ Quality Control (QA/QC) documents are available electronically.
The Quarterly Site Visit (Q2/Q3-2021), from David Pillay, Alistair James, Geotechnical Engineers of Record dated October 2021 was sighted. Under the section, Conclusions and Recommendations, the report concluded: -
"…The general operations and management of the tailings storage facility has improved significantly since the last site visit and inspection which was carried out earlier this year during March…"

All findings and recommendations are transferred to Bulyanhulu TSF4 - Action List, which is used to report progress and follow up on items every quarter and also is entered into the Action Tracker software to manage the items.
The Tailings & RWD Quarterly Review and annual audit Q1-2022 presentation indicated the following: -
"…
• Stability has just been evaluated by SLR
• No concerns raised,
• No Trigger levels, required for piezometers for the next year of operation…."
No significant issues were raised or observed in the action list.
The Tailings Management Annual Audit, 2019-20, prepared by: City Engineering Company Limited, submitted on: May 4, 2021 indicated: -
"…6. Recommendations For Improvements
In general, the management and operation of TSF Cell 4 are within the requirements of the OMS (Operational Manual Standards) Manual (February and Revision 1, June 2020) which defines the standard for the TSF Audit and statutory requirements…"

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

X in full compliance with

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

□ not in compliance with

Basis for this Finding/Deficiencies Identified:
A Water Monitoring Manual Procedure is in place which covers groundwater and surface water sampling and specifies WAD and Free cyanide species. The sampling program was originally developed by Paul Agapiti (environmental officer - qualifications - BSc Environmental Sciences and Management, Sokoine University of Agriculture, and experience with SGS Laboratories in Mwanza). Revisions were done by Yvonne Bengessi, Senior Environmental Officer, who holds an MSc in Environmental Science.
Water monitoring sampling locations, and a pdf map indicating borehole locations was sighted. Surface waters sampled are the Cattle Pond and the Bulyanhulu River (sighted results spreadsheet).
The Water Monitoring Manual Procedure includes: -
- Section 4. Sampling Protocol details of how samples are taken,
- Section 5.8 Surface water sampling for cyanide analyses
- Sample Preservation Table 7.2 (A and B) Container and transportation requirements and that cyanide requires the addition of sodium hydroxide to achieve a pH 12.
- Chain of custody, Sections 8 to 10 describe the process.
- Table 3-1 Analyses Profile List, indicates sample species analysed and includes Total Cyanide, WAD Cyanide and Free Cyanide.

- Section 3.4 Monitoring Leak Detection System.
A completed field control sheet was sighted which includes ICMI requirements of Anthropogenic and Wildlife/livestock activities at sample sites.
Borehole samples are taken quarterly, and surface water is sampled monthly and quarterly. Wildlife mortality inspections are carried out daily by the TSF staff. Environmental TSF wildlife inspections are done weekly. The TSF spigot is sampled daily for WAD Cyanide compliance. The inspection frequencies are deemed adequate to characterize the medium being monitored and to identify changes in a timely manner.

5. DECOMMISSIONING

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

Standard of Practice 5.1

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

	X in full compliance with
The operation is	□ in substantial compliance with **Standard of Practice 5.1**
	□ not in compliance with

Basis for this Finding/Deficiencies Identified:
The Bulyanhulu Gold Mine, Standardized Cyanide Decontamination and Decommissioning Plan, dated February 2022, was sighted.
The 32 page, Bulyanhulu Gold Mine, Standardized Cyanide Decontamination and Decommissioning Plan contains four major sections: - Site Description, Health and Safety Considerations, Decontamination and Decommissioning, and Area Specific Plans. The site description scopes out the extent of the decontamination and decommissioning task. The health and safety considerations detail safety induction, supervisory training, health and safety procedures, and risk assessment and hazard identification. Decontamination and decommissioning sets out Guiding Principles which include: - the cyanide decontamination area, decontamination of cyanide contaminated equipment. decontamination of cyanide spillages; cyanide treatment reagents, pre-closure tank clean-out, and decontamination of High medium and low classified cyanide areas. Area specific plans include cyanide stock reduction, cyanide disposal, plant clean-up, and specific plans for low, medium and high cyanide areas.
The Plan includes an Implementation schedule and is reviewed, in line with the closure plan, every 3 years. Review records were sighted.

Standard of Practice 5.2

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

X in full compliance with

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

□ not in compliance with

Basis for this Finding/Deficiencies Identified:
The Decontamination and Decommissioning Plan; contains section 7.2 Financial Provisions for decommissioning Process Plant Facilities. The cost summary indicated below is based on the Barrick Reclamation Cost Estimator (BRCE) Model, based upon third-party development and implementation, which has been used to determine the cost of reclamation works (earthwork/recontouring and Revegetation/Stabilization); closure costs include Detoxification/Water Treatment/Disposal of Wastes. A provision of US Dollars 12,067,758 is included in the Plan. The cost estimate is reviewed annually.
The Tanzanian Government has established a requirement for financial assurance to cover decommissioning and closure. The Meticulous General Insurance Company Rehabilitation bond - GR/G/40928/0116/6309-F valid from 1 January 2022 to 31 December 2023 was sighted.

6. WORKER SAFETY
Protect workers' health and safety from exposure to cyanide.

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

X in full compliance with

The operation is □ in substantial compliance with **Standard of Practice 6.1**

□ not in compliance with

Basis for this Finding/Deficiencies Identified:
There are approximately 250 operational procedures, which include 20 cyanide-specific procedures. Engineering maintenance is subject to permit to work, confined space entry permit, and hot work permit procedures. Use of the Job Safety Environmental Analysis (JSEA) is undertaken, using a template. A JSEA is done for any new or irregular task. Engineering uses cyanide-specific procedures. Cyanide sampling and incineration are included in environmental procedures.
The following procedures were sighted, sampled and reviewed: -
-Mixing Sodium Cyanide (Area 4167 New CIL) Safe Work Procedure,
-CIL Unloading Sodium Cyanide Boxes Safe Work Procedure,
-Confined space entry procedure,

-Permit to work procedure,
-New CIL Chemical Pumps Change Over Safe Work Procedure
-New CIL Reagent Line Decontamination (Flushing for Maintenance) Procedure,
-CIL Cyanide Detoxification Process Upset Safe Work Procedure, and
-CIL Cleaning out cyanide storage or mixing tanks procedure.
Paragon's 9 TSF Operating procedures including: "Walkway installation", "Install freeboard poles", "Manual cleaning of solution trench", "Connecting and disconnecting of pipes and valves", "Opening and closing of valves", "Installing of piezometer support poles", "Manual wall packing", "Penstock operation", and "Penstock sleeving", were sampled and reviewed. The FAT procedures for operation of the TSF, including penstock operation, pool positioning, construction of catwalks, and modification of day wall, were sighted and sampled.
All TSF and Plant procedures included PPE requirements and pre-work inspections or pre-work risk assessments.
Toolbox talks are held every morning, where safety issues are raised and resolved. New and revised procedures are discussed during the toolbox talks, as appropriate. Toolbox talk files were sighted and sampled: - Process plant crew B toolbox meeting dated 6/5/21 (issues raised use on monitors, equipment inspection, theft), Process plant crew B toolbox meeting dated 31 May 2021 (issues raised how to wear a full facemask and canister and a dust mask, alcohol and drug abuse), Process plant crew C toolbox meeting dated 10/9/2020 (discussion on cyanide mixing). Weekly Safety meetings are held where feedback is recorded, and issues are raised for action. This includes safety and health issues. Minutes are produced. A meeting dated 15/6/2022 was sampled where, Covid-19, and unsafe work - stop work authority to everybody, was discussed. Job Safety Environment Analyses (JSEA) are conducted and include all staff involved in the task being analysed.
At the TSF, Daily toolbox talks are also held. The Paragon file was sighted and meeting notes dated from 9 May 2022 to 21 June 2022 were sampled. The FAT (Fraser Alexander Tailings) toolbox talks from 9 Mar 2021 to 7 March 2022 were also sighted and sampled.
Monthly Health & Safety communication meetings were held by Paragon and FAT. The Paragon meeting dated May 2022 was sampled. The FAT monthly Communication meeting minutes dated 12/06/2020 were sampled where concerns were raised about PPE. FAT SHEQ (Safety, Health, Environment and Quality) Committee minutes of the meeting of 23rd February 2022 were sampled where employees reported that new PPE had been issued.

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

X in full compliance with

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

□ not in compliance with

Basis for this Finding/Deficiencies Identified:
The CIL pH set point is at 10.5. The mixing procedure requires sodium hydroxide solution or barren solution addition to the mixing tank water before adding the dry solid cyanide. The pH should be controlled above 10.5.
HCN (Hydrogen Cyanide) Fixed Gas Monitors are installed at the Refinery (2), CIL (1), Cyanide mixing (1), Elution bund (1), and Detox (1). Personal HCN gas monitors are also used: A total of 38 monitors are available with 33 in use in the Plant. The installation of fixed HCN monitors and use of portable HCN gas monitors was observed during the site inspection. Issue records of HCN gas Monitors are maintained with units being issued against an employee name list.
The Refinery entry procedure was sighted: Under Item 3, under general Refinery Entry, before first entry for work, the refinery supervisor must go around the refinery room with a cyanide measuring HCN gas instrument (Monotox) to confirm if there is any HCN gas. The personal gas monitor is carried on his person by the Supervisor or the Operator when in the Refinery. There must be a minimum of two people always present in the refinery. An emergency exit section is included in the procedure. An OxySock (Medical Oxygen Dispenser) and personal HCN gas monitors are kept in the refinery for cyanide monitoring and emergencies. The refinery is under constant CTV observation.
The HCN gas monitors are set with first alarm at 4.7ppm, Practice is that the persons move away from the area, with the sounding of the 1st alarm and inform the Operator and Supervisor who investigate the cause (e.g., check pH). The second alarm is at 10ppm, where the area is immediately evacuated.
The original Design P&IDs (Piping and Instrument Drawings) identified potential HCN gas risks and fixed monitors were installed at the areas indicated above. Hotspots for HCN gas are included in the cyanide awareness training material. It was confirmed during the site inspection that signage is in place at the hotspots, e.g., Cyanide mixing, dry cyanide store, CIL entrance, and Detoxification.
The HCN gas monitor manufacturer requires calibration 6 monthly. The fixed monitors are currently not calibrated due to the inability of trained technicians to get to site due to Covid travel restrictions. As the fixed monitors are currently not calibrated, personal monitors are used in lieu of the fixed monitors. The plant is in the process of replacing the old, fixed monitors with Dräger units, with full support from the local Dräger agent. The plant has 20 calibrated personal gas monitors calibrated until 25 August 2022, instead of its normal compliment of 38. The use of monitors has been rationalised and controls tightened up to ensure there are sufficient numbers for operational and engineering use. A Managerial Instruction has been issued to reinforce the use of personal monitors in hot spots previously covered by fixed monitors. The Managerial instruction, Subject: Uncalibrated Fixed Hydrogen Cyanide Gas Detectors, from the Process Plant Manager Abdallah Kipara to All Process Plant Employees and Visitors, was sighted. Once arrangements have been finalised for the installation, operation, servicing and calibration of the new Dräger fixed monitors in the hot spot areas, plans will be drawn up to return monitoring arrangements back to normal.
A total of 38 personal HCN gas monitors are listed, with 20 in use and issued. The TSF has two HCN gas personal monitors which are calibrated by the Plant. Batched

calibration records for 23rd and 24th August 2020, and 1st and 2nd January 2021, and 25 May 2022 were sighted. The next calibration is due on 25 August 2022. There was a break in the completeness of calibration of personal gas monitors during the Covid-19 Pandemic when, due to travel restrictions, it was not possible to get supplier instrument technicians into the country to calibrate the instruments.

Signage was observed during the site inspection, including no smoking, no open flames and no eating and drinking are permitted. Required PPE signage is placed at the plant, including the dry cyanide store and the cyanide mixing and storage area, CIL, Detoxification, and the pregnant tanks. The induction programmes include that no eating and drinking is allowed outside dedicated eating and drinking areas in the plant. The TSF is situated within a security barbed wire fence with access control via a manned security gate. The comprehensive induction programmes details PPE requirements for the plant and TSF. Eating and drinking on the TSF are only allowed in designated areas and form part of the induction training. Cyanide signage at the TSF gate is in place, including no eating and drinking.

The Mixing Sodium Cyanide (Area 4167 New CIL) Safe Work Procedure, includes, under Section 6.2 Cyanide Mixing, "…Step 12. Add 4 saucers tins/cans of red food dye (carmoisine) to the cyanide mixing tank…".

During the site inspection, the installation of showers, and eye wash stations was observed at the CIL. Safety Shower and eye wash inspection record files sighted and sampled for 9/8/2020, 18/10/2020, 12/6/2022, and 19/6/2022

The location of dry powder fire extinguishers was confirmed during the Plant inspection. Fire extinguisher inspection record files were sighted and sampled. Quarterly inspections dated 22/6/2022 and 30/12/2020 covering all fire extinguishers in the process plant were noted. It was confirmed that the AS 1851 Maintenance record yellow tags on the fire extinguishers on the plant included 2020. 2021 and 2022 and April 2022 on the large dry powder fire extinguisher outside the cyanide store.

The SDS (Safety Data Sheet) document, in English, was sighted at the cyanide store and it was confirmed to be issued by Hebei Chenxin. The working language of the site is English.

The labelling of cyanide pipelines, including the flow direction, was confirmed during the site inspection. The cyanide mixing and storage tanks are currently being painted and new labels will be applied. once the painting is completed. Induction training includes that all sections of the plant may contain cyanide solutions.

The Incident/Injury Reporting and Investigation Procedure is used on site. A splashing of elution solution incident during planned maintenance occurred at the elution section during 2021 and was investigated and documentation was sighted.

Standard of Practice 6.3

Develop and implement emergency response plans and procedures to respond to worker exposure to cyanide.

X in full compliance with

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

□ not in compliance with

Basis for this Finding/Deficiencies Identified:
Potable running water is available on the Plant and this was confirmed during site inspection. The operation has Oxysok (Medical oxygen and resuscitator) kits available in the CIL control room, Emergency First Aid container, and Emergency Response room. The Clinic is equipped with large, bulk medical oxygen cylinders. It was confirmed during a clinic site visit that cyanide antidotes (15 Tripacs) are stored at the clinic in a fridge. Radios are used for communication of incidents and Supervisors and the ERT (Emergency Response Team) Leader may bring cell phones onto the plant. TSF. Emergencies are communicated by radio or to the landline to the appropriate staff as per the emergency phone list and the radio to the process plant control rooms. Cell phones are also used for communication.
Cyanide antidote kits and cyanide emergency equipment in the clinic are inspected and the records are available at the Clinic. The pharmacist orders cyanide antidote kits (Tripacs) before expiry dates using pharmacy software. Inspection records of cyanide emergency PPE at the clinic is also inspected and records are kept at the clinic Monthly inspection records were sighted. Cyanide emergency PPE and personalised equipment for the Clinic staff was sighted. Plant cyanide emergency equipment is inspected by the Plant Safety officer and inspection files were sighted and sampled:
- Weekly breathing apparatus checks for 1/12/2020, 8/12/2020, 14/6/2022, 7/6/2022
- Weekly Oxysok resuscitator inspection records for 30/9/2020, 26/2/2022.

The ERT inspects its first aid and emergency equipment. Monthly inspections for 6 December 2020, 19 May 2022, and 23 January 2021 were sighted and sampled electronically.
The Plant has an Emergency and Crisis Management Plan, Issue Dated: 20-06-2022 which is also used by the TSF operators. Paragon also has its own Emergency Preparedness and Response Plan, dated May 2022, which includes response to cyanide incidents and exposures.
All plant personnel are trained in cyanide first aid. A mine-wide ERT (Emergency Response Team) is in place to provide emergency response, which includes response to cyanide incidents and exposures, and Paramedics form part of the ERT. A fully equipped mine clinic with an Intensive Care Unit and ward facilities are available on-site, with a medical Doctor available 24 hours per day. There are four medical Doctors on site, 2 Paramedics and 6 Nurses. No local hospitals or clinics are used for cyanide exposure patients. In addition to the first aid training, first responders on the shift are also fully trained in the ERT requirements and are present at the plant on each shift (minimum of 4 persons per shift). The clinic has 2 ambulances, fully equipped to handle cyanide emergencies including oxygen and this was confirmed during clinic inspection. The clinic can handle 2 patients in their emergency facilities, but interim arrangements can be made for higher numbers if necessary, using the Covid-19 / Ebola quarantine facility.
The Emergency and Crisis Management Plan, Section 19.3 - Medical Evacuation, details the procedure: Medical Emergency Evacuation Procedure, and refers to ISOS (air ambulance contractor) for transport of medical patients to offsite medical facilities. The

Medical Advisor or most senior doctor on site will make the decision to air transport the patient. The agreement with ISOS includes the understanding that there may be cyanide-exposed patients to be transported and provisions will be made to protect the pilots and other passengers from cyanide exposure.
The Mine has qualified on-site medical facilities capable of handling cyanide exposures. However, the Doctor in charge would make the decision to evacuate patients to offsite qualified medical facilities, if required.
A clinic interview with the medical doctor confirms they have a formalised and updated arrangement with the Aga Kahn University Hospital (AKUH) in Nairobi, Kenya. Sighted Agreement between AKUH and Bulyanhulu Gold Mine (BGM). The Clinic will send a trained staff member with cyanide antidote with the patient to the hospital. Patients will be air evacuated to the hospital as per procedure and the senior Doctor's professional decision.
Dr Sahain Sayed, Chairman and Laboratory Medicine Director, Department of Pathology AKUH, confirmed that the hospital has the capability and expertise to manage cases of lactic acidosis plus blood gas analyses secondary to cyanide poisoning as well as the detection of cyanide concentration in the blood.

7. EMERGENCY RESPONSE

Protect communities and the environment through the development of emergency response strategies and capabilities.

Standard of Practice 7.1

Prepare detailed emergency response plans for potential cyanide releases.

	X in full compliance with
The operation is	□ in substantial compliance with **Standard of Practice 7.1**
	□ not in compliance with

Basis for this Finding/Deficiencies Identified:
The Plant has an Emergency and Crisis Management Plan (ECMP), Issue Dated: 20-06-2022 which is also used by the TSF operators. Paragon also has its own Emergency Preparedness and Response Plan, dated May 2022.
The Plant has an Emergency and Crisis Management Plan which includes responses to potential cyanide scenario releases covering:- catastrophic release of hydrogen cyanide from storage or process facilities; internal cyanide transport incidents; releases during unloading and mixing; releases during fires and explosions; pipe, valve and tank ruptures; overtopping of ponds and impoundments; power outages and pump failures; uncontrolled seepages; failure of cyanide treatment, destruction or recovery systems; failure of tailings impoundments, and other cyanide facilities; and transportation-related emergencies on the cyanide transport route.

The Plan also includes: - clearing site personnel; emergency evacuation of the Mine Site; emergency evacuation of the process plant; clearing potentially affected communities from the area of exposure; and cyanide releases affecting the community.
Also included in the Plan are: - use of cyanide antidotes and first aid measures for cyanide exposure; First aid treatment guidelines and medical treatment. There is an additional note reflecting on the use of a new cyanide antidote, Cyanokit, used as well as the Tripac.
Included in the Plan are: - control of releases at their source, and containment, assessment, mitigation, and future prevention of releases; decontamination of a solid or liquid cyanide spill into the soil; and cyanide soil sampling.

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

X in full compliance with

The operation is in substantial compliance with **Standard of Practice 7.2**

 not in compliance with

Basis for this Finding/Deficiencies Identified:
The ECMP (Emergency and Crisis Management Plan) is briefed to the workforce via the management system: - safety meetings and toolbox meetings. Post drill briefing sessions are used as opportunities where information and feedback on the Plan is given. The workforce is also involved in mock drills. The appropriate cyanide emergency response is included in the induction program for everyone on site. External stakeholders are only involved in those aspects of the Plan that would affect them, and not necessarily the whole Plan.
No local response agencies are involved in the emergency plan as the ECMP and medical clinic is situated inside the Mine security area. The onsite clinic is involved with the full cycle cyanide mock drills and debriefing sessions following drills. ISOS is involved as per their contract to evacuate patients to outside medical facilities.
Consultation or communication with the stakeholders is undertaken to keep the ECMP current. Contact with ISOS is maintained to ensure continuing consultation, as necessary. Periodic dialogue with any additional external responders is not required in this situation as the ECMP does not designate any additional off-site responsibilities.

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

X in full compliance with

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

□ not in compliance with

Basis for this Finding/Deficiencies Identified:
Using a duty card system, the Emergency and Crisis Management Plan (ECMP) designates the roles and responsibilities of the controllers in the Plan. Identified duty cards are in place for: - the Incident Controller; Operations Officer; Planning Officer; Logistics Officer; Interagency Liaison Officer, and Emergency Officer. The ECMP discusses the Emergency Response Team (ERT), their responsibilities, and their training in the Plan and ERT members' names and photographs can be found in the emergency response cabin. Call-out and activation processes are also included in the ECMP. A section in the ECMP called "Consolidated Inventory HAZMAT (**haz**ardous **mat**erials) and Cyanide Equipment": lists emergency equipment available. Detailed checklists for all the ERT equipment are available for each equipment room and first aid facility, including the process plant first aid container. The full-time Emergency Response Coordinator is responsible for maintaining a list of all equipment and the required checks on this equipment. The ERT equipment checklists for 2021 and 2022 were sighted and sampled. Also sighted was the plant first responder emergency cabin checklist for 2022. (The cabin was only installed in 2022.) The Ambulance inspection checklists were sighted and sampled. The roles of other stakeholders are also discussed in Section 17 of the ECMP.
No local response agencies are involved in the emergency plan as the ECMP focus and the medical clinic is inside the Mine security area, the onsite clinic is involved with the full cycle cyanide mock drills and de-briefing sessions following drills. ISOS is involved as per their contract to evacuate patients to outside medical facilities. An updated letter dated 26/5/2022 from Dr Sahain Sayed, chair and laboratory medicine director, Department of Pathology Aga Khan University Hospital, confirms that the hospital has the capability and expertise to manage cases of lactic acidosis plus blood gas analyses secondary to cyanide poisoning as well as the detection of cyanide concentration in the blood, supporting the ECMP.

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

X in full compliance with

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

□ not in compliance with

Basis for this Finding/Deficiencies Identified:
The ECMP includes full details of appropriate emergency contacts and reporting, media communication and the call-out procedure and contact information lists.
A Corporate Environmental Reporting Standard contains classifications of environmental incidents and appropriate reporting requirements. The Environmental Communication Procedure also covers Internal and External Communication. Information is released to the Barrick Corporate Legal and Corporate Affairs department who will release the

information publicly, as appropriate. The site is not allowed to release information publicly. Section 7.12.9 "Notification to ICMI in case of any significant cyanide incidents" in the ECMP governs reporting requirements. There have been no significant cyanide incidents to report to ICMI during the past three years.

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

X in full compliance with

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

□ not in compliance with

Basis for this Finding/Deficiencies Identified:
The ECMP includes specific remediation measures including: - Decontamination of a solid or liquid cyanide spill into soil; uncontrolled seepage of cyanide; failure of cyanide treatment and recovery systems; release of high strength cyanide solution; release of low strength cyanide solutions; cyanide spill off-site; and Cyanide Release Affecting the Community.
Contaminated ground is treated using Sodium Hypochlorite at a strength of 15% and a detailed section describes the user of Sodium Hypochlorite for decontamination purposes. In the case of high strength solution spills, the neutralising agent is sodium metabisulphite. (Detailed in section 20.9.16 of the ECMP). The Plan encourages the use of Orica's 24 hour Emergency Response Service for additional technical advice.
The ECMP specifically prohibits the use of treatment chemicals such as sodium hypochlorite, ferrous sulphate and hydrogen peroxide in surface water, unless there is a direct threat to human life. The Metallurgical Superintendent reports that Cyanide treatment chemicals are stored in the Spill Kit which is outside the cyanide shed, but ferrous sulphate is stored in the reagent shed which is inside process plant. This not detailed in the emergency response plan. There is no specified final (maximum) cyanide concentration will be allowed in residual soil. However, a basic Ferrous Sulphate colour test will be undertaken to determine the presence or absence of Cyanide. The ECMP states," ... Bulyanhulu will supply potable water to any people who may be affected by the incident or who have access to their drinking water restricted as a result of the incident. Water from the Fresh Water Make-up Pond is treated on-site and can be supplied to people on site and to the community as potable water…"
With respect to sampling, in the ECMP, Section 20.9 Cyanide soil sampling and, section 20,10.4.2, it states that the Bulyanhulu Environmental Department will arrange for the incident area to be monitored in conjunction with the NEMC (National Environment Management Council) and in accordance with directions from Orica.

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

X in full compliance with

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

□ not in compliance with

Basis for this Finding/Deficiencies Identified:
Section 16: Review and continuous improvement, states that the ECMP will be reviewed at least annually, or when there were major changes or when there are recommendations from emergencies, emergency drill debriefs and recommendations from Emergency plan reviews at other operations. There have been no actual cyanide-related incidents or learning points from mock cyanide drills requiring Plan implementation and therefore there have been no revisions necessary.
Section 15, Emergency Drill, states the following: -
"…
-The General Manager is responsible for ensuring that emergency drills are periodically conducted in all work areas. This is recommended at bi-annual intervals.
- The Department Managers are responsible for coordinating the emergency drills in the areas under their direction and implementing recommendations.
- Emergency Response personnel are responsible for assisting in conducting these drills and assisting with recommendations.
- The scenarios used in emergency drills will be realistic and based on current operating conditions. The primary event (fire, spill, rock fall, etc.) is to be determined based on the objective of the exercise…"
A drill on multiple casualties dated 10 June 2022 was carried out at the mixing area. Multiple learning points emerged from this drill, which has been listed in detail. A major point emerging was that most employees were not prepared to cope with multiple man downs.
A drill carried out on 11 February 2022 was done in order to test the Community response to cyanide boxes falling from trucks. A dummy box filled with flour and labelled cyanide was tipped off a truck and the Mine emergency response team was called out. The learning points were that the Fire Engine attracted more attention than the flour and the Community members were curious about the material and did not stay back.
A drill was carried out at the TSF on 15 May 2022. The scenario was an overflow of slurry-tailings contact water. The drill lasted approximately 1 hour, and positive and negative issues were discussed with the Teams. A follow-up up actions and responsibilities were itemised with responsible persons and due dates.

8. TRAINING
Train workers and emergency response personnel to manage cyanide in a safe and environmentally protective manner.

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

X in full compliance with

The operation is □ in substantial compliance with **Standard of Practice 8.1**

□ not in compliance with

Basis for this Finding/Deficiencies Identified:
The Process Plant Chemicals & Cyanide Awareness Induction covering all employees from 2019, showing ID, Section, Department, Company, Job title and date of training was sighted and reviewed. Also sighted was the OxySoc Training and the Cyanide Poisoning First Aid matrix for 2022.
The Process plant training guide OR Training Procedure was sighted. The procedure covers the chemical and cyanide awareness course (part of site induction), entry-level - Section 4 Chemical and cyanide awareness defines requirements. A written test is required. The course takes 5 hours and a pass mark of 75% is required. Attendance registers are kept, and the training matrix is updated. The Chemical and Cyanide Awareness training matrix was sighted and Selemani Mohammed's entry was sampled. The matrix includes plant induction covering cyanide awareness as well as required task training modules.
The Chemical and Cyanide Refresher Training matrix for MSALABS (Mineral Services Analytical Laboratory) shows the names, ID number, Section, Department, Company, Job title and date of training. Sighted OxySoc Training - Cyanide Poisoning First Aid.
The Chemical and Cyanide Refresher Training matrix for Paragon Tailings showing the names, ID, Section, Department, Company, Job title and date of training was sighted. Also sighted and reviewed were the OxySoc Training, and Cyanide Poisoning First Aid training. All the Paragon employees were transferred over from FAT and given refresher training as per the matrix for Paragon.
The system will prevent contractors and employees from entering the plant without an ID (Identity) card. The ID card is only issued once the cyanide awareness course is passed - a data capture form is used to issue the cards.
Annual cyanide refresher training is undertaken and the procedure specifically requires annual refresher training. All contractors receive cyanide awareness induction when returning to the Plant or if they are new to the plant, unless the period is less than 3 months since their previous training. OxySok medical oxygen training is refreshed every 6 months. Short team contractors are automatically retrained when returning to do work on the plant.
FAT and Paragon Tailings staff are given induction which includes cyanide awareness. The records are kept with the Plant records. Attendance registers are kept, and the training matrix is updated. The Chemical and Cyanide Awareness training matrix from the last recertification audit to date was sighted. Interviewees' hard copy training records

were sampled and confirmed that the records are maintained (records also maintained in training matrices).

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

X in full compliance with

The operation is □ in substantial compliance with **Standard of Practice 8.2**

□ not in compliance with

Basis for this Finding/Deficiencies Identified:
All staff (Operational and maintenance) receive process plant induction before starting the training using the Safe Work Procedures (SWP) training. All workers are trained using SWP for their specific jobs. The process plant training matrix shift B Inside, including all the names of the operators, including detailed personal training records was sighted and sampled. A training matrix is in place for each shift for inside the plant and outside the plant, six in total.
It was reported that FAT (Fraser Alexander Tailings) staff were trained using the standard operating procedures. The FAT TSF contract was replaced with a contract with Paragon Tailings in May 2022. During an interview with the Training Foreman for the Process Plant, it was confirmed that he checked the hard copy task training records of FAT employees. A sample of FAT training records consisting of attendance registers for training carried out during 2019 and 2021 (2020 affected by Covid 19 Pandemic) was sighted. This sample suggests strongly that a task training program was implemented by FAT. Although complete records were not available due to FAT being replaced on site, it is concluded that there is sufficient evidence to support the existence of a FAT task training program undertaken since the previous re-certification audit and up to the point at which FAT left the site. FAT employees first do the cyanide awareness training, followed by the Task Training. FAT kept hard copy task training records and attendance, which were removed at the end of their contract.
Paragon Tailings conducts task training using their standard operating procedures. Hard copies are kept since they took over from FAT at the end of April 2022. The Paragon hard copy training records attendance lists were sighted and sampled. Training sampled included: - Operating and closing valves - 8 May 2022, Manual clearing of solution trench - 12 May 2022, Connecting and disconnecting pipes and valves - 7 May 2022, and Deposition control and monitoring - 17 May 2022.
The process plant training matrix shift B Inside: Training Progression for Process Plant, was sighted. The matrix includes all SWP training modules, and indicates requirements for different jobs, as well as completed training for each employee. The FAT records were reviewed previously during a gap audit and before they left the site, and it was confirmed that the training elements are included in the SOPs which are used for training of operational tasks at the TSF and re-mining sections.

The Paragon SOPs (Standard Operating Procedures) were reviewed and confirmed to include the training elements necessary for the TSF jobs.

With regard to Trainer's qualifications and experience, Mr Deogratias Primus has a degree in education, has undertaken a Train the Trainer course, Fundamentals of front line management training, and hazardous chemical and cyanide awareness. He also undertook a Training and presentation skills course, received a Certificate IV in Training and Assessment (TAE 40110) and various other courses on operations. His experience includes 4 years in operations and 4 years in training. There are four process plant trainers that are assisting with training: -

- Gerald Kawana - Training Assessment course, 10 years of plant experience
- Deogratias Runigangwe - Training Assessment course, 15 years of plant experience.
- Kulwa Malunga - 17 years of plant experience.
- Respicious Makanga - 15 years of plant experience.

FAT training officer qualifications could not be verified during the re-certification audit as they have left the site. Their Site Supervisor was an employee with significant experience on the TSF. The Paragon Training is done by a combination of Site Managers, the Safety Officer and an Operational Expert. All staff involved in the training are experienced TSF staff.

The new employee discusses the task procedure with his supervisor, who counsels him on understanding and content. When the supervisor is satisfied with the employee's understanding, he accompanies the employee to undertake the task. On completion of the task, the supervisor will either confirm him as being competent or counsel him until he is deemed competent. Thereafter periodic PTOs will be undertaken to check the employees' competency.

The Mine trained all FAT staff on cyanide hazard training. FAT and Paragon trained their operators using their standard operating procedures. A person is not allowed on the TSF or re-mining plant before he is declared competent to do the tasks unsupervised. Paragon confirmed the use of PTOs to confirm the operator is competent to conduct the task before being allowed to do the task. All workers receive TSF-specific site induction before being allowed to work on the TSF.

For the Plant, refresher training is based on task observations identifying the need for such training on an individual basis. Refresher training is also given after investigation identifying lack of competency or training issues. Refresher training may be given after an accident where the investigation identifies training as an issue.

FAT conducted task refresher training annually or as identified during PTOs (Planned Task Observations). Paragon Tailings conducts refresher training on a 12-month cycle on all tasks performed. The first twelve-month cycle has not yet been completed. Paragon, as a part of the new contract, took over the FAT TSF employees who were trained and competent in the safe work procedures. The workforce was retrained in the Paragon safe work procedures.

In the Plant, each supervisor must conduct at least two PTOs per week and this on the mine, site-wide, not only in the processing plant. Six PTOs were sampled covering 2020, 2021 and 2022 on tasks ranging from mixing sodium cyanide and sodium metabisulphite to Changing or swapping and flushing the reagent pump for inspection and maintenance. At the TSF, are done on workers to evaluate the effectiveness of training. Examples of

PTOs done on FAT staff during a previous gap audit before they left the site, and during the review of records at the Mine were sighted. A sample on Paragon Tailings PTOs done on site since commencement in May 2022 to evaluate the effectiveness of training were reviewed.
At the Plant, records are kept electronically as well as hard copy files, and are kept as long as a person is in employment. General training attendance registers for 2022, 2021, 2020, OxySoc training attendance lists for 2022, 2021, chemical and cyanide awareness training attendance registers 2022, 2021, 2020 were also sampled and reviewed. Interviewees' hard copy training records were sampled and confirmed that the records are maintained (records also maintained in training matrices). Records are retained for 5 years after the person leaves employment. FAT training records were retained at the site office. The records left by FAT were incomplete, but the evidence sighted suggests that full records were kept. Paragon hard copy training records were sighted, but it is noted that Paragon had only been on site for a relatively short period of time and therefore it is difficult to evaluate long-term records keeping. Paragon is committed to keep training records for life of the project.

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

X in full compliance with

The operation is
- □ in substantial compliance with **Standard of Practice 8.3**
- □ not in compliance with

Basis for this Finding/Deficiencies Identified:
Process staff act as the first responders and are trained in cyanide spillage, decontaminating a cyanide exposure victim, first aid, OxySoc and evacuation procedures. Sighted Rescue Board with identity cards of the ERT (Emergency Response Team) members on the plant. The Emergency Response Team (ERT), consisting of trained members throughout the mine, and who are called for specialised response by the Supervisor (At least two ER team members should be present on every shift).
All Mine ERT members receive cyanide awareness training. The ERT are trained in 7 aspects including HAZMAT, Confined space rescue, road rescue training, firefighting training, first aid training, water rescue, vehicle rescue training, and SCBA (Self-contained breathing apparatus) training. At the TSF, Paragon Tailings will report emergencies to the ERT who will respond to these emergencies. The Mine was closed in 2017, and resumed operations in 2020, external training for the ERT Members is being planned. The ERT Coordinator reviewed High Angle Training at Loulo by Gryphon Rescue. The ERT Member Skills Matrix Document was sighted and reviewed. ERT Training is assessed and the assessment test mark results are kept. A 75% pass mark is required. The ERT members are trained in the use of necessary response equipment. The training presentations for the training modules which include training on the use of

emergency equipment: Fire Fighting, first aid level 1, SCBA sets, confined space rescue, Hazmat presentation, and rope rescue training were sighted and reviewed. Assessments for the afore-mentioned training were reviewed and the signed assessment forms sampled. The interviewees' hard copy training records were sampled and confirmed that the records are maintained (records also maintained in training matrices and attendance registers).
No external responders are involved in the ECMP. The Mine has its own Emergency Response Team and Hospital on site, reacting to cyanide emergencies. ERT training is conducted on a continuous basis as well as through participation in mock drills. The ERT Training includes weekly refresher training covering various topics and including as many shift members as possible. First responders on the plant (members of the ERT) also form part of receiving refresher training weekly on Saturdays.

9. DIALOGUE AND DISCLOSURE
Engage in public consultation and disclosure.

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

X in full compliance with

The operation is
- □ in substantial compliance with **Standard of Practice 9.1**
- □ not in compliance with

Basis for this Finding/Deficiencies Identified:
A dedicated Sustainable Communities Department (SCD) is in place at the mine. The Department is responsible for site-specific communication between the Mine and Communities. Mine Community Facilitators based in the villages provide information on Mine activities including cyanide and cyanide awareness. Cyanide awareness training is provided by the Mine's Training Officers. The appropriate affected parties have the contact information for the Mine to enable them to contact the Mine in case of any queries or other important issues.
Fourteen villages, closer to the Mine are included in the communication system. Eight Villages are potentially affected by the road transport of cyanide and are covered by the SCD. Meetings are scheduled monthly, covering all mine aspects and cyanide is included appropriately, but meetings may be held more frequently on demand from the Villages or the Mine. Examples of meeting notes, pictures and presentations were sighted:
A series of cyanide awareness training meetings were held in several villages for example at Kijiji Cha Shilele on 8 July 2021 attended by 31 people. Questions include where else cyanide occurs. A Meeting on 23 July 2021 was held at Ilogi village covering cyanide awareness and was attended by 112 people. A meeting held on 24 June 2021 at Bugarama covering cyanide awareness was attended by 33 people.

The Mine conducts surface and underground tours. The tours are conducted according to schedules and requests from the Communities. No tours were conducted during the Covid-19 Pandemic between 2020 and June 2022.
Questions asked by the communities are answered. Questions on the trucks passing through were raised. Perceptions of the Mine are also clarified during the meetings. A question was asked if cyanide can be transported by other means than road transport.
The Communities are not directly involved in the ECMP. Communities are informed that such a plan is in place, and what to do if there is an accident or spillage of cyanide, as part of a presentation given to the Communities. The presentations are given in Swahili and are supported by competent Plant Staff, fully trained and experienced in Cyanide Operations. A hard copy of the Cyanide Awareness slide presentation was sighted.
A cyanide solid spillage drill was held covering a transport cyanide spillage. The drill dated 11 February 2022 was to test the Community response to cyanide boxes falling from trucks. A dummy box, filled with flour and labelled cyanide, was tipped off a truck and the mine emergency response team was called out. The learning points included that the Fire Engine attracted more attention than the flour and the Community members were curious about the material and did not stay back.

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

X in full compliance with

The operation is in substantial compliance with **Standard of Practice 9.2**

 not in compliance with

Basis for this Finding/Deficiencies Identified:
A written description of the mine operation including cyanide usage, based on the PowerPoint presentation, is available to distribute to the local community. A written presentation is also available in Swahili, the local spoken and written language. The presentation printout is used together with a flyer (summarising the PowerPoint presentation) as handouts. The presentations are primarily given in Swahili. In addition, there is another spoken tribal language, Sukuma, which is used in the presentations when so requested, or needed. The majority of Community members can read and write.
The Incident/Injury Reporting and Investigation Procedure is used to investigate all incidents and injuries. A Corporate Environmental reporting standard contains classifications of environmental incidents and appropriate reporting requirements. The Environmental Communication Procedure covers Internal and External Communication Procedure. Information is released to the Corporate Legal and Corporate Affairs Department who will release the information publicly, as appropriate. The site is not allowed to release information publicly.

The site Environmental Incident, Accident Reporting and Investigation Procedure include incident classification, investigation process, immediate response, investigation by outside agencies, recommendations, and requirements for formal reports.
Any relevant environmental incidents (including their location) that might occur will be included in the Barrick Sustainability Report: -
(https://s25.q4cdn.com/322814910/files/doc_downloads/sustainability/Barrick-Sustainability-Report-2020.pdf , page 71) but none have occurred since certification.
Offsite, the transporter FFT (ICMI certified transporter) is responsible for reporting transportation injuries and incidents and will liaise with Barrick Bulyanhulu Mine on public information release.
The ECMP requires that, "…All incidences will be reported immediately to respective District Commissioners and relevant governing authorities…"