



Noligwa Gold Plant International Cyanide Management Code Recertification Audit

Summary Audit Report

Harmony Gold Mining Company Limited

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Basis of Report

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Acronym / abbreviation	Description
AGA	AngloGold Ashanti
CIP	Carbon-in-Pulp
DMRE	Department of Mineral Resources and Energy
DWS	Department of Water and Sanitation
EPP	Emergency Preparedness Plan
EPR	The Emergency Preparedness and Response Noligwa Gold Plant, Rev 5, dated December 2022
EPRP	The Emergency Preparedness and Response Plan Noligwa Gold Plant, rev 11, dated May 2022
ERT	Emergency Response Team
Harmony	Harmony Gold Mining Company Limited
HCN	Hydrogen Cyanide
HDPE	High Density Polyethylene
HMS	Hazard Management System
ICMC	International Cyanide Management Code
ICMI	International Cyanide Management Institute
Noligwa	Noligwa Gold
OP	Operational Procedure
PCR	Physical Condition Rating
PMS	Planned Maintenance System
PPE	Personal Protective Equipment
ppm	Parts Per Million
PTO	Planned Task Observation
RWD	Return Water Dam
Sasol	Sasol South Africa (Pty) Ltd.
SCADA	Supervisory Control and Data Acquisition
SCBA	Self-Contained Breathing Apparatus
SDS	Safety Data Sheets
SGS	SGS South Africa
SLAM	Stop, Look, Assess and Manage
SLR	SLR Consulting (South Africa) (Pty) Ltd
The Code	The International Cyanide Management Code for the Manufacture, Transport, And Use of Cyanide in the Production of Gold and Silver
The Plant	Noligwa Gold Plant
The Protocol	The Mining Operations Verification Protocol
TSF	Tailings Storage Facility
WAD	Weak Acid Dissociable



1.0 Summary Audit Report for Gold Mining Operations

Name of Cyanide User Facility: Noligwa Gold Mine

Name of Cyanide User Facility Owner: Harmony Gold Mining Company Limited

Name of Cyanide User Facility Operator: Noligwa Gold Mine Plant

Name of Responsible Manager: Mr Colin Du Plessis, Plant Manager

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2.0 Location and description of operation

The Plant is situated close to the town of Orkney, on the Free State Province side of the Vaal River in South Africa.

The Plant was commissioned in 1971 and treats approximately 115 000 tons per month of reef material from the Moab Khotsong Mine along with waste material as grinding media. Following milling in two run-of-mine mills, the slurry is thickened before being pumped to the uranium section for uranium extraction.

The uranium plant residue at pH 1.5 - 2.5 is returned to the Plant where it is neutralised with lime in the neutralisation section. The pH neutralisation occurs in stages to pH 4.5, pH 6.5, pH 8.5 and final pH 10.5 respectively in air agitated Pachucas. The neutralised slurry at pH 10.5 is pumped to the leach section for cyanide addition and gold extraction.

Liquid sodium cyanide is added to the leach feed slurry with cyanide dosing control being achieved by means of an on-line auto titrator integrated into a dosing control loop linked to the dry tonnage feed to the leach section. Gold leaching takes place in a series of mechanically agitated tanks and air agitated Pachucas.

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The dissolved gold in the leached slurry is recovered onto activated carbon in the CIP (Carbon-In-Pulp) section consisting of eight mechanically agitated adsorption tanks. The gold loaded carbon is screened out of the slurry before being washed and transferred to the elution circuit.

In the elution circuit the carbon is washed with a hot caustic solution to strip the gold back into solution, following which the gold bearing solution passes through the electrowinning section where the gold is plated onto stainless steel cathodes and smelted to produce gold bullion for refining.

The slurry exiting the adsorption section is pumped to the backfill section. Backfill material for use as underground support is produced from the neutralised CIP residue material. The initial acidification with barren solution from the South Uranium Plant effectively destroys the residual cyanide in the material used to produce the backfill. The neutralised residue material is monitored for Weak Acid Dissociable (WAD) Cyanide, and Free Cyanide with a WAD Cyanide analyser before being pumped to the final residue stream exiting the plant to the Mispah Tailings Storage Facility (TSF).

Low-grade waste rock is also treated in the Plant through the low-grade Mispah milling and recovery circuit. Following run-of-mine milling, the slurry is subjected to a cyanide leach followed by gold adsorption in a CIP plant. Cyanide dosing control to the Mispah leach circuit is achieved by means of an on-line cyanide titrator integrated into a control loop linked to the dry tonnage feed.

The loaded carbon from the CIP circuit is treated in the elution section for final recovery of gold in the electrowinning cells. The CIP residue material joins the final residue stream reporting to the Mispah TSF from where the recovered water is recycled back to the Plant and used to top up the Mill Return Water Tanks. The Mill Return Water Tanks have WAD cyanide levels below 0.5 mg/l and therefore are not a cyanide facility.

There are no new facilities or facilities that have undergone substantial changes since the previous recertification audit.

Compliance Statement

Noligwa has not experienced any cyanide incidents since the previous recertification audit.

This operation has experienced compliance issues during the previous three-year audit cycle which are discussed in this report under the Standards of Practice 4.1 and 4.3.

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SUMMARY AUDIT REPORT

Auditors Findings

in full compliance with

**The International
Cyanide Management
Code**

Noligwa Gold Mine is: in substantial compliance with

not in compliance with

Audit Company: SLR Consulting (Africa) (Pty) Ltd
Audit Team Leader: Ed Perry, Lead Auditor
Email: eperry@slrconsulting.com
Mine Technical Auditor Marie Schlechter, WSP (ICMI pre-certified Mine Technical Specialist).

DATES OF AUDIT

The Re-certification Audit was undertaken between 26 September 2023 to 29 September 2023.

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

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

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

The Code is a voluntary industry programme for gold and silver mining companies, and companies involved with the production and transport of cyanide to gold and silver mining companies; it focuses exclusively on the safe management of cyanide. Companies that adopt the Code must have their operations, which manufacture cyanide, transport cyanide or use cyanide to recover gold and silver, audited by an independent third party to determine the status of the Code’s implementation. Those operations that meet the Code’s

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requirements can be certified and are able to use a unique trademark symbol, which identifies the company as a certified operation. Audit results are made public to inform stakeholders of the status of cyanide management practices at the certified operation.

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

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Principle 1 – Production and Purchase

Encourage Responsible Cyanide Manufacturing by Purchasing From Manufacturers That Operate in a Safe and Environmentally Protective Manner.

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

in full compliance with

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

not in compliance with

Summarise the basis for the findings/deficiencies identified.

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

Noligwa purchases cyanide from a supplier that is manufactured at a facility that is certified as being in compliance with the Code.

The auditor observed the Harmony Group Supply Agreement for the supply of bulk liquid sodium cyanide between Sasol South Africa Ltd., and Harmony Gold Mining Ltd., (CS/19/01/0007) signed on behalf of Harmony by Melanie Laubscher, Legal Manager on 3rd February 2020 and Dumisani Nkala, Sasol Vice-President Solvents Base Chemicals.

The Agreement duration is from 3rd of February 2020, for 3 years. Amendment to the Main Agreement for the Supply and Delivery of Sodium Cyanide (Amendment 8 to Contract CS/19/01/0007) was signed on 18 February 2021. This Amendment, together with the General Terms and Conditions of Sale of Sasol South Africa Limited, still applies as there is no affective end date. The Agreement includes cyanide supply to the Plant.

Sasol was originally certified on 8 March 2007 with the latest recertification being on 7 March 2022.

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Principle 2 – Transportation

Protect Communities and the Environment During Cyanide Transport.

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

in full compliance with

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

not in compliance with

Summarise the basis for the findings/deficiencies identified.

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

The operation has chain of custody records or other documentation identifying all transporters and supply chains responsible for transporting cyanide from the producer to the operation. The records include: waybills for delivery, including the Sasol delivery note, certificate of analysis on behalf of Sasol, Tanker Services Food and Chemicals / Imperial Logistics (Tanker Services) delivery note, Harmony weighbridge ticket and Harmony cyanide offloading checklist.

All identified transporters are individually certified in compliance under the Code or included in certified supply chain.

Currently, the Plant is only supplied with liquid cyanide from Sasol, a certified producer. First certification was on 8 March 2007 with the latest recertification on 7 March 2022. The liquid cyanide is transported by Tanker Services a certified Transporter who were first certified on 13 December 2011 with the latest recertification on 1 April 2022.

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Principle 3 – Handling and Storage

Protect Workers and the Environment During Handling and Storage.

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

in full compliance with

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

not in compliance with

Summarise the basis for the findings/deficiencies identified.

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

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

During a previous AGA re-certification audit of this site, the auditors noted the following: verified original drawings: P&ID 1105019-VR-08G-55-F002.1 rev 2 10 May 2010 signed by relevant staff as per Sheet 1 as per AGA Cyanide Safe Handling Guidelines (version 4, 2005), Chapter 42 of Physical Condition Rating (PCR) standards - pipe and valve specifications are cyanide specific during re-certification audit in July 2010. No changes have been made to the facility since the previous AGA ICMI audit of the facility.

Sasol undertakes a technical inspection of the facility on an annual basis - Sodium Cyanide Bulk Storage Facility: Technical Inspection Report, Sasol, 16 May 2023. Compliance Rating of 96%. Nothing was identified to prevent the ongoing operation of the facility.

The cyanide unloading and storage facilities are located away from people and surface waters. It was verified during the site inspection that the offloading and storage areas for the liquid sodium cyanide are closed off with restricted access, bund walls have been installed, and there are no public areas close by. There are no surface waters or drainage to surface waters from the cyanide storage area or the Plant as a whole. The operation only uses liquid sodium cyanide delivered by bulk tanker and therefore, no mixing of solid cyanide takes place on site. A sump and associated pump are installed to pump any spilled cyanide during off-loading into the Tailings Tank where the cyanide dosing point is located.

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The offloading area for the liquid sodium cyanide is on concrete, surfaced with bitumen and equipped with humps and a sump to contain any spills. The drainage for this area is directed to a spillage sump equipped with pump, which delivers any liquid into the Tailings Tank, similarly spilled material from inside the Cyanide Storage Tank bund will be directed to the No 4 Neutralisation Tank, which feeds into the Tailings Tank.

There are systems in place to prevent the overflowing of Cyanide Storage Tanks, and the systems are tested and maintained on a routine basis.

An automatic air shut-off valve is installed on the level indicator. When the level reaches 80% an alarm will sound, at 85% it automatically shuts off to prevent any further liquid being pumped into the tanks. There is also a low-level alarm at 20%.

The auditors observed the following:

- *Cyanide Storage Tank Level Alarm CN-Alarm-04*, Rev 15, dated May 2022 - This is the procedure to follow when cyanide tank level alarms sound and if the tank were to overflow. The procedure covers all actions in case of the level alarm sounding and if a tank overflows. The Supervisory Control and Data Acquisition (SCADA) system – computerised control system, shows which alarms are sounding.

- *Cyanide Offloading, CN-GEN-07*, Rev 15, dated June 2023 – The procedure states that off-loading should not take place if the level in both tanks is 65% or higher.

All level alarms are included on the DMS planned maintenance system (PMS) and are checked by instrument technicians monthly. The auditors checked and confirmed maintenance histories during a review of the PMS.

It was confirmed during the site inspection that the Cyanide Storage Tanks are located on solid concrete plinths that can prevent seepage to subsurface. Secondary containments for the Cyanide Storage Tanks are constructed of concrete that provide a competent barrier to leakage. Spillage pumps are inside the secondary containment to pump any liquid back into the process.

Flood Tests on bulk storage tank bunds are conducted annually, which show the integrity of the Cyanide Storage Tank bund has been maintained.

The following was confirmed during the site inspection.

- a) No solid cyanide is stored or used at the Plant.
- b) The liquid Cyanide Storage Tanks are located outside and include ventilation pipes on top of the tanks.
- c) The Cyanide Storage Tanks are situated inside the Plant fence with access control to the Plant. The tank farm area is also fenced and locked with the issuance of keys undertaken in accordance with the *Cyanide Installation and Equipment Key Control and Register Procedure, CN-GEN-01*, Rev 14, dated May 2022.

The four Cyanide Storage Tanks are located inside a concrete bund (only two of the tanks are currently in use). Nothing else is stored in or adjacent to the bund.

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

in full compliance with

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

not in compliance with

Summarise the basis for the findings/deficiencies identified.

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

Procedures are in place and implemented to manage empty cyanide containers.

Liquid sodium cyanide is delivered in bulk tankers from Sasol to the Plant and offloaded directly into Cyanide Storage Tanks. No solid cyanide is used on the Plant therefore the only containers used are the tankers themselves. The tanker couplings, connection pipe, and offloading couplings are washed before and after offloading as required by *Cyanide Offloading, CN-GEN-07*, rev 15, dated June 2023. The outside of the tankers are also cleaned on their return to Sasol's premises.

Delivery is by bulk tanker. Therefore, no drums, plastic bags, or liners are used.

The operation has developed and implemented plans or procedures to prevent exposures and releases during cyanide unloading activities including the following.

Cyanide Offloading Procedure, CN-GEN-07, rev 15, dated June 2023 – this includes the following; the sequence of coupling, a detailed explanation of the Buddies' roles and responsibilities under Definitions. The driver and the Offloader (customer qualified person) act as each other's Buddies in defined circumstances within the procedure. This Procedure stipulates that PPE Level 1 to 3 must be complied with.

Cyanide PPE to be Worn / PPE Levels CN-PPE-01, Rev 14, May 2022. This procedure stipulates the required PPE to be worn for each level as well when the specific level of PPE should be worn.

Buddy System Procedure CN-EMER-16, rev 13, dated May 2022. It was confirmed by interview with Plant personnel that liquid sodium cyanide delivered from Sasol has been coloured red since the ICMI implementation date of July 2019. It was confirmed during the site inspection that the Sasol Safety Data Sheets (SDS) are displayed at the liquid cyanide storage area and includes colour: light to dark red due to the incorporation of a dye.

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Procedure for Addressing Cyanide Solution Spillages, CN-EMER-13, rev 13, dated May 2022, which includes the timely cleanup of any spills of cyanide during the transfer of liquid cyanide from tanker trucks.

Daily Cyanide Facility Checklist CN-GEN-13, Rev 14, May 2022. The checklist covers the Cyanide Storage Facility including the maintenance of cyanide delivery hoses, valves, and couplings. The maintenance of the liquid cyanide tanker including associated hoses, valves, and couplings connect to the tanker are the responsibility of the cyanide transporter.

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Principle 4 – Operations

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

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

in full compliance with

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

not in compliance with

Summarise the basis for the findings/deficiencies identified.

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

The operation has written management and operating plans or procedures been developed for cyanide facilities including unloading, storage facilities, process plants, and tailings impoundments, which include the following.

14 Cyanide Process Procedures, 16 Cyanide Emergency Procedures, 4 Cyanide Alarm Procedures, 9 Cyanide Engineering Procedures, 8 Cyanide Personal Protective Equipment (PPE) Procedures, 24 General Procedures, and 19 General Cyanide Procedures.

Intasol (TSF Operations Contractor) Issue Based Risk Assessment ITS-IBRA -014, dated June 2023. Intasol Harmony Mispah TSF Baseline Risk Assessment INTS-BLRA-(Mispah), Ver 4, dated June 2023.

Intasol Tailings Operational Manual, Harmony Gold Mine Noligwa Plant, no ITS_MAN_0001_OPS, Rev 03, dated July 2023. In Section 1.1. the manual refers to Harmony Code of Practice (COP) for TSF Management will be the guideline for this operation.

Ten detailed Standard Task Procedures for the TSF include PPE and pre-work inspections and the Intasol Hazard Management System (HMS) Control System, ITS-SWP-006, rev 03, June 2023.

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

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with applicable requirements, which includes the following documents that were observed by the auditors.

High WAD cyanide in residue slime, CN-PRO-04, rev 14, dated May 2022 - The maximum WAD allowable to exit the plant is 50 parts per million (ppm). It further states that Barren and lime is added to control high WAD cyanide in the Residue Tank. An alarm will sound if WAD cyanide reaches 40 ppm. The procedure refers to procedure VRTM-CN-06 detailing notification to TSF Contractors if there is high WAD Cyanide.

Monitoring and Controlling Reservoir Levels - Preventing Overtopping, CN-PRO-13, Rev 14, dated May 2022 - states the levels at which the settlement dams must be operated - below 70% with a communication protocol at 80%.

Optimal pH to prevent HCN formation - Low pH Alarm at Neutralising and Mispah Addition Point CN-ALARM-03, 15 May 2022 - If pH of the slime drops to 10.0 the alarm will sound and the cyanide pumps will stop. The cyanide pump will not be able to start again until the pH is correct and the value is above 10.5.

Procedure for addressing Cyanide Solution Spillages CN-EMER-13, Rev 13, May 2022 - Any spillage that is re-introduced to the process, must enter the process stream where the pH is above 10.5.

Moab Khotsong Operations Mispah TSF Surveillance Annual Audit Report for 2020, 2021 and 2022 by Jones and Wagner. The reports are for an annual audit that is conducted as part of the TSF surveillance. The report focuses on the general condition and monitoring of the facilities, as well as the compliance with statutory requirements. Additional aspects and procedures pertaining to the facilities are included in the TSF's COP. The legally required freeboard is 1.5 m with an additional 500 mm dry freeboard.

An incident report was observed dated 3 February 2023 regarding the overflow of the Settling Dam i.e. the minimum freeboard was not maintained. Changes in pumping arrangements were immediately instigated to prevent the overflow and following this a maintenance program for the Settling Dam was instigated with the removal of sediment buildup and the reinstatement of the original design capacity. The auditors observed that these actions had been completed.

The TSF pond and Return Water Dams (RWDs) are checked daily by the TSF operators to confirm that the required freeboard is maintained such that a design storm event can be accommodated. The settling ponds have close circuit tv fitted so that they can be observed remotely, and their levels are connected to the SCADA system.

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

The Settling Ponds inspection sheets includes a minimum freeboard of 1.5 m. Harmony Cyanide Offloading Checklist is completed prior to each off-loading event.

Daily Cyanide Facility Checklist CN-GEN-13, Rev 14, May 2022. The checklist covers the Cyanide Storage Facility, cyanide delivery pipes and valves, low strength bund areas, High-

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grade CIP, old leach, new leach, final residue, Low-grade CIP, Low-grade Leach, neutralising, CIP residue, and Elution.

Checking of Safety Showers and Eye Wash Basins CN-GEN-12, Rev 14, May 2022. The procedure describes what needs to be checked including the water supply, checked for choked holes in spays and unblock as follows, check if pressure gauge on potable water is in working order, check if the alarm and flashing lights are in working order, check if the alarms are activated in the control room if the footboard is pressed down.

Safety Cyanide Inspection is conducted every 15 days. This includes Cyanide Storage Tanks.

Daily, weekly, and monthly internal inspections are undertaken of the TSF. Quarterly and Annual inspections are undertaken by Jones and Wagener.

A preventive maintenance program is implemented, and activities documented to ensure that equipment and devices function as necessary for safe cyanide management.

The new DMS planned maintenance system (PMS) was observed by the auditors to cover all critical elements of the Plant. The System includes weekly, monthly, 3 monthly, 6 monthly, and annual inspections.

The Operations and Engineering Foreman generates job requests for repairs identified during the inspections. The Job request is entered into the PMS where a job card is issued to the artisan undertaking the work. The completed job detail is entered into the PMS for record keeping and analyses. Job cards are generated automatically for planned maintenance inspections and maintenance.

The system contains the maintenance records of various types of cyanide equipment including tanks, pumps, pipes, and valves were reviewed covering 2023. Inspection tasks for each category of inspection were reviewed and included checks for leaks, corrosion, welds, plates, gaskets, rubber lining, flanges, stubs and bolts, baffles, as appropriate. Thickness testing was noted on all tanks.

Ad hoc job requests can be loaded on the PMS by the Process Foreman, from where the job is then allocated for attention.

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

The Plant has the following change management procedure, *Change Management CN-ENG-03*, Revision 14, dated May 2022. The procedure states "Any project initiated that entails the installation of new equipment, alters the current process flow or may have an impact on the environment shall be initiated using the following procedure. Any projects that have an effect on the environment must pass the desk of the environmental coordinator of the Plant." The example of change management that was observed was signed off by the Safety Officer and the Plant Manager.

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

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Strike or illegal Stay Away Procedure GEN-15, Rev 10, May 2022 states that if there is an upset in the water balance, specifically at the TSF to prevent too much water on the TSF, the Plant will be shut-down.

Any problems identified by facility monitoring or inspections will instigate a work order being raised to rectify the problem as part of the maintenance process as detailed above.

Standard stopping and starting procedures for the various sections of the Plant are used during planned shutdowns. *Strike or illegal Stay Away Procedure GEN-15*, Rev 10, May 2022, details the shutdown procedure for longer term cessation of operations. The Plant will shut down in the case of any TSF pipe leaks as per the standard Operating Procedures.

Cyanide Related Activities and Power Failures CN-ENG-02, Rev 14, dated May 2022 – states that in the event of a power failure, ensure that cyanide related work is suspended in a safe manner and that no potential hazards exist.

The operation's contingency procedures as detailed above account for how cyanide would be safely managed during short-term and long-term shutdowns or cessations in operation. This includes the management of any cyanide on site, including solid cyanide (which would remain in the dedicated storage area), and cyanide solution within tanks, vessels, pipelines, ponds and impoundments.

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

The *Daily Cyanide Facility Checklist CN-GEN-13*, Rev 14, May 2022 checklist covers the Cyanide Storage Facility, cyanide delivery pipes and valves, low strength bund areas, High-grade CIP, old leach, new leach, final residue, Low-grade CIP, Low-grade Leach, neutralising, CIP residue, and Elution. The checklist also includes; the inspection of cyanide delivery pipelines and other pipelines within the Plant, secondary containments provided for tanks and pipelines for physical integrity, the presence of fluids and available capacity, and to ensure that any drains are closed and, if necessary, locked. This includes checking the process tanks for signs of corrosion or leakage. Structural integrity of the process tanks are undertaken by a third party.

The monthly inspection of the TSF includes checking the underdrain system of the TSF. There are no leak detection and collection systems for any of the other ponds. The tailings pipe from the Plant is checked daily by Pipe Patrol and the pipes at the TSF are checked daily by the TSF operators. The *Daily Cyanide Facility Checklist* includes inspecting the cyanide delivery pipelines and other pipelines within the Plant together with pumps and valves for deterioration.

The TSF pond and Return Water Dams (RWDs) including surface water diversions are checked daily by the TSF operators. The settling ponds have close circuit tv fitted so that they can be observed remotely, and their levels are connected to the SCADA system.

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

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The Process Plant is inspected through individual inspections and through the planned maintenance system on a daily, weekly, monthly, and annual basis. The TSF is also inspected on a daily, weekly, monthly, quarterly, and annual basis.

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

The operation has the necessary emergency power resources to operate pumps and other equipment to prevent unintentional releases and exposures in the event its primary source of power is interrupted. The Mine is equipped with 3 Gensets, which are used as standby power in case of a temporary failure of power.

All tank overflows will be contained in bunds or flow to the Plant Settling Dam via concrete lined trenches where the spillage will be contained. Reagent strength cyanide will either remain in the pipelines or drain back to the storage tanks. No emergency power is required to prevent unintentional releases from Noligwa in case of power failure. The RWDs are run at minimum operating levels to cater for power failures. Thus, no emergency power is required to prevent overtopping of the RWDs.

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

in full compliance with

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

not in compliance with

Summarise the basis for the findings/deficiencies identified.

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

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

High-grade stream.

- The cyanide dosing rate is controlled by a ratio controller with input from the mass flow system at the dosing tank (Tailings Tank).
- A TAC 1000 on-line free cyanide analyser is used to measure cyanide in the feed leach tank and adjust the ratio automatically based on the pre-set cyanide setpoint (currently at 320 ppm).
- Use is made of a Bredel hose pump and a frequency drive to vary pump speed for the cyanide dosing.

Low-grade stream.

- The cyanide dosing rate is controlled by a ratio controller with input from the mass flow system at the leach feed tank.
- A TAC 1000 on-line free cyanide analyser is used to measure cyanide in the feed leach tank and adjust the ratio automatically (currently set at 150 ppm)
- Use is made of a Bredel hose pump and a frequency drive to vary pump speed for the cyanide dosing.

Set points are changed by the Instrumentation Department on instruction from the Plant Manager this was confirmed during an interview with, and documentation provided by, the Instrumentation Technician. The auditors observed the following. The Software Change Control Sheet records the reason for any change.

The focus on cyanide control is to accommodate cyanide consumption variation in the processing of the waste rock dump material that tends to be variable in mineralogy and used as feed for the Low-grade stream.

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Manual titrations are done during each shift (3 shifts per day) by the operators for both streams. Samples are taken from the new leach section at the High-grade stream and from leach tank no. 2 on the Low-grade section. This is analysed to ensure that TAC 1000s are working correctly and that cyanide is added as per set point. Results are communicated to the control room operator.

The feed for the High-grade stream is combined into composite monthly samples. SGS South Africa (SGS) conducts bottle roll tests on the samples. The results are assessed to ensure that the cyanide set point is at an optimal level for the best recovery rate without overdosing. A quarterly composite of the Low-grade stream is sent to SGS for bottle roll tests.

Diagnostic leach tests are conducted on the tailings. The analysis on the High-grade is done monthly and the Low-grade is done quarterly. This is to determine if the remaining gold in the tailings is still available for recovery through direct cyanidation. Ad hoc samples will be taken and sent for analysis if a new source needs to be processed.

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

in full compliance with

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

not in compliance with

Summarise the basis for the findings/deficiencies identified.

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

The operation has developed a comprehensive, probabilistic water balance.

Noligwa Water Balance includes the Plant and TSF, which was reviewed by the auditors. The auditors observed a spreadsheet based probabilistic water balance Noligwa Gold Plant 2022 (excel spreadsheet water balance).

The historic daily precipitation records are employed by the water balance to model the uncertainty and variability in the prediction of precipitation patterns, including the ability to consider the frequency and distribution of precipitation events along with extremes and seasonal variations.

Noligwa keeps a Plant and TSF water balance which then feeds into the overall area wide water balance and report that is managed by the Environmental Department The Moab Khotsong, CHEMWES, and Vaal River Operations Water Management Report, July 2023. This report combines the water balances from the different operations into a single report.

The water balance considers the following in a reasonable manner and as appropriate for the facility and the environment.

The auditors observed a spreadsheet based probabilistic water balance Noligwa Gold Plant 2022 (excel spreadsheet water balance) that included the following.

- a) The rates at which tailings are deposited into tailings storage facilities. An excel spreadsheet of data that includes the daily production data is collated into a monthly sheet that feeds into the Water Balance.
- b) A design storm duration and storm return interval that provides a sufficient degree of probability that overtopping of the pond or impoundment can be prevented during the operational life of the facility. The TSF is able to accommodate a 1:100-year storm plus 500 mm of additional dry-freeboard. It has been confirmed in the Annual TSF Audit Report 2022 by Jones and Wagener that the required freeboard was maintained.

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- c) The quality of existing precipitation and evaporation data represents actual site conditions. The rainfall is measured and recorded daily from the rain gauge on the site. The data is available on the SCADA system and is used for the Water Balance.
- d) The amount of precipitation entering a pond or impoundment resulting from surface run-on. The TSF is using the conventional paddock dams and operates as a landraise, therefore run-on is not applicable. Stormwater cut-off trenches are in place at the Plant and the Settling Dam to prevent any potential run-on.
- e) Freeze, thaw conditions do not exist on site.
- f) Solution losses in addition to evaporation, such as the capacity of decant, drainage and recycling systems, allowable seepage to the subsurface, and allowable discharges to surface water. There is no discharge to surface water. Allowable seepage, and details of the decant system are included in the water balance.
- g) The effects of potential power outages or pump and other equipment failures on the emergency removal of water from a facility. The TSF has sufficient freeboard to contain a 1:100-year storm event plus an additional 500 mm of additional dry-freeboard and therefore during a power outage the TSF has sufficient capacity to retain a storm event without the pumps being operational.

Ponds and impoundments are designed and operated with adequate freeboard above the maximum design storage capacity determined to be necessary from water balance calculations. Quarterly and Annual inspections are undertaken by Jones and Wagener. These reports state that the TSF is being operated within the required parameters for Freeboard i.e. 1.5 m plus 500 mm of dry freeboard. The Settling Ponds are operated with a minimum freeboard of 1.5 m.

An incident report was observed dated 3 February 2023 regarding the overflow of the Settling Dam i.e. the minimum freeboard was not maintained. Changes in pumping arrangements were immediately instigated to prevent the overflow and following this a maintenance program for the Settling Dam was instigated with the removal of sediment buildup and the reinstatement of the original design capacity. The auditors observed that these actions had been completed.

The operation's operating procedures incorporate inspection and monitoring activities as necessary to implement the water balance and prevent overtopping of ponds and impoundments and unplanned discharge of cyanide solutions to the environment and include the following. The depth of the TSF pond is monitored daily. The freeboard is surveyed monthly using survey poles and formal surveys which are reported in the monthly dashboard.

The RWDs are equipped with ultrasonic level detectors, and the data is recorded on the SCADA. The pumps are controlled from the Plant Control Room.

The Plant Settling Dam is operated automatically and are equipped with electronic level sensors, which show on the Plant SCADA and are included in the PMS planned maintenance system. *Procedure CH-PRO-13, Monitoring and Controlling Reservoir Levels –*

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Preventing Overtopping, Rev 14, dated May 2022, describes the actions to be followed when monitoring and controlling the Settling Dams

The operation measures precipitation, comparing the results to design assumptions and revising operating practices as necessary. The rainfall spreadsheet for the probabilistic water balance records daily rainfall from the site rain gauge. This data is then collated into monthly rainfall figures and incorporated into the water balance and compared with design assumptions.

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

in full compliance with

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

not in compliance with

Summarise the basis for the findings/deficiencies identified.

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

The operation does not have any open water where it is necessary to implemented measures to restrict access by wildlife and livestock as the WAD cyanide does not exceeds 50 mg/l.

The operation can demonstrate that the cyanide concentration in open water in the TSF and solution ponds does not exceed 50 mg/l WAD cyanide.

The auditors observed the daily average WAD levels from August 2020 - August 2023. The Cynoprobe is calibrated quarterly by MinTek (South Africa's national mineral research organisation). The calibration reports for the last 3 years were observed.

The concentration of WAD cyanide in the RWDs and Settling Ponds is also below 50 mg/l with the auditors having observed the results since the previous recertification audit.

Maintaining a WAD cyanide concentration of 50 mg/l or less in open water is effective in preventing significant wildlife mortalities. The TSF and Plant are inspected for wildlife mortalities on a daily basis. The auditors observed the relevant checklists since the previous recertification audit and no wildlife mortalities were recorded.

There is no heap leach on site.

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

in full compliance with

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

not in compliance with

Summarise the basis for the findings/deficiencies identified.

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

The operation does not have a direct discharge to surface water.

In the event of an extreme rainfall event the RWDs can overflow to the environment and subsequently to the Vaal River. If this happens it is treated as an emergency and investigated.

Such an event occurred between 25 February and 1 March 2021 due to a series of rainfall events over that period. The result of the investigation was the desilting of the RWDs in order to maintain their design capacity, which has been completed.

The operation monitors for cyanide in surface water downgradient of the site and can demonstrate that direct discharges to surface water do not cause the concentration of free cyanide in the receiving water to exceed 0.022 mg/l downstream of any established mixing zone.

The surface water monitoring upstream and downstream that is undertaken on a monthly basis showed that the concentration of WAD cyanide downgradient of the site was below 0.02 mg/l for the 2020 – 2023 results that the auditors observed.

There are no known indirect discharges to surface water except for the overflow of the RWDs during unusual rainfall events as detailed above.

No indirect discharge from the operation have caused cyanide concentrations in surface water to rise above levels protective of beneficial use.

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

in full compliance with

The operation is in substantial compliance with **Standard of Practice 4.6**
 not in compliance with

Summarise the basis for the findings/deficiencies identified.

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

The operation implements specific water management and other measures to manage seepage to protect the beneficial use of ground water beneath and / or immediately down gradient of the operation. This includes the following.

The TSF is operated as conventional ring dyke daywall paddock impoundments, constructed using an upstream method. Supernatant and storm water are decanted off the facility via penstock tower inlets, through gravity outlet pipes to the RWDs. In addition, there are underdrains that also drain to the RWDs from where the water is pumped to the Plant for re-use.

The only beneficial use of groundwater in the area is by the mining processing plants. All other water for domestic and livestock use in the immediate area is supplied from the local potable water supplier, the Midvaal Water Company.

All tanks containing cyanide within the Plant are situated on concrete and within a concrete bund to prevent seepage into the surrounding ground.

No seepage from the operation has caused the concentration of groundwater to rise above levels protective of beneficial use.

Groundwater monitoring is conducted quarterly. The auditors observed the results for 2020 – 2023 with all concentrations of WAD cyanide upstream and downstream of the Plant and TSF being below the detection limit of 0.02 mg/l.

There is no numerical standard established by the applicable jurisdiction for WAD cyanide or any other species of cyanide in groundwater, therefore there are no compliance points below or down gradient of the Plant or TSF. Groundwater monitoring is undertaken to establish whether mining operation is having an impact on the surrounding groundwater.

The operation uses mill tailings as underground backfill. The potential impacts to worker health and the beneficial uses of groundwater have been evaluated and measures have been implemented as necessary to address them.

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Backfill Quality Assurance CN-GEN-17, Rev 14, May 2022. This stipulates the procedure to be followed to ensure that the backfill quality meets the required specification regarding its cyanide content. The procedure states that the permissible cyanide concentration in backfill product is 25 ppm (Free Cyanide) and 50 ppm (Total Cyanide). If free cyanide is above 25 ppm, the Production Metallurgist rejects the batch, and it is pumped to residue. All results for 2022 and 2023 are below 0.001 ppm Free Cyanide.

The procedure above is based upon the Mintek Technical Info: PWL AGA BF 100112 dated 12 January 2010 prepared for AngloGold Ashanti and being used under exactly the same conditions by Harmony. Harmony adopted the AngloGold procedures and supporting documentation when they took over the operation. Thus, the technical data supporting the health and safety risk management remains the same.

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

in full compliance with

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

not in compliance with

Summarise the basis for the findings/deficiencies identified.

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

Spill prevention or containment measures are provided for all unloading, storage, and process solution tanks.

All tanks are placed in bunded areas or on concrete surfaces. The leach and carbon adsorption flat bottomed tanks are placed on solid concrete bases, with the conical leach tanks, residue tanks, and neutralising tanks placed on plinths and steel legs. With all of the tanks being in concrete bunds. The eluate tanks are placed on solid concrete bases inside concrete bunds. Cyanide reagent storage tanks are all on solid concrete plinths inside concrete bunds.

Secondary containments for cyanide unloading, storage, and process tanks are sized to hold a volume greater than that of the largest tank within the containment and any piping draining back to the tank, and with additional capacity for the design storm event.

The leach, CIL, tailings hopper, thickener and cyanide solution bunds are inter-linked and subsequently linked to the Settling Ponds by concrete lined trenches.

The CIP and Residue Tanks bunds are not sized sufficiently for the largest tank however, the bunded areas drain to the HDPE lined Settling Dam, which operate at 60% capacity leaving approximately 17 600 m³ available as secondary containment for the CIP and residue tanks.

Procedures are in place and being implemented to prevent discharge to the environment of any cyanide solution or cyanide-contaminated water that is collected in a secondary containment area.

All bunded areas are equipped with spillage pumps that can pump any spilled cyanide or slurry containing cyanide back into the process.

Procedure for Addressing Cyanide Solution Spillages", CN-EMER-13, rev 13, dated May 2022 – this procedure describes the safe practice to pump spilled cyanide back into the process.

Any large quantities of clean cyanide solution spilled into the bund is returned to the storage tanks. If the liquid is from an unknown source, the pH and cyanide concentration are

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measured before it is pumped to the leach. Spillages of leach are pumped into the leach tanks. Spillages from CIP are pumped back into the CIP. Contaminated water that flows via lined trenches into the Settling Ponds is used as process water.

There are no cyanide process tanks without secondary containment.

Spill prevention or containment measures are provided for all process solution pipelines to collect leaks and prevent releases to the environment. Reagent strength cyanide pipelines are located within secondary containment (launders) or above competent secondary containment and flanges are covered with flange covers. Any spillage in the launders flows back to the cyanide tank bunds or other secondary containment.

The TSF pipelines were replaced with HDPE lined steel pipelines as a spill prevention measure. Pipeline patrol and security inspects the tailings lines daily. The TSF pipelines are located in an earthen trench to contain any spills.

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

Cyanide tanks and pipelines are constructed of materials that are compatible with cyanide and high pH conditions. TSF pipes are steel pipes with an HDPE lining. The reagent strength pipelines are made of high-pressure mild steel. All the tanks are constructed of mild steel.

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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.

in full compliance with

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

not in compliance with

Summarise the basis for the findings/deficiencies identified.

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

Quality assurance and quality control programs were implemented during construction and substantial modification of all cyanide facilities.

The original certification audit in 2007 confirmed quality control and quality assurance programs for the cyanide facilities stating "Sighted DataBook, AngloGold Ashanti Ltd. Area 36 Leach tanks, mechanicals and supporting structures Volume 1 Contract 15 856": Handover Certificate HOC 006, accepted by D Mc Arthur on 20/04/06 as per ISO 9001 certifying substantial completion of work as per drawings and specifications and that all tests to ensure compliance with legal and specified requirements have been carried out. Sighted relevant drawings, quality control documents, inspection certificates signed off, individual test patterns, grout release records, blast profile readings, quality control plan W005 of 1/3/05 daily project control report for Walker Industries of 30/3/2005 – refurbishment of two cyanide tanks 10 and 11, sighted x-ray reports – Projecon Services report no 1480/1 QC notes, radiographic report by PEL construction, steel quality certificates, plinths refurbished – sighted official letter of 19 April 2007: Audit of civils at Noligwa Gold Plant, Vaal River Operations, Signed by Dr F Wagener, Pr Eng Reg no 690332, declaring the remedial work to the civils have been completed to his satisfaction. This documentation has been retained.

No material engineering design or practices have been undertaken at the Plant in the last three years.

The original quality control and quality assurance programs in 2007 addressed the suitability of materials and adequacy of soil compaction for earthworks such as tank foundations and earthen liners, the installation of synthetic membrane liners used in ponds and leach pads, and for construction of cyanide storage and process tanks.

An appropriately qualified person reviewed cyanide facility construction and provided documentation that the facility has been built as proposed and approved as detailed in the 2007 documentation.

Where there is no available quality control and quality assurance documentation or as-built certification for cyanide facility construction, an appropriately qualified person inspected

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those facilities and issued a report concluding that their continued operation within established parameters will protect against cyanide exposures and releases. This includes the following.

eSIMM Report, Great Noligwa Plant, Low-grade, Vaal Reefs Report K3255, May 2023, Indaba Professionals (Pty) Ltd states - onsite inspections were done on 21 September 2022 by a professional engineer who is registered with the Engineering Council of South Africa (ECSA). Those inspections were part of the annual Electronic Structural Inspection and Maintenance Management Program (eSIMM) structural inspections of Great Noligwa Plant. This inspection was undertaken in line with Harmony's minimum requirements for third party structural inspections. This report did not identify any structures relating to cyanide management as being in an unsafe condition. Report was signed by TB Jordaan Pr. Eng.

Sodium Cyanide Bulk Storage Facility: Technical Inspection Report, Sasol, 16 May 2023. Compliance Rating of 96%. Nothing was identified to prevent the ongoing operation of the facility.

Moab Khotsong Operations Mispah TSF Surveillance Annual Audit Report for 2020, 2021 and 2022 by Jones and Wagner. The Reports state that there were no significant operational changes on Mispah TSFs that would impact the safety classification. The safety classification therefore remains unchanged as High Hazard facilities. and the overall stability appears acceptable.

Moab Khotsong Operations Mispah TSF Surveillance First Quarterly Report 2021, February 2021, Jones And Wagner.

Moab Khotsong Operations Mispah Tsf Surveillance First Quarterly Report 2022, March 2022, Jones And Wagner.

Moab Khotsong Operations Mispah Tsf Surveillance Second Quarterly Report 2023, May 2023, Jones And Wagner.

The reports state that that the freeboard at both facilities was above the minimum requirement, therefore no concerns were raised.

The quarterly and annual reports are signed by Ljiljana Nedeljkovic Pr Eng for 2021 and 2022 and by J Labuschagne PrEng BEng(Hons) MSAICE signed the 2023 reports.

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

in full compliance with

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

not in compliance with

Summarise the basis for the findings/deficiencies identified.

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

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

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

Outside sampling includes groundwater and surface water monitoring for cyanide speciation, which is undertaken by GCS Water and Environmental Consultants and sent to Midvaal Water Company Laboratories for analysis. The auditors observed the *Groundwater and Surface Water Sampling Procedures for Moab Khotsong*, GCS Water and Environmental Consultants, Final version, 19 November 2020.

Sampling Procedure for Specialised Speciation and Environmental Samples CN-PRO-10, Rev 14, May 2022 for samples taken by the Gold Plant. The sampling procedure deals with pulps and solutions sampled from process streams, tailings discharge, boreholes, penstocks, return dams etc as well as unprotected soil contaminated by cyanide bearing slurry / solution or by concentrated cyanide reagents.

Environmental Sampling CN-PRO-02, Rev 14, May 2022. Procedure describes the actions to be followed for sampling of a contaminated water or soil source.

Monitoring Wildlife Deaths, Rev 14, May 2022. The procedure describes the process to follow after discovery of a wildlife death with suspected cyanide poisoning.

The sampling and analytical procedures have been developed by an appropriately qualified person. The sampling and analytical protocols been developed by Carlo Geel (Environmental Manager) and Monique du Plessis (Environmental Officer). Carlo has the following qualifications BSc Microbiology and Chemistry, and MSc. Environmental Management. Monique has 15 years of on-site environmental management experience.

The Environmental Monitoring Plan (the Plan) includes procedures specifying how and where samples should be taken, sample preservation techniques, chain of custody procedures, shipping instructions, cyanide species to be analysed and quality assurance and quality control requirements for cyanide analyse.

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The Plan includes the following: Appendix C: Various preservatives that may be used to retard changes in samples. Appendix D: Sample size, preservation and holding time for various determinands. Appendix E: Chain of Custody Form, including shipping instructions, cyanide species to be analysed for quality assurance and quality control requirements. The Vaal River Operations Master Map indicates the location of the groundwater and surface water monitoring points.

Sampling conditions are documented, including weather, livestock/wildlife activity, anthropogenic influences, etc. This is detailed in the Biannual Water Quality Monitoring Report for the Harmony Gold Moab Khotsong Mining Operations: Appendix D: Field Data.

Monitoring is undertaken at frequencies to adequate to characterise the medium being monitored, and to identify changes in a timely manner. WAD cyanide is sampled by the on-line Cynoprobe unit for the high- and low- grade streams. Samples are taken continuously on-line every 20 minutes. Surface water is sampled on a monthly basis. Groundwater is sampled on a quarterly basis. Wildlife monitoring is conducted during TSF and Plant shift inspections.

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Principle 5 – Decommissioning

Protect Communities and the Environment From Cyanide Through Development and Implementation of Decommissioning Plans for Cyanide Facilities.

Standard of practice 5.1: Plan and implement procedures for effective decommissioning of cyanide facilities to protect human health, wildlife, livestock, and the environment.

in full compliance with

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

not in compliance with

Summarise the basis for the findings/deficiencies identified.

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

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

Cyanide Plant Decommissioning Procedure CN-GEN-15, Rev 14, May 2022, which describes the process to be followed prior to and during decommissioning including the decontamination of cyanide equipment prior to demolition.

Detoxification Of Cyanide Contaminated And / Or Redundant Equipment and Disposal of Cyanide Contaminated Waste CN-ENG-07, Rev 14, May 2022, which describes the decontamination and disposal of cyanide equipment.

The Cyanide Plant Decommissioning Procedure includes an implementation schedule describing the actions to be taken 12, 6 and 3 months prior to decommissioning.

The decommissioning procedures for the cyanide facilities are revised when needed as changes occur and have been revised 14 times since their inception.

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

in full compliance with

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

not in compliance with

Summarise the basis for the findings/deficiencies identified.

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

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

Digby Wells report Closure Cost Assessment, Closure Cost Report W30/5/1/2/2/15MR dated June 2022 and NW30/5/1/2/2/16MR Moab Khotsong Operations, dated June 2023 identify the cost for cleaning and removal of sodium cyanide systems. The operation reviews and updates the cost estimate annually, as required by South African legislation.

The operation has established a financial mechanism approved by the applicable jurisdiction to cover the estimated costs for cyanide-related decommissioning activities as identified in its decommissioning and closure strategy.

The Bambanani Joel, Matjhabeng and Tshepong Trust Fund Annual Financial Statements for the year ending 30 June 2022, signed by Registered Auditor, CS Masondo, of PWC, on 31 May 2023, includes funds for the decommissioning and rehabilitation for Noligwa Plant and Mispah TSF and associated infrastructure, amongst others. The financial statements for the Trust show that there are sufficient funds to fully fund third party implementation of the cyanide-related decommissioning measures identified in its site decommissioning procedure.

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Principle 6 – Worker Safety

Protect Workers Health and Safety From Exposure to Cyanide.

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

in full compliance with

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

not in compliance with

Summarise the basis for the findings/deficiencies identified.

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

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

Cyanide Offloading CN-GEN-07, Rev 15, June 2023, describes the process to follow during cyanide offloading.

Issuing of Clearance Certificates for Cyanide Areas and Equipment CN-GEN-04, Rev 14, May 2022, describes the process for issuing clearance certificates for cyanide areas and equipment.

Procedure for Entry or Work in Hot Spot areas CN-ENG-08, Rev 14, May 2022, describes the process to follow when working in areas, classified as "Hot Spot" areas.

Maintenance CN-ENG-04, Rev 14, May 2022, which describes the procedure to follow when conducting maintenance on cyanide equipment.

Procedure For Obtaining Plant Engineers Permission to Conduct Maintenance on Cyanide Equipment CN-ENG-01, Rev 14, May 2022, states that all cyanide equipment maintenance requires the Engineer's permission.

Detoxification Of Cyanide Contaminated And / Or Redundant Equipment and Disposal Of Cyanide Contaminated Waste CN-ENG-07, Rev 14, May 2022, describes the decontamination and disposal of cyanide equipment.

The procedures require, where necessary, the use of personal protective equipment and address pre-work inspections. In addition, prework risk assessments in the form of a SLAM assessment are done before every task.

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

For new tasks a Task Based Risk Assessment with the entire team is undertaken. From this the procedure is generated by the template, this also generates the Planned Trask Observation (PTO) template and the lesson plans.

The Plant conducts Monthly Health and Safety Meetings, which are attended by the Plant Management, Section Safety Stewards and Full Time Safety Stewards who represent the workers. and include discussions on any changes to the Procedures.

There is also a combined weekly safety meeting which includes discussions on cyanide.

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

in full compliance with

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

not in compliance with

Summarise the basis for the findings/deficiencies identified.

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

The operation has determined the appropriate pH for limiting the evolution of HCN gas during storage and production activities as detailed in *Optimal pH to prevent HCN formation - Low pH Alarm at Neutralising and Mispah Addition Point CN-ALARM-03*, Rev 15, May 2022. If the pH of the slurry drops to 10.0 the alarm will sound and the cyanide pumps will stop. The cyanide pump will not be able to start again until the pH has been corrected and the value is above 10.5.

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

Quarterly surveys are undertaken in the cyanide storage and dosing areas and lines to test for HCN gas. All readings observed were below 4.7 ppm. However, the following areas have been identified as hotspots Offloading, Low-grade Leach, High-grade Leach, and Residue. With fixed HCN gas monitors being located in these areas. Appropriate PPE, including a personal HCN monitor are required when working in the hotspot areas.

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

Five fixed HCN gas measuring Polytrons at: Offloading, Low-grade Leach, High-grade Leach, and Residue (2). These areas have been identified as potential HCN gas hot spots. The monitors are calibrated, with alarms set for 4.7 ppm and 10 ppm HCN gas. Eleven X-am 5000 personal monitors. These are multigas detectors that are calibrated, with alarms set for 4.7 ppm and 10 ppm HCN gas. Nine PAC 7000 personal monitors. These are HCN detectors that are calibrated, with alarms set for 4.7 ppm and 10 ppm HCN gas.

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The *Procedure to Follow When HCN Is Detected by Portable Gas Monitoring Equipment CN-EMER-08*, rev 12, dated January 2020 clearly describes the step- by-step actions to be taken when low- or high- level alarms for fixed and/or portable monitors are triggered. These involve actions on the part of investigating foremen in full PPE and evacuation of workers from the affected area. Subsequent actions include investigation of causes.

Hydrogen cyanide monitoring equipment is maintained, tested and calibrated as directed by the manufacturer, and records are retained for at least three years. Monitoring equipment is calibrated by Dräger on a quarterly basis although it is only required by the manufacturer to be calibrated on a six-monthly basis. A register is in place to control monitors and track calibration and maintenance. The calibration records have been retained for the last 3 years.

Warning signs have been placed in areas where cyanide is used i.e. the identified hotspots, Offloading, Low Grade Leach, High-grade Leach, and Residue advising workers that cyanide is present, of any necessary personal protective equipment that must be worn, and that smoking, open flames and eating and drinking are not allowed. The signage at the TSF states that no unauthorised entry is allowed, no swimming or cattle are allowed and that cyanide is present. Eating and drinking are only allowed in designated areas.

All process solution and tailings pipelines containing cyanide is indicated as such with signage stating that the pipe contains cyanide and shows the direction of flow.

High strength cyanide solution is dyed for clear identification. The liquid sodium cyanide delivered by Sasol has been coloured red since the ICMI implementation date of July 2019 and that this is included in the Sasol SDS.

Showers, low pressure eye wash stations and dry powder or non-acidic sodium bicarbonate fire extinguishers located at strategic locations throughout the operation and are they maintained, inspected and tested on a regular basis. Safety showers form part of the planned maintenance system with monthly inspections. All safety showers have an integrated eye wash.

Safety showers are tested per shift as observed in the shift inspections. The inspection includes water pressure, symbolic signs, operation of activation platform operating, water sprays, and eye wash fountains.

The fire extinguishers on the Plant were all observed to be dry powder. Fire extinguishers are checked monthly as observed by the monthly sticker on the side of the extinguisher recording the inspection. Fire extinguishers are serviced annually by CSA Fire & Safety, an outside contractor.

Unloading, storage, and process tanks and piping containing cyanide are identified to alert workers of their contents, and the direction of cyanide flow in pipes is designated. All reagent strength cyanide pipes are colour-coded purple, which indicates that it contains cyanide as well as the flow direction being shown. Cyanide storage tanks are colour-coded red with a purple band and state that they contain cyanide as per the site's colour coding index.

SDS, first aid procedures and other informational materials on cyanide safety is in the language of the workforce and available in areas where cyanide is managed. English is the official language on the Mine. The Sasol Sodium Cyanide Solution SDS is the outside of the cyanide liquid storage tank area, in the First Aid cabin next to the offloading area, and the

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emergency cabin at the top of the High Strength Leach. It includes the first aid procedures, safe handling and storage, personal protection, etc.

Procedures are in place and being implemented to investigate and evaluate cyanide exposure incidents to determine if the operation's programs and procedures to protect worker health and safety, and to respond to cyanide exposures, are adequate or need of revising including the following.

Accident / Incident Reporting and Investigation MN_MI_SAF_026, Rev 08, August 2023. The procedure outlines the immediate and subsequent actions to be followed. An example of this was observed by the auditors.

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

in full compliance with

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

not in compliance with

Summarise the basis for the findings/deficiencies identified.

The operation is in full compliance with Standard of Practice 6.3; develop and implement emergency response plans and procedures to respond to worker exposure to cyanide.

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

The First Aid rooms are located at the Cyanide Storage Area, and at the top of the High-grade Leach. They both contain water, oxygen, and antidote kits (Tripac), available for use. Oxygen is also available in the emergency trailer next to the first aid room. All process and engineering foreman, and control room operators have radios for communication.

The fully equipped emergency trailer is parked next to the First Aid Room. Cyanide antidote (Tripac) is kept in the fridge in the First Aid Room.

It was confirmed by site personnel that the Anncron Hospital is equipped to be able to handle cyanide emergencies. ER24 (an independent company supplying ambulance and paramedics) is part of the emergency response for Harmony. The ER24 headquarters for the Moab area is located at Vaal Reefs Village. ER24 - 24 hr emergency response has oxygen, resuscitators, radios and qualified personnel available to assist with any cyanide exposure incident.

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

Cyanide antidote kits are inspected daily by the Services Foreman this included the Self Contained Breathing Apparatus (SCBA), the oxygen, the first aid station, and the emergency trailer. The Anncron Hospital cyanide emergency equipment is inspected quarterly by the Noligwa Safety Officer. The Services Foreman is responsible for ordering the antidote kits. Orders are placed 3 months before expiry. This is done to ensure that the antidote does not expire.

CN-EMER-05 Emergency Procedure for Cyanide First Aid Treatment details the necessary response to cyanide exposure through indigestion, inhalation, and absorption through the skin and eyes.

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The operation has developed the following specific written emergency response plans and procedures to respond to cyanide exposure.

Operational Procedure Emergency Preparedness and Response Plan Noligwa Gold Plant, rev 11 dated May 2022 (OP-EPRP).

Code of Practice Emergency Preparedness and Response Noligwa Gold Plant, Rev 5, December 2022.

Intasol Emergency Preparedness Plan (Mispah) No ITS-EPP dated 1 July 2018 ver. 1.0.

The operation has its own on-site capability to provide first aid and medical assistance to workers exposed to cyanide. Cyanide Appointees, having undertaken the relevant first aid training, make up the cyanide ERT, who are trained to conduct cyanide related first aid. ER24 are contracted to provide emergency assistance and transport patients to the Anncron Hospital.

The cyanide ERT contact list is on display in the cyanide offloading cabin and the Control Room.

The operation has developed procedures to transport workers exposed to cyanide to locally available qualified off-site medical facilities, which includes the following.

Procedure for the Access of the ER24 Ambulance During Cyanide Exposure CN-EMER-04, Rev 13, May 2022. This states that security must allow the ER24 ambulance unrestricted access into the South Uranium Plant and the Noligwa Gold Plant gate, all other traffic at the gates will be diverted away. The ambulance will transport the patient to the Anncron Hospital.

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

Cyanide emergency patients will be taken to the Anncron Hospital in Klerksdorp. There is an agreement between Harmony Gold Mining Company Limited and Life Anncron Hospital (Pty) Ltd, signed by Dr. Peter Mashupi (Harmony) and Lukas Greeve, Anncron Hospital Manager on 20 May 2022.

It is stated in the agreement that the Hospital will participate in Harmony organised cyanide drills at least twice per year per Plant. The hospital will retain sufficient PPE and antidote kits on site to treat at least 3 cyanide emergencies simultaneously. The hospital will accept cyanide patients and manage them in accordance with the cyanide protocol.

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Principle 7 – Emergency Response

Protect Communities and The Environment Through the Development of Emergency Response Strategies and Capabilities.

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

in full compliance with

The operation is in substantial compliance with **Standard of Practice 7.1**

not in compliance with

Summarise the basis for the findings/deficiencies identified.

The operation is in full compliance with Standard of Practice 7.1; prepare detailed emergency response plans for potential cyanide releases. The operation developed Emergency Response Plans to address potential accidental releases of cyanide and cyanide exposure incidents. These include the following.

The Emergency Preparedness and Response Plan Noligwa Gold Plant, rev 11, dated May 2022 (EPRP).

Emergency Preparedness and Response Noligwa Gold Plant, Rev 5, dated December 2022 (EPR).

Intasol Emergency Preparedness Plan (Mispah) No ITS-EPP, ver. 1.0, dated 1 July 2018.

Harmony Gold Mining Company Limited Noligwa (Mispah TSF) Operations, Tailings Dams, Mandatory Code of Practice for Mine Residue Deposits, MRD 001, rev 1, dated June 2018 which includes a section on emergencies.

The Plans consider the potential cyanide failure scenarios appropriate for the operations site-specific environmental and operating circumstances. EPRP Section 6 Emergency Scenario Response Plan, Table 2 - Noligwa Emergency Scenario Response Plan includes the following references to the relevant Emergency Response Procedures for each of the following scenarios.

- a) Catastrophic release of HCN from storage or process or regeneration facilities; CN-EMER-01, CN-EMER-02, CN-EMER-05 CN-EMER-08, CN-EMER-10, and CN-Gen-07.
- b) Transportation accidents occurring on site or in close proximity to the operation; CN-EMER-01, CN-GEN-02, CN-GEN-16, CN-GEN-19

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- c) Cyanide releases during unloading; CN-EMER-01 CN-EMER-02, CN-EMER-05, CEN-EMER-10, CN-EMER-13, CN-ALARM-02, CN-GEN-07.
- d) Cyanide releases during fires and explosions; CN-EMER-01, CEN-EMER-08, CN-EMER-010, CN-EMER-02, CN-EMER-05.
- e) Pipe, valve and tank ruptures; CN-EMER-13, CN-EMER-10, CN-GEN-13, CN-EMER-14.
- f) Overtopping of ponds and impoundments; Intasol EPP, GEN-02, GEN- 06.
- g) Power outages and pump failures; CN-ENG-02, CN-GEN-07, CN-EMER-10
- h) Uncontrolled seepage; CN-EMER-01, CN-GEN-13, CN-EMER-10, CN-PRO-06, CN-PRO-04.
- i) Failure of cyanide treatment, destruction or recovery systems; this is not applicable as there is no cyanide treatment, destruction or recovery systems.
- j) Failure of tailings impoundments, and other cyanide facilities; Intasol EPP; Harmony Gold Mining Company Limited Noligwa (Mispah TSF) Operations, Tailings Dams, Mandatory Code of Practice for Mine Residue Deposits MRD 001 Section A8.12, - Section A8.12.1: Emergency situations, A8.12.2 Emergency actions in Plan.

Planning for response to transportation-related emergencies has considered the transportation route, physical and chemical form of the cyanide, method of transport, the condition of the road or railway, and the design of the transport vehicle. The liquid cyanide transport has been undertaken by Tanker Services since July 2011 and they are responsible for any transportation related cyanide emergencies in accordance with their certification to the Code.

The emergency response plans include the following.

- a) Specific response actions, as appropriate for the anticipated emergency situations, such as clearing site personnel and potentially affected communities from the area of exposure, is included in *CN-EMER-01*.
- b) Use of cyanide antidotes and first aid measures for cyanide exposure is included in, *CN-EMER-05*.
- c) Control of releases at their source is included in *CN-EMER-10*, *CN-EMER-13*.
- d) Containment, assessment, mitigation and future prevention of releases is included in *CN-EMER-01*, *CN-EMER-10*, and *CN-EMER-13*.

The references refer to the following procedures;
CN-EMER-01 Initial Response to a Cyanide Emergency.
CN-EMER-02 Response to Man Down Alarm.

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CN-EMER-05 Emergency Procedure for Cyanide First Aid Treatment.
CN-EMER-08 Procedure when HCN is Detected.
CN-EMER-10 Plant Emergency Response Team Call-Out Procedure.
CN-EMER-13 Procedure for Addressing Cyanide Spillages on the Plant.
CN-ALARM-02 Safety Shower Alarm At Cyanide Storage And Hot Spots.
CN-GEN-02 Safety Shower Isolation Valve Key Register and Control.
CN-GEN-07 Cyanide Offloading.
CN-GEN-13 Daily Cyanide Facility Checklist
CN-GEN-16 Bulk Reagent Deliveries
CN-GEN-19 Disposal of Cyanide Packaging
CN-PRO-04 High Cyanide Levels in Residue Slime.
CN-PRO-06 Titrations for Free Cyanide.
CN-ENG-02 Cyanide Related Activities and Power Failures.

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

in full compliance with

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

not in compliance with

Summarise the basis for the findings/deficiencies identified.

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

The operation has involved its workforce and stakeholders in the cyanide emergency response planning process. The Plant conducts monthly Health and Safety meetings, which are attended by the Plant Management, Section Safety Stewards and Full-Time Safety Stewards who represent the workers. These meetings include discussions on any changes to the emergency response planning process.

There are also Health, Safety, and Environment monthly meetings, where any changes to the emergency response planning process is also discussed. In addition, there is a combined weekly safety meeting. The minutes for the -30 July 2022 meeting included the cyanide handling and emergency video.

Emergency drills are also used to involve the workforce in emergency response planning and drill reports indicate evaluation and feedback.

The operation made potentially affected communities aware of the nature of their risks associated with accidental cyanide releases and consulted with them directly or through community representatives regarding appropriate communications and response actions.

The only community that is likely to be affected by any accidental cyanide releases are neighbouring farmers. These stakeholders are consulted with directly and through the stakeholder communications detailed in 9.1.

The operation has identified ER24 and the Anncron Hospital as external entities having emergency response roles and involved those entities in the cyanide emergency response planning process in order to keep the Plans current.

ER24 and the Life Anncron Hospital are involved in the emergency response planning process through their participation in the full chain mock drills, with the latest being on 17 March 2023 for a full chain cyanide man down drill with the involvement of ER24 and Anncron Hospital.

In addition, Dr Mashupi from Harmony conducts meetings and training with the Anncron Hospital Staff regarding cyanide emergencies. The meetings and training are a combined initiative involving all the mines that would be using the Hospital's services in the instance of any cyanide emergencies. The most recent meeting was on the 28 June 2023..

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

in full compliance with

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

not in compliance with

Summarise the basis for the findings/deficiencies identified.

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

The cyanide related elements of the Emergency Response Plan include the following.

- a) Designation of primary and alternate emergency response co-ordinators who have explicit authority to commit the resources necessary to implement the Plan as detailed in the EPRP Section 2 Management Roles and Responsibilities.
- b) Identification of ERTs is detailed in *CN-EMER-10 Plant Emergency Response Team Call-Out Procedure*, rev 10, dated May 2022 and placed on the notice boards in the cyanide offloading cabin and the control room.
- c) The appropriate training for emergency responders, which is detailed on the Training Matrix for the Plant and includes First Aid Certificates that are renewed on a 3 yearly basis.
- d) The call-out procedures and 24-hour contact information for the co-ordinators and response team members as detailed in *CN-EMER-10 Plant Emergency Response Team Call-Out Procedure*, rev 10, dated May 2022.
- e) Specifying the duties and responsibilities of the co-ordinators and team members as detailed in the EPRP Section 2 Management Roles and Responsibilities.
- f) The list of emergency response equipment, including personal protection gear, is available on-site is in the form of a checklist for the inspection of the equipment detailed in *CN-GEN-13 Daily Cyanide Facility Checklist*, rev 13, dated January 2020.
- g) The procedures to inspect emergency response equipment and to ensure its availability as detailed in *CN-GEN-13 Daily Cyanide Facility Checklist*, rev 13, dated January 2020.
- h) A description of the role of external responders, medical facilities and communities in the emergency response procedures is detailed below.

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The operation has identified ER24 and the Life Anncron Hospital as external entities having emergency response roles and involved those entities in the cyanide emergency response planning process in order to keep the Plans current.

ER24 and the Life Anncron Hospital are involved in the emergency response planning process through their participation in the full chain mock drills. Dr Mashupi conducts meetings and training with the Anncron Hospital Staff regarding cyanide emergencies. The meetings and training are a combined initiative involving all the mines that would be using the Hospital's services in the instance of any cyanide emergencies.

The operation has confirmed that external entities with roles and responsibilities identified in the Emergency Response Plan are aware of their involvement and are included as necessary in mock drills or implementation exercises.

ER24 are contracted to provide emergency assistance and transport patients to the Anncron Hospital.

ER24 and the Life Anncron Hospital are involved in the emergency response planning process through their participation in the full chain mock drills, with the latest being on 17 March 2023 for a full chain cyanide man down drill with the involvement of ER24 and Anncron Hospital.

In addition, Dr Mashupi from Harmony conducts meetings and training with the Anncron Hospital Staff regarding cyanide emergencies. The meetings and training are a combined initiative involving all the mines that would be using the Hospital's services in the instance of any cyanide emergencies with the latest meeting dated 28 June 2023.

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Standard of practice 7.4: Develop procedure for internal and external emergency notification reporting.

in full compliance with

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

not in compliance with

Summarise the basis for the findings/deficiencies identified.

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

The Plan include procedures and contact information for notifying management, regulatory agencies, external response providers and medical facilities of the cyanide emergency.

The EPRP includes the following.

Section 4 Escalation Points and Incident Levels,

- Figure 2 incident command and control arrangements;
- Figure 3 level 1 emergency response control chart;
- Figure 4 level 2 emergency response control chart; and
- Figure 5 level 3 emergency response control chart.

Updated emergency telephonic contact details are posted in the control room and the cyanide offloading cabin.

The Plan includes procedures and contact information for notifying potentially affected communities of the cyanide related incident and any necessary response measures and for communication with the media as detailed in *Public Consultation and Disclosure / Emergency Communications CN-EMER-12*, rev 13, dated January 2022.

Emergency Preparedness and Response Noligwa Gold Plant, Rev 5, dated December 2022

Section 8.1.2 (b) Communication to Outside Parties states that the communication will be undertaken as per the emergency telephone list. It also states that under no circumstances may anybody communicate directly with the media except for the appropriate appointee.

The operation has the following procedure for notifying the ICMI of any significant cyanide incidents, as defined in the ICMI's Definitions and Acronyms document - *Public Consultation and Disclosure / Emergency Communications CN-EMER-12*, rev 13, dated January 2022.

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

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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.

in full compliance with

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

not in compliance with

Summarise the basis for the findings/deficiencies identified.

The operation is in full compliance with Standard of Practice 7.5 to incorporate remediation measures and monitoring elements into response plans and account for the additional hazards of using cyanide treatment chemicals.

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

- a) Recovery or neutralisation of solutions or solids is detailed in the following procedure *Using Ferrous-Sulphates CN-PRO-12*, rev 9, dated Jan 2020. This states how ferrous sulphate is used to neutralize a cyanide spill with specified amounts to be used to reach the desired end state. The location of the ferrous sulphate is next to the offloading area in a clearly signed cabinet. The procedures for *Cyanide Spillage on the Plant CN-EMER-13*, Rev 12, dated Jan 2020 details the approach to cleaning up cyanide spills.
- b) Decontamination of soils or other contaminated media is detailed in *Detoxification of Cyanide Contaminated and / or Redundant Equipment and Disposal of Cyanide Contaminated Waste CN-ENG-07*, Rev 13, dated Jan 2020.
- c) Management and/or disposal of spill clean-up debris is detailed in *Mill Control During Addition of Cyanide Waste Material CN-PRO-03*, Rev 13, dated Jan 2020. If large quantities of liquid sodium cyanide are spilled this will be cleaned up by the Sasol HAZCHEM Team and disposed of at an appropriate off-site facility. Small spills will be cleaned up on site using ferrous sulphate and the resulting material disposed of to the TSF. Any liquid will be contained within a bunded area and pumped back to the Leach or CIP tanks depending on the material.
- d) Provision of an alternate drinking water supply is not applicable as drinking water is supplied by the Midvaal Water Company and therefore would not be affected by any cyanide incident.

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

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Using Ferrous-Sulphates CN-PRO-12, rev 9, dated Jan 2020 states that it is prohibited to use sodium hypochlorite, ferrous sulphate and hydrogen peroxide to treat cyanide that has been released into surface water or that has the potential to reach surface water.

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

The following procedures were observed, which include the requirement for environmental monitoring to identify the extent and effects of a cyanide release and the sampling methodology:

Environmental Sampling CN-PRO-02, Rev 13, May 2022. The procedure includes that sampling points for the contaminated water / soil will be determined by the Plant management team in conjunction with Mintek after a full risk assessment from the contaminated area. Sampling must continue until the soil is clear of any cyanide contamination.

Sampling Procedure for Specialised Speciation and Environmental Samples CN-PRO-10, Rev 15, May 2022 describes the sampling methods for slurry samples and solution samples to be undertaken by the Gold Plant.

Titration for Free Cyanide CN-PRO-06, Rev 15, dated May 2022 details the analytical technique used to determine the level of free cyanide.

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

in full compliance with

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

not in compliance with

Summarise the basis for the findings/deficiencies identified.

The operation is in full compliance with Standard of Practice 7.6; to periodically evaluate response procedures and capabilities and revise them as needed.

The operation reviews and evaluates the cyanide related elements of its Emergency Response Plan for adequacy on a regular basis.

The EPRP and the EPR are reviewed every two years. The EPRP is on revision 11 after initially being approved in 2006. THE EPR is on revision 5 after initially having been approved in 2011.

Mock cyanide emergency drills are conducted periodically with at least one drill a year. The following drills have been undertaken since the last recertification audit.

- 29 July 2021: Full chain cyanide man down drill with the involvement of ER24 and Anncron Hospital.
- 08 September 2022: Cyanide man down drill with the involvement of ER24.
- 03 March 2022: Evacuation of the TSF due to high HCN gas levels.
- 17 March 2023: Full chain cyanide man down drill with the involvement of ER24 and Anncron Hospital.
- 06 June 2021: Desk top drill on a TSF failure.

The drill reports include a description of the drill and an assessment of the drill with lessons learnt.

Provisions are in place to evaluate and revise the Emergency Response Plan, as necessary, following mock drills and following an actual cyanide-related emergency requiring its implementation.

The EPRP Section 3.7.4 states that a review of the Plan must be undertaken after a hazard has been identified by the mock drill.

The EPRP Section 3.7.5 states that the Plan must be reviewed in the event that it has been used for an actual emergency.

The Intasol EPP states that is must be reviewed after any incidents.

No cyanide incidents have occurred since the last recertification audit.

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Principle 8 – Training

Train Workers and Emergency Response Personnel to Manage Cyanide in a Safe and Environmentally Protective Manner.

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

in full compliance with
The operation is in substantial compliance with **Standard of Practice 8.1**
 not in compliance with

Summarise the basis for the findings/deficiencies identified.

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

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

All staff entering the Plant and Intasol staff on the TSF are given the Harmony E-learning induction before being allowed into the Plant. An assessment is conducted after E-learning module, a 100% pass rate is required. Card access is not activated for new people entering the Plant until the e-learning module has been passed and all expired cards are not allowed access into the Plant.

The auditors observed the Harmony training matrix and confirmed that all staff in the Plant are included for the 18-month refresher training and First Aid Training. This includes Metallurgy, Engineering, and Security. Contractors, including the TSF Intasol staff, are detailed on a separate matrix.

The auditors observed the basic cyanide first aid training video and basic cyanide induction: Handling Cyanide Safely in a Metallurgical Plant, both of which includes a written test, with a pass mark of pass mark 100%. This training adequately addresses cyanide hazards, such as the cyanide materials present at the operation, the health effects of cyanide, the symptoms of cyanide exposure and the procedures to following the event of exposure.

Cyanide hazard recognition refresher training is periodically conducted. Refresher training is done once every 18-months by E-learning and in the Plant. This was confirmed by the auditors in training matrix.

Cyanide training records are retained. Hard copy records for each person and contractor are kept for 40 years. All hardcopy training records are archived at the metallurgy training centre where the hardcopies are being scanned. All training is loaded onto the Empower system, a training program with electronic record keeping.

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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.

in full compliance with

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

not in compliance with

Summarise the basis for the findings/deficiencies identified.

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

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

The training matrix was observed that defines what training each worker is to receive based on their position and the tasks required of that position. Training includes the Safe Working Procedures as part of the training material.

The auditors observed the training matrix covering all disciplines including Engineering, and Metallurgy. The training matrix includes detail training requirements on all positions.

All positions and tasks where a high cyanide risk exists, must in addition receive training as a cyanide appointee and be found competent in the training. Once employees are assessed to be competent, they are then allowed to perform the relevant tasks.

The training elements necessary for each job involving cyanide management are identified in the training materials as the training materials for each job uses the Standard Operating Procedure for the job.

The Training matrix was sampled for all the operations in Noligwa Plant and it was confirmed that all positions are covered by the matrix and all the appropriate training elements are courses in the training materials.

Task training related to cyanide management activities is provided by an appropriately qualified person. The Noligwa Plant Trainer - Mr. Charles Harford qualifications include;

- Registered Assessor;
- Best Practice in Training;
- Presenting with confidence; and
- Train the Trainer.

The Operational Supervisor or Site Manager for the TSF is responsible for the training of Intasol staff.

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Workers are trained prior to working with cyanide.

All employees and permanent contractors are trained during the induction process prior to commencement of work related to cyanide. All employees receive Basic Cyanide First Aid Training during the induction.

Cyanide Off-loaders and Appointees are trained before working in areas where there is a potential for cyanide release. A task-based risk assessment is undertaken the first time they are required to work in an area where there is a risk of cyanide release.

All contractors who are due to work more than 3 days at the Plant or who will be working in areas that have the risk of cyanide release undergo the 2-day induction including Basic Cyanide First Aid Training. Workers who will be working at the Plant for less than 3 days are accompanied by an appropriately trained permanent employee.

Once trained, Cyanide Appointees and Off-loaders are put onto a list (including the expiry dates) at the offloading cabin so that it can be confirmed that their training is up to date before any permit to work in a cyanide area can be issued.

The Human Resources routing form covers all the necessary sign-offs before an access card is issued, including the sign-offs by the training department. Transferred employees are covered by the internal transfer system and they will receive a section induction for the new area.

Refresher training on cyanide management is provided to ensure that employees continue to perform their jobs in a safe and environmentally protective manner. Refresher training is done once every 18-months by E-learning and in the Plant and recorded on the training matrix.

The operation evaluates the effectiveness of cyanide training by testing and observation.

The auditors observed the basic cyanide first aid training video and basic cyanide induction: Handling Cyanide Safely in a Metallurgical Plant, both of which includes a written test, with a pass mark of 100%.

Planned Task Observations (PTOs) are undertaken by a Supervisor to monitor a person's on-going compliance to the procedures. Each operator is required to undertake a PTO on each applicable procedure annually.

Records are retained throughout an individual's employment documenting the training they have received and including the names of the employee and the trainer, the date of training, the topics covered, and how the employee demonstrated an understanding of the training materials.

Hard copy records for a person and contractor are kept for 40 years.

All hardcopy training records, including trainer, date of training, topics covered and assessment records, are archived at the Metallurgy Training Centre.

All training done is loaded onto the Empower system in order to maintain records.

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Standard of practice 8.3: Train appropriate workers and personnel to respond to worker exposure and environmental releases of cyanide.

in full compliance with

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

not in compliance with

Summarise the basis for the findings/deficiencies identified.

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

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

All staff entering the Plant and Intasol staff on the TSF are given the Harmony E-learning induction before being allowed into the Plant. This includes Basic Cyanide First Aid training and emergency response training.

Cyanide Appointees form the Emergency Response Team in the Plant. Only Cyanide Appointees will administer cyanide first aid to victims and decontaminate them appropriately. Currently there are 32 Cyanide Appointees spread over the various shifts. The list of Cyanide Appointees is displayed at the Control Room and the Cyanide Offloading Cabin.

Emergency Response Coordinators and members of the ERT are trained in the procedures included in the EPRP regarding cyanide, including the use of necessary response equipment. The ERT consists of Cyanide Appointees who have undertaken the relevant training and been formally appointed.

The operation has made external responders, such as emergency medical services familiar with those elements of the Emergency Response Plan related to cyanide.

The Medical Response Team (ER24, and Casualty Department Nurses at Anncron Hospital) receive Intermediate Cyanide First Aid training.

The auditors observed the training attendance sheet for the Cyanide First Aid Training on 20 May 2022. No local community members are involved in the Emergency Response Plan due to their distance from the Plant.

Refresher training for ERT members and other Plant employees with regards to response to cyanide exposures and releases is undertaken on an annual basis.

Intermediate Cyanide First Aid (part of e-learning) is assessed every 18 months as part of the training for Cyanide Appointee and Off-loaders. Advanced Cyanide First Aid is refreshed every 12 months. SCBA training is refreshed every 2 years. Cyanide Appointee and Off-loading training is refreshed every year.

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Records are retained documenting the cyanide emergency response training, including the names of the employee and the trainer, the date of training, the topics covered, and how the employee demonstrated an understanding of the training materials.

Hard copy records for each person and contractor are kept for 40 years. All hardcopy training records, include details of the employee, the trainer, date of training, topics covered, and assessment records. These are archived at the Metallurgy Training Centre. All training done is loaded onto the Empower system in order to maintain records.

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Principle 9 – Dialogue and Disclosure

Engage in Public Consultation and Disclosure.

Standard of practice 9.1: Promote dialogue with stakeholders regarding cyanide management and responsibility address identified concerns.

in full compliance with

The operation is in substantial compliance with **Standard of Practice 9.1**

not in compliance with

Summarise the basis for the findings/deficiencies identified.

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

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

Noligwa Plant and the Mispah TSF have no adjacent communities. The nearest communities are worker housing provided by the various mines in the area. The nearest main community is 10 km from the Plant, with other mines closer to the community. The adjacent land to the Plant and the TSF is used for farming.

There is regular interaction with the farmers regarding the preparation of fire breaks and in the event of veld fires, and the occasional complaint of dust from the TSF.

The Harmony Environmental Manager represents the mine on the following:

- SchoonKoek Catchment Management Forum, which meets every 4 months.
- KOSH (Klerksdorp, Orkney, Stilfontein, Hartebeesfontein) Water Management Forum meets every 3 months.
- Regional Engagement Forum, this is a newly established forum that includes water role players from Moab Khotsong, Vaal River, and Mine Waste Solutions areas.

The forums discuss water quality issues and includes all of the stakeholders in the area e.g. municipalities, water supply companies, mines, Department of Water and Sanitation. Any pollution or cyanide related issues would be discussed in this forum.

A new Mine Waste Solutions (MWS)/Chemwes Environmental Forum is also being established. The key purpose of this forum is to involve community stakeholders to identify environmental concerns and possible solutions through frequent communication regarding the MWS/Chemwes Projects.

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Harmony has a grievance mechanism. There are multiple avenues for registering a grievance including a book available at security so that a complaint can be written down. In addition, the site undertakes guided site visits to explain operations to stakeholders.

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

in full compliance with

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

not in compliance with

Summarise the basis for the findings/deficiencies identified.

The operation is in full compliance with Standard of Practice 9.2 to make appropriate operational and environmental information regarding cyanide available to stakeholders.

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

There is a written description of how the mine is operated within the EPRP. This has been distributed to various stakeholders as detailed in the Forums above. In addition, there are various descriptions of the operation on the internet.

Whenever there is a significant change to operations at the mine an environmental authorisation application must be submitted, and a public participation process undertaken as part of the application. This process includes public meetings that members of the community can attend, where the operation and the changes taking place are described. This is a requirement under South African legislation.

The operation has disseminated information on cyanide in verbal form where a significant percentage of the local population is illiterate.

Information is disseminated in a verbal form during the Forum meetings described above and during the guided site visits. Any public meetings as part of an environmental authorisation process also includes verbal presentations.

The operation makes information publicly available on confirmed cyanide release or exposure incidents including the following.

- Cyanide exposure resulting in hospitalisation or fatality.
- Cyanide releases off the mine site requiring response or remediation.
- Cyanide releases on or off the mine site resulting in significant adverse effects to health or the environment.
- Cyanide releases on or off the mine site requiring reporting under applicable regulations.
- Releases that are or that cause applicable limits for cyanide to be exceeded.

No cyanide incidents have occurred since the last recertification audit.

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The following procedures describe how the information is disseminated.

- Public Consultation and Disclosure / Emergency Communications CN-EMER-12, Rev 13, May 2022.
- Notification of Cyanide Exposures CN-EMER-03, Rev 13, May 2022.

Significant incidents will be handled by the Corporate Communications Department. Newsflashes are distributed within the Company by e-mail. Incidents are reported to the Department of Mineral Resources and Energy (DMRE) and the Department of Water and Sanitation (DWS) by mine management, as detailed in the procedures above.

The DMRE and DWS report selectively on repeated or critical incidents. Information on significant cyanide exposures would be made available, after appropriate investigations, on the company ESG website (<http://www.har.co.za/23/download/HAR-ESG23.pdf>) and via the annual Sustainable Development Reports, which would include details of the operation at which the incident occurred.

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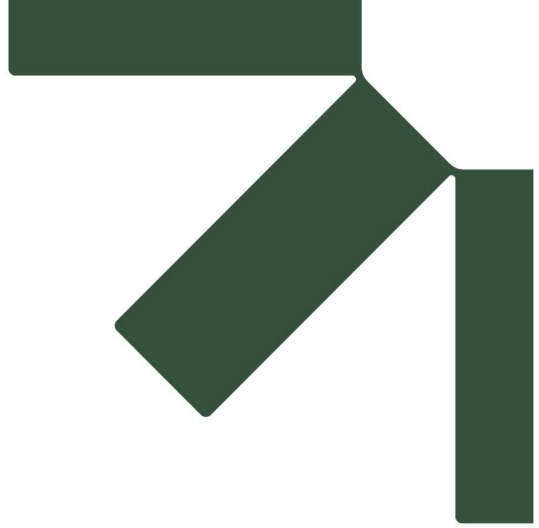


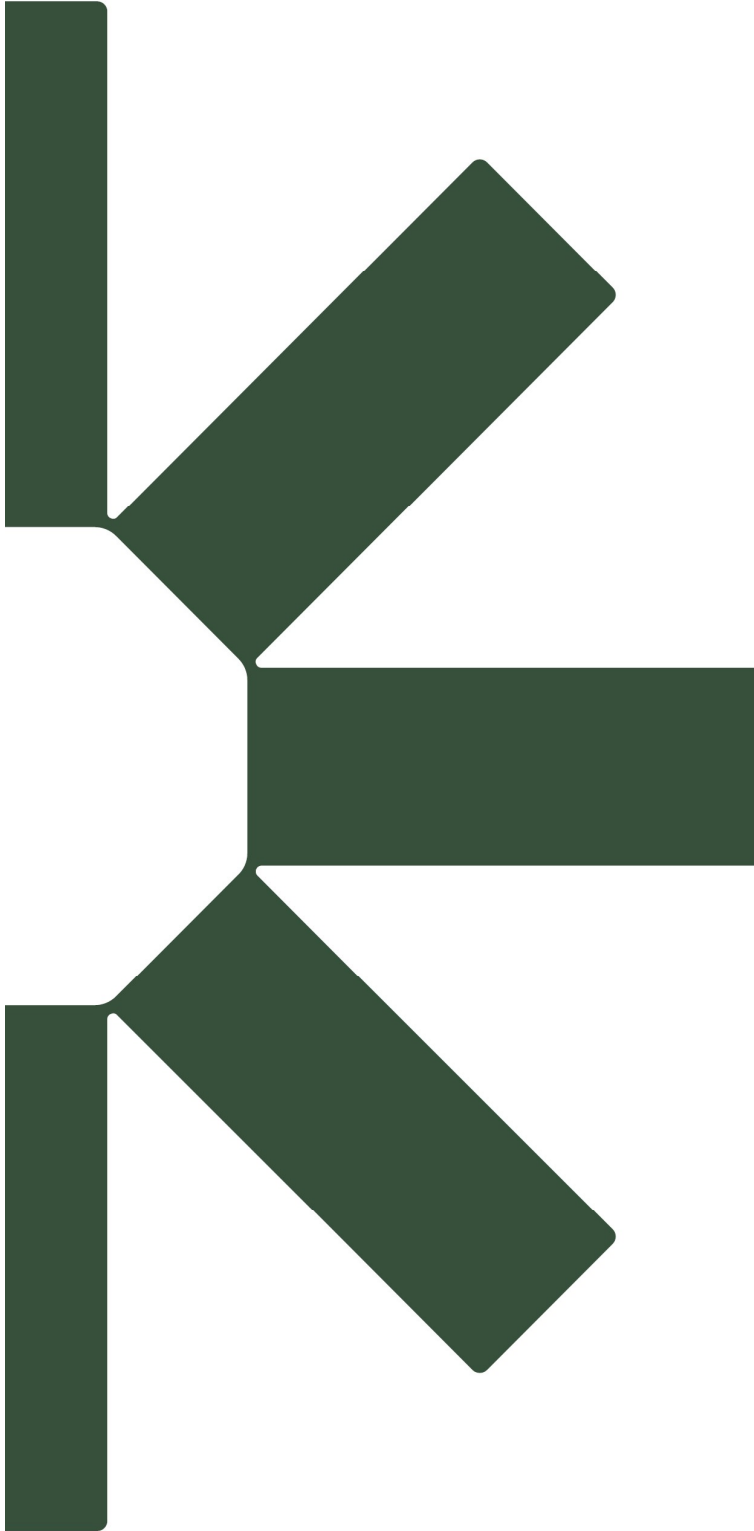
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