INTERNATIONAL CYANIDE MANAGEMENT INSTITUTE

Cyanide Code Recertification Audit Gold Mining Operations

Summary Audit Report

Harmony Gold Mines Limited Central Gold Plant South Africa

11th – 15th January 2021

For the International Cyanide Management Institute

Name of Operation:	Central Gold Plant
Name of Operation Owner:	Harmony Gold Mines Limited
Name of Operation Operator:	Harmony Gold Mines Limited
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Location detail and description of operation:
Central Plant is a Gold Plant located on the northern side of the town of Virginia in the Free State Province of South Africa. The Plant was commissioned on the 21st October 1987. The Plant was designed to mill and treat 150,000 tonnes per month, assuming 90% mill running time.

Since June 2017, processing has been limited to the reprocessing of re-pulped tailings recovered by hydro-mining from desiccated tailings dams. This is a significant change to the feed source as tailings dams contains constituents known to consume more reagents and also produce base metal WAD (Weak Acid Dissociable) complexes resulting in higher than the ICMI (International Cyanide Management Institute) standard of 50 mg/l WAD cyanide at the tip points at the TSF's (Tailings Storage Facilities).

Tailings reprocessing started in 2017 at a rate of 300ktpm (thousand tons per month) from FSS5 Tailings Facility. The plant process includes thickening, leaching, adsorption, elution, carbon regeneration, and electrowinning.

The Re-mining Operation of the old tailings dams is using hydraulic re-mining technology. The Harmony return/stormwater dam systems are used for washing the dams. The water contains less than 0.5 mg/l WAD cyanide, and thus the re-mining operations are not deemed cyanide facilities and thus were also not included in the scope of ICMI recertification audit.

Two thickeners are on-line whilst the third thickener is on stand-by. Lime and flocculent are added in to the thickener in a solid/liquid separation (clarification) process, and lime is added to control the pH at the leaching circuit.

Thickened material from the thickeners is pumped to the leaching vessels for the leaching process to take place. Cyanide and oxygen are added for the dissolution process to take place whilst activated carbon is added, moving counter-current to the pulp, whilst extracting gold from the pulp materials. Five leach vessels are on-line with a capacity of 2,000,000ℓ (litres), and seven carbon-in-pulp vessels are also on-line with a capacity of 380,000ℓ. Cyanide consumption with the tailings reprocessing has increased to 300 grams/tonne.

Loaded carbon from the adsorption circuit is pumped to the Elution Plant for acid washing, using Hydrochloric acid and subsequently pumped to the Elution process where gold is recovered into a solution form whilst the eluted carbon is regenerated at approximately 650 - 750° C. The pregnant solution (gold-rich solution) is then pumped to the electrowinning process where gold is recovered at the cathodes attached to steel wool. Recovered gold is then dried in the oven at < 150° C. Cyanide is added in the Elution column at 150kg/elution. Dried gold sludge is then despatched to the Rand Refinery for further purification.

Auditor's Finding

This operation is

☐ in full compliance

☐ in substantial compliance

X not in compliance

with the International Cyanide Management Code. See Principle 4.4 below for non-compliance details.

Audit Company: Eagle Environmental

Audit Team Leader: Arend Hoogervorst

E-mail: arend@eagleenv.co.za

Names and Signatures of Other Auditors:

Name: Dawid M. L Viljoen Signature _____ Date: 11/2/2022

Dates of Audit: 11th – 15th January 2021

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

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

Central Gold Plant		11/2/2022
Facility	Signature of Lead Auditor	Date

Auditor's Findings

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

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

X in full compliance with

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

□ not in compliance with

Basis for this Finding/Deficiencies Identified:
There is a Harmony Group-wide, sodium cyanide supply and transport agreement, covering all Harmony Gold Plants, in place with Sasol South Africa, as the sole supplier of liquid Sodium Cyanide, delivered by bulk tanker. This supply agreement includes Central Gold Plant. Sasol South Africa is a signatory to the Cyanide Code and was re-certified as a fully compliant Production Facility with the ICMI Cyanide Code on 23rd January 2019.
The agreement does not require that the sodium cyanide is produced at a facility that has been certified as being in compliance with the Cyanide Code. However, as the cyanide production facility is fully certified, a finding of full compliance with Standard of Practice 1.1 is made as per the guidelines in the International Cyanide Management Institute Auditor Guidance for Use of the Mining Operations Verification Protocol.

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

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

X in full compliance with

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

□ not in compliance with

Basis for this Finding/Deficiencies Identified:
A Group-wide sodium cyanide supply contract covering all Harmony Gold Plants (including Central Plant) is in place with Sasol South Africa as the sole supplier of liquid Sodium Cyanide. Sasol South Africa is also responsible for the transport of liquid sodium cyanide, solely using Tanker Services Food and Chemicals / Imperial Logistics. The agreement duration is from 1 January 2019 and terminates 31 December 2022.
A Memorandum of Agreement (MOA) for the off-loading of liquid sodium cyanide in terms of SANS 10231:2006 and codes of practice incorporated into legislation and the national Road Traffic Act 93 of 1996 and regulations, between Tanker Services Specialised Products Division and Harmony Gold Mining Company, is in place.
The MOA, under section 4.1 - Warrantees by the Parties, confirms that the Operator is accredited with the ICMI and shall adhere to all requirements and procedures required. The MOA also covers the responsibilities and requirements for safety, security, unloading, emergency response (spills prevention and clean-up), route planning and risk assessments, community liaison, emergency response resource access and availability, training, and communication.
There is no mention of the requirement to add red dye to the liquid cyanide supplied by Sasol South Africa in the Harmony Group agreement. Site procedures do not refer to the addition of dye to the liquid cyanide storage tanks. However, the Safety Data Sheet (SDS), which forms a part of the agreement, stipulates in section 9 - physical and chemical properties, that the colour of the product is light to dark red.

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

X in full compliance with

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

□ not in compliance with

Basis for this Finding/Deficiencies Identified:
Transport and off-loading are covered by a Memorandum of Agreement (MOA) for the off-loading of dangerous goods between Tanker Services Specialised Product Division and Harmony Gold Mines Central Gold Plant. The MOA covers the responsibilities and requirements for safety, security, unloading, emergency response (spills prevention and clean-up), route planning and risk assessments, community liaison, emergency response resource access and availability, training, and communication.
Central Gold Plant is only supplied by sodium cyanide from a certified producer (SASOL who were ICMI-certified 23 January 2019) and transported by an ICMI-certified Transporter (Tanker Services Food and Chemicals / Imperial Logistics) - certified 21 November 2018).

The system governing chain of custody of the sodium cyanide was reviewed, and documents were sampled for shipments in 2018 and 2020. Documents sighted included purchase orders, invoices, certificates of analyses, and delivery notes.

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

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

X in full compliance with

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

□ not in compliance with

Basis for this Finding/Deficiencies Identified:
The Plant uses only liquid cyanide, delivered by bulk tanker, and no mixing takes place on-site. It is equipped with two off-loading and storage facilities, and a redundant, decommissioned and decontaminated flake cyanide storage and associated make-up facility. The cyanide storage tanks are in the open air and equipped with ventilation pipes. The design documents were sighted and audited during the first certification and are still applicable.
There has been no change to the facilities. The inspection reports by the cyanide manufacturer's technical representative (Elution, 4 December 2018, scored 96%, Leach, 4 December 2018, scored 95%, Elution, 8 January 2020, scored 92%, Leach 8 January 2020, scored 92%) were satisfactory. During the site inspection, it was confirmed that the Leach off-loading and storage area and the elution cyanide storage area were designed and located on concrete and away from people and surface waters, away from incompatible materials, and built with materials appropriate for use with cyanide and high pH conditions. Leach cyanide storage unloading takes place on a concrete area, designed to contain seepage and drain to the cyanide storage. The elution cyanide storage is equipped with a concrete pad for off-loading, draining to a sump, from which the solution is pumped to the reagent area bund. The concrete in the treatment off-loading and elution off-loading areas is competent.
All cyanide storage tanks in both leach and elution areas are equipped with differential pressure level indicators. High-level alarms (reported by the Instrument Technician to be sounding at 95% in the leach area and 92% in the Elution area) are installed, alarming at the off-loading site and in the control room as well as being interlocked with the off-loading air supply. The leach off-loading cyanide tanks are placed inside a concrete bund and placed on solid concrete tank foundations, and the elution cyanide storage tanks are placed on plinths and placed over a concrete bund area, lined with chemical resistant

bricks. Both the Leach cyanide storage area and the elution cyanide storage areas are fenced and locked. The Access, Register and Key Control to Cyanide Installations Procedure, was revised in November 2020, to establish an electronically controlled key safe with coded access for authorised individuals who must return the key after use. If the key is not returned, electronic messages inform senior staff. Both leach and elution areas are within the plant security area, which has access control at the main gate.

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

X in full compliance with

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

 not in compliance with

Basis for this Finding/Deficiencies Identified:
Only liquid sodium cyanide is used which is delivered via bulk tanker to the site cyanide storage tanks. The off-loading procedure covering both areas is detailed, spelling out PPE (Personal Protective Equipment) requirements, use of a "buddy" in the process, cleaning of spills and hosing of the cyanide tanker after offloading, and the various tasks are clearly sequenced to prevent spillages and accidental releases during off-loading. The Safety Data Sheet (SDS), which forms a part of the supply agreement, stipulates in section 9 - physical and chemical properties, that the colour of the product is light to dark red.

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

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

X in full compliance with

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

 not in compliance with

Basis for this Finding/Deficiencies Identified:
The site has 75 cyanide specific procedures in place. These are supported by the Harmony Gold Free State Operations Tailings Dams Mandatory Code of Practice (COP) for Mine Residue Deposits, and 21 standard work procedures (SWPs) for TSF (Tailings Storage Facility) operations. Assumptions and operating parameters covering freeboard, and cyanide concentrations, are clearly stated. Routine shiftly, daily, weekly, monthly, quarterly and annual inspection reports, legal inspections, and checklists in the Plant and TSF were sampled to check the effectiveness of systems and ensure that proactive and reactive management takes place. The inspection frequencies are deemed sufficient to assure and document that cyanide facilities are functioning within design parameters.
A DMS 2000 (proprietary name), electronic, Planned Maintenance System (PMS) covering all critical cyanide equipment is in place. Tank inspections include annual thickness testing and Fitter monthly and six-monthly inspections, and Boilermaker monthly inspections were sampled. Weekly and yearly Electrical inspections were sampled, as were weekly instrument technician inspections. Critical cyanide equipment maintenance records from the system were sampled and reviewed. Quarterly technical inspections with consultants of the TSF facilities are undertaken to ensure integrity and safety, in addition to the monthly TSF inspections involving the site staff and TSF contractors. A change management procedure covering health, safety and environment is in place and operational. The inspections, which also covered pipes, valves and pumps included checks on leaks, corrosion, and cyanide precipitation. The inspection documentation contains the date of the inspection, name of the inspector and faults identified. Faults are reported to Engineering Maintenance Foreman who raises a job card, and it is entered in the DMS 2000 system, as per the maintenance standards.
There is a probabilistic water balance in place, and no scenario has been identified where the need has been highlighted to shut down the Plant to prevent overtopping. The Plant will be stopped temporality for maintenance when inspections identify that repairs are required. Standard stopping and starting procedures are used in conjunction with pre-work inspections and risk assessments. The Plant is designed with bund areas and sumps. No significant gravity flows occur that could lead to releases from the Plant. Thus, no emergency power to prevent overtopping in the Plant is required. All spillages will be contained in bunded areas when power trips occur. The plant does not currently have a procedure to cover safe cyanide management during a period of long-term temporary closure or cessation of operations. A new procedure is currently being drafted. Should long-term temporary closure or cessation of operations become necessary, the Plant would develop operations plans based upon a detailed risk and assessment and a customised response to the circumstances.

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

X in full compliance with

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

☐ not in compliance with

☐ not subject to

Basis for this Finding/Deficiencies Identified:
The feedstock to the Plant has changed since the previous recertification audit. The current feed is from the re-mining of the FSS 5 slimes dam. This resulted in a significant impact on process performance and parameters, including an increase in WAD cyanide in the tails reporting to the TSF's.
An SGS Laboratories metallurgical test program on auger drill samples was conducted to determine the regent consumption and the optimal reagent suite for gold recovery. The current performance is monitored, and tests are conducted to determine leach conditions for optimal gold recoveries. Traditional testing methods focus on the gold recovery, free cyanide levels, cyanide consumption, lime consumption, contact time.
Reports sampled and sighted included: Metallurgical Preliminary Report No: 19/549 Revision 1: Procedural Diagnostic Leach Testwork; Harmony Gold Operational Cost Savings Initial Testwork Report (concluding that the addition of MT3 improves leach efficiency but recommends more testwork by SGS Laboratories or Mintek (proprietary name)); Report No. 19-147, Rev 0, Leach and Aachen Pre-Oxidation testwork on gold-bearing tailings material from Central Plant Reference 13 November 2019 (Concluding: "It was found that the Aachen Pre-Oxidation / Aachen Assisted leaches did show some gold dissolution benefit; with a secondary benefit of the potential cyanide cost saving when considering the AAL(Anglo American Laboratories) scenario."); and Maelgwyn South Africa (Pty) Ltd, Report Number: REP 20-103 Project reference: MSA Proposal 20-103 Rev 0, Evaluation of copper and other metals in different plant streams. (This report conclusions include the presence of copper in the feed and carbon and barren solutions. The copper could lead to increased base metal WAD complexes, and more speciation testwork is planned.)
As the feed to the Plant now includes elements forming Weak Acid Dissociable (WAD) complexes, e.g. copper, the importance of cyanide speciation was highlighted, and the Plant is now looking at including a new approach to determine cyanide speciation, sources of base metal resulting in base metal complexes, affecting gold recoveries and reagent consumption.
The final residue pumped to the TSF contains higher than 50 mg/l WAD cyanide, creating ICMI compliance issues and the optimisation currently developed may address underlining issues and developing solutions to the issues.
The current control technology used is to measure the free cyanide in the no 1 leach tank with an on-line TAC 1000 (proprietary name) analyser and control variable speed hose pumps at the cyanide storage section feeding the leach sump. The TAC 1000 weekly instrument technician inspection PP76497 dated 16 Oct 2018 and PP114 208 dated 1 December 2020, were sampled to confirm appropriate cyanide measuring equipment PMS inspections.
The Plant is considering the use of a ratio control system, coupled with the mass flow on the leach feed, with a feedback control from the TAC 1000 in the Leach.

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

X in full compliance with

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

□ not in compliance with

Basis for this Finding/Deficiencies Identified:
A Company Region, Freestate-wide, probabilistic Freestate-wide probabilistic water balance (PWB) model prepared by Jones and Wagener (J & W), consulting engineers, is in place and specifically includes Central Gold Plant as a part of it. The model includes a water supply/demand component. The inputs include rainfall figures, surface runoff, side slope runoff to paddocks, evaporation, deposition rates, seepage, water in the slurry, water retained in tailings, and water pumped to other Harmony Operations. Rainfall is measured daily using a Davis Vantage Pro 2 weather station at the distribution tower. Rainfall graphs from the model were viewed. The model includes 1:50 (113mm) and 1:100 (128mm) 24-hour storm event assumptions.
The main issue identified in the PWB is the shortage of water, and it evaluates the dry and rainy seasons. No risk of overtopping was identified. The flowsheets include the return water dam and evaporation dams.
The PWB was used to determine a minimum freeboard of the TSF, able to handle the 1:50 yr storm event. This was confirmed in the J&W annual TSF reports and quarterly reports under "Freeboard". A freeboard of 0.8m is maintained in the Central return water system to prevent overtopping in case of a power outage. The 2020 water balance summary graphs covering return water dam levels, evaporation dam levels were sighted, and the graphs show critical levels, target freeboards, and measured levels.
Emergency diesel pumps are available at the Harmony Surface Workshops in case more pumping capacity is needed. Sufficient spare capacity is available in the evaporation pond adjoining the return water dam to prevent overtopping.
The plant monitors return water dam levels, recording weekly, and reports to the central point. The TSF Contractors, Intasol, monitor freeboard and manage freeboard of the TSF's to the required parameters. Freeboard is measured monthly by datum poles; the pool is drone surveyed every three months, and an annual survey is carried out using a Lidar (Light Detection and Ranging) survey.

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**

X not in compliance with

Basis for this Finding/Deficiencies Identified:
Following WAD cyanide value electronic file reviews for 2018, 2019 and 2020, it was noted that the 50mg/l WAD cyanide limit, both at the tipping point and the penstock, was exceeded consistently throughout the three years. The cause for this was identified as a result of a change in feed, due to the re-mining of the FSS 5 slimes dam. This resulted in a significant impact on process performance and parameters, including an increase in WAD cyanide in the tails reporting to the TSF's.
Intasol, the TSF contractors, noted that no bird or wildlife mortalities were observed since the previous recertification audits. This was confirmed during the sampling and review of the workbook daily inspections.

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

X in full compliance with

The operation is
- □ in substantial compliance with **Standard of Practice 4.5**
- □ not in compliance with

Basis for this Finding/Deficiencies Identified:
No direct discharge to surface water takes place. This was verified during the site inspection.
The Sand River, up and downstream values for 2018, 2019 and 2020 all indicated values of less than limits of detection (WAD cyanide detection limits are <0.25mg/l), indicating that no indirect discharge takes place. There were three outliers (maximum of 0.37 mg/l WAD cyanide) which were noted during the three year period. (Cyanide species monitored are WAD cyanide.)

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

X in full compliance with

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

Basis for this Finding/Deficiencies Identified
The TSF is equipped with underdrains and toe drains and paddocks and cut off solution drains are also in place. The return water dams are protected by cut off trenches. Lanes of trees are planted around the TSF to assist with dewatering of the area around the TSF. Boreholes are monitored as per the South African Department of Water Affairs (DWA)

requirements. The plant is equipped with concrete bunds for all tanks, as well as tarred roads to minimise the seepage of contaminated solutions to ground water. No jurisdictional identified use or actual beneficial uses of groundwater exist. The land surrounding the Plant and TSF is mine property with no farming activities. Residents in the area use piped water supplied by the local municipality. However, the jurisdiction has set a DWA general standard of 0.5ppm free cyanide as the limit for groundwater levels. Boreholes are located downgradient of the TSF and are monitored and sampled. All values are less than limits of detection of 0.25 mg/l WAD cyanide, with the exception of two outliers.
The Plant produces no backfill for the nearby mine.

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

X in full compliance with

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

□ not in compliance with

Basis for this Finding/Deficiencies Identified:
The first certification audit evidence quoted "…All tanks are placed inside or over concrete surfaces and bunds. The leach cyanide tanks are placed on ring beams with a solid concrete layer below the ring beams, serving as an impervious layer. The CIP (Carbon-in-Pulp) tanks are placed over a bund, on concrete bases - verified during the site inspection. Slurry tank bases are rubber lined for protection against erosion due to the draft tubes. The elution primary and secondary tanks are placed on solid concrete bases - as per an interview with employee present during construction and placed inside concrete bunds…" There have been no changes made since the certification audit.
It was verified during the site inspection that all tanks are in bunds sized to hold a volume greater than that of the largest tank and any piping draining back to the tank and the design storm event. All secondary containments are designed with sumps and pumps returning water and spillages back to the circuit. This was verified during site inspection. All secondary containment spillage pumps are automated except the high-strength cyanide pump, which is manually operated. Any spillage from the roads outside the bund areas is be routed to the return water dams at the TSF via drains, from where the solution is returned to the process.
All TSF slurry lines are mild steel flanged pipes, rubber-lined and concrete-lined. All pipes are routed over concrete and spillages are routed to either bunds or return water dams. The cyanide line to the dosing point is equipped with secondary containment draining back to the cyanide storage bund. A splashboard is located on the border between the bunded area and the open soil so that any leak will splash back into the bunded area.
The PMS system includes cyanide pipeline inspections. Daily pipeline inspections are conducted by the security (shiftly); Operations staff inspect tailings and re-mining

pipelines on the morning shift. Reporting is by exception when a fault is identified, and a job card is raised by the Plant. The TSF and the re-mining pipelines, pumps and valves form part of the DMS PMS 2000 maintenance system.
Tanks are constructed of mild steel, and cyanide pipelines are mild steel, welded flange types and slurry lines are mild steel flanged pipes, rubber-lined, and concrete-lined.

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

X in full compliance with

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

□ not in compliance with

Basis for this Finding/Deficiencies Identified:
No new facilities have been constructed since the Plant became a signatory to the ICMI Code. In place of Quality Control and Quality Control records, the Plant has had regular Structural Safety Audit inspections carried out by a registered, professional engineer to ensure the integrity of the Plant and that it functions fit-for-purpose and design.
Two Structural Safety Audit reports for Central Plant, Virginia for 2018 and 2019 were sighted. Both Reports were drawn up by a professional Engineer (Mr Jan Dykman, Engineering Council of South Africa (ECSA) registration No. 20140475) Visual inspections are carried out on the Plant and deficiencies are identified according to the following priority categorisations:- Emergency Repair – Potential for serious damage, should be done within 12 months, Repair – to be repaired to original condition before maintenance can commence, should be done within 24 - 36 months, and Maintenance – Preventative and corrective should be done on a continuous basis.
The 2018 Report had no Emergency Repair recommendations. There were several Repair recommendations which included recommendation regarding the structural steel on two thickener reservoirs, some repair recommendation to the Pipe bridge between the Thickeners to CIP/CIL(Carbon-in-Leach) tanks, and some repair recommendations to the structural steel and concrete on CIP tanks 1-7, CIL tanks 1-6, Leach tower. (The subsequent 2019 report notes that most of that work has been carried out or is on-going.)
The 2019 Report also had no Emergency Repairs recommendations. It reported on the on-going status of the Repair items raised in the 2018 Report. Added to this was Repair recommendations on the Pipe bridge from the Milling building to the Thickeners, and the Leach pump house. The Engineer notes the following, "...We wish to point out that most of the required repairs that were highlighted in our previous report have been resolved. Repair and maintenance teams were also active on Central Plant during our inspections. This is evidence of Harmony's commitment to keeping their installations safe and serviceable..."
The Annual TSF external Audit reports for 2018 and 2019 were sighted. The reports were prepared by registered Professional and Geotechnical Engineers.

The 2018 report concluded with the following, "…Stability concerns for dam 23 were noted and it was recommended that suitable measures are taken to restore the FoS (Factor of Safety) on the southern flank of the TSF to restore FoS. The stabilities of Brand D were found to be acceptable, and no major concerns are currently noted for these facilities…"
The 2019 Report (published in 2020) concluded, "…Major slip surfaces with Factor of Safety (FoS) values below 1.30 were identified for Line 5A on the southern flank of Central Dam 23 (H4). Remediation has been designed and construction of the buttress is planned to start in April 2020…"
The fourth quarter report for 2020 indicated that there are no major concerns noted regarding Central Dam 23 (H4). The only area of stability concern noted previously, which is along the southern flank at Line 5A, was remediated to an acceptable FoS for static drained conditions. No visual signs of instability or seepage have been reported on any other areas. It further added that Brand D TSF meets legal freeboard requirements. No visual signs of instability have been reported by the operating contractor. The liquefaction potential and undrained behaviour of the lines planned to be probed will be assessed using the available CPTu (cone penetration) data. Seepage on the southern flank is being investigated. The stability of the area will be confirmed based on the latest CPTu data.

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

X in full compliance with

The operation is

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

□ not in compliance with

Basis for this Finding/Deficiencies Identified:
Procedures for environmental monitoring (including sample preservation and chain of custody procedures, sample locations, species of cyanide to be sampled, and documenting of sampling conditions) of surface water and borehole water, developed by competent persons, were sighted and checked. There are no discharges to surface water, but boreholes are in place up and downstream of the Plant, TSF and Return Water Dams (RWDs). Surface water sampling is done monthly, and borehole sampling is carried out bi-annually (by the Harmony Group environmental department). Wildlife is monitored daily for any mortalities. Frequencies are deemed adequate to characterize the medium being monitored and to identify changes in a timely manner.

5. DECOMMISSIONING: Protect communities and the environment from cyanide through development and implementation of decommissioning plans for cyanide facilities

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

X in full compliance with

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

 not in compliance with

Basis for this Finding/Deficiencies Identified:
A decommissioning procedure and schedules for a decommissioning plan for Harmony Central Plant are in place, including the sequence and the scheduling of decommissioning. The decommissioning procedure is reviewed annually.

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

X in full compliance with

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

 not in compliance with

Basis for this Finding/Deficiencies Identified:
The Closure Cost Assessment Report, HAR6379, Digby Wells Environmental, www.digbywells.com dated June 2020 indicates the following: -
"…Section 12 Cyanide Decontamination
Harmony is a signatory to the International Cyanide Management Code which was developed by a Steering Committee under the guidance of the United Nations Environmental Program (UNEP) and International Cyanide Management Institute (ICMI). The purpose of the code is to create and generate information for responsible cyanide management practices related to cyanide use including the gold mining industry. Thus, Harmony, as a signatory, is required to set aside money for the closure of the cyanide plant. A figure of R 856,901 has been included for the cleaning and removal of sodium cyanide systems. This figure is based on a quotation from a reputable Cyanide Cleaning Specialist. The basis for this figure includes the following
activities:
● Test for explosive gas and high pressure (HP) cleaning of tanks and equipment;
● Flame cut all lines and equipment into 1 metre lengths for safe disposal; and

● Removal of all cyanide pipes and drip trays from Cyanide Tanks to Pachuca's…"
The Harmony Gold Environmental Trust Fund (Trust no reg Trust 8785/99) annual financial statements for the years ended 30 June 2019 as required by the applicable jurisdiction were sighted and reviewed. Accounts signed by the trustees Melanie Naidoo Vermaak and one other. The statements were also signed by Hendrik Odendaal, registered auditor of PricewaterhouseCoopers Inc, on 23 June 2020.
The rehabilitation Trust Fund is established by legal requirement in terms of the Minerals and Petroleum Resources Development Act and is updated annually.

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

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

X in full compliance with

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

□ not in compliance with

Basis for this Finding/Deficiencies Identified:
The site has 75 cyanide specific procedures in place. These are supported by the Harmony Gold Free State Operations Tailings Dams Mandatory Code of Practice (COP) for Mine Residue Deposits, and 21 standard work procedures (SWPs) for TSF (Tailings Storage Facility) operations. A review of the procedures confirmed that the Plant procedures and the TSF Safe Work Practices (SWPs) address PPE (Personal Protective Equipment) requirements and pre-work inspections. The SLAM (**S**top…**L**ook…**A**ssess…**M**anage) system is in place which includes pre-work inspections and mini-risk assessments.
Assumptions and operating parameters covering freeboard, and cyanide concentrations are clearly stated. Routine shiftly, daily, weekly, monthly, quarterly and annual inspection reports, legal inspections, and checklists in the Plant and TSF were sampled to check the effectiveness of systems and ensure that proactive and reactive management takes place. The inspection frequencies are deemed sufficient to assure and document that cyanide facilities are functioning within design parameters.
A DMS 2000, electronic, Planned Maintenance System (PMS) covering all critical cyanide equipment is in place. Tank inspections include annual thickness testing and Fitter monthly and six-monthly inspections, and Boilermaker monthly inspections were sampled. Weekly and yearly Electrical inspections were sampled, as were weekly instrument technician inspections. Critical cyanide equipment maintenance records from the system were sampled and reviewed. Quarterly technical inspections with consultants of the TSF facilities are undertaken to ensure integrity and safety in addition, to the monthly TSF inspections involving the site staff and TSF contractors. A change management procedure covering health, safety and environment is in place and

operational. The inspections, which also covered pipes, valves and pumps included checks on leaks, corrosion, and cyanide precipitation. The inspection documentation contains the date of the inspection, name of the inspector and faults identified. Faults are reported to Engineering Maintenance Foreman who raises a job card, and it is entered in the DMS system, as per the maintenance standards.
Worker input comes from risk assessment workshops which include all people involved in the specific job, as well as the safety representative. Planned Task Observations (PTOs) allows for comments by the person observed. Inputs also come from monthly health and safety meetings, monthly safety representatives' meetings, visible walkabouts, toolbox talks, and the site-wide use of the SLAM system.

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

X in full compliance with

The operation is
- □ in substantial compliance with **Standard of Practice 6.2**
- □ not in compliance with

Basis for this Finding/Deficiencies Identified:
Current pH settings are to control at 10.5. The pH is controlled by lime addition to the thickener distribution tower. Lime addition is controlled via pH measurement in the thickener overflow. The TAC 1000 analyser at no 1 Leach tank measures pH. Low pH alarms (<9.5) on the SCADA (Supervisory Control And Data Acquisition) system in the control room. Lime addition to increase the pH is done manually in the case of low-level alarms. The pH control is classified in the top 20 items (Golden Control) that could result in fatalities or multiple deaths - Bow Tie system. Website covers scanned golden control items, and breaches must be investigated.
The Plant uses nine PAC7000 personal HCN gas monitors and two PAC7000 personal HCN gas monitors are issued to the TSF staff. A total of six fixed HCN gas monitors are used at the elution cyanide storage, leach cyanide storage, the cyanide dosing, residue tank area, leach feed area and elution section.
A Dräger calibration test report for all portable monitors dated 27 May 2020 and a Dräger calibration and service report dated 24 November 2020 were sighted. The six PSA Ultima XT fixed gas monitors were calibrated on 20 March 2020 and 20 August 2020. Gas monitor manufacturer, Dräger, specifies a 6 month calibration period. Currently, calibration records for fixed and portable HCN gas monitors are kept for at least three years. Should the 4.7ppm alarm sound, staff are required to investigate the cause of the rise in gas levels. If the 10ppm alarm sounds, staff are required to evacuate. It was confirmed that the gas monitors are set to alarm at 4.7 and 10 ppm. Hot spot surveys were conducted by the Harmony Occupational Hygienist annually.
Safety showers and eyewashes with diffusers are located at strategic locations throughout the Plant where cyanide is used and inspected regularly. The use of dry powder fire

extinguishers was confirmed during site inspections. Fire extinguishers are checked monthly and maintained annually by specialist contractors.
The Plant uses colour coding and stickers with direction flow for reagent strength cyanide lines. The plant colour coding scheme is displayed on signage inside the Plant, facing the plant entrance points. It was confirmed by photographs that tailings pipelines containing cyanide slurry or solutions are labelled, as such, with direction flow. Warning signs, in the form of concrete signs warning of poisonous water at the TSF access points, were sighted from the access road to the Plant. English (the working language on-site) is used, together with symbolic signage, including no eating and drinking and smoking and open flames prohibited. Safety Data Sheets (SDSs) are available and include that the colour of cyanide solution is light to dark red. Cyanide first aid procedures are available in English in the emergency cabins. Accident and incident reporting and investigation procedures, based upon the site safety reporting requirements, were found to be in place and effective. There have been no cyanide accidents or incidents since the last certification audit.

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

X in full compliance with

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

 not in compliance with

Basis for this Finding/Deficiencies Identified:
Current Cyanide-Related Emergency Response Manual Harmony Metallurgical Plants Central Plant and a Harmony Central Plant Emergency Procedure Manual are in place and operational. TSF Contractor, Intasol, uses its own Emergency Preparedness Plan, - Central Dam 23 ITS-EPP- Emergency Preparedness Plan, in conjunction with Section 12.12 Emergency Preparedness, in the Code of Practice (COP) Mine residue deposits: Harmony Central Plant Mandatory Code of Practice on Mine Residue Deposits. Emergencies are communicated by radio and telephone. Cyanide mandown alarms are also in place. A fully equipped cyanide emergency trailer is available. Cyanide antidote is stored in fridges at the cyanide leach main storage first aid room, and elution storage. Only paramedics and doctors are permitted to administer the intravenous cyanide antidote. However, Tripac cyanide antidote ampules may be administered by trained first aiders on the team. The elution off-loading area is equipped with an emergency container which includes cyanide emergency equipment, PPE, spill kits, personal HCN gas monitor, cyanide antidote, resuscitators, respirators, and medical oxygen. The cyanide equipment is regularly checked and tested. Inspection records for the leach and elution cyanide equipment were sampled and checked in 2018 and 2020.
Plant employees working with cyanide receive the basic cyanide first aid training, and the staff working closest to the incident react to the cyanide alarm. The emergency response team (on every shift) responds to cyanide emergencies as 1st, 2nd, 3rd and 4th responders. The St Helena Hospital is equipped to be able to treat cyanide emergencies

and contracted by Harmony. Hospital staff are given cyanide awareness training by the Harmony training staff annually. Netcare 911 is the Harmony-contracted ambulance service undertaking patient transport. Emergency exercises are conducted periodically from the Plant to the hospital, and additional cyanide drill training is done monthly and documented. The emergency drill file was reviewed. A full cycle drill at the leach offloading highlighted communication problems and the need to revise ambulance control room knowledge of the Plant. An in-house splashing drill highlighted to need to reinforce medical oxygen training, and a cyanide spill drill highlighted the need to check first responder availability on shifts. The learning point shave all been addressed.

7. EMERGENCY RESPONSE ***Protect communities and the environment through the development of emergency response strategies and capabilities.***

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

X in full compliance with

The operation is

- □ in substantial compliance with **Standard of Practice 7.1**
- □ not in compliance with

Basis for this Finding/Deficiencies Identified:
The Plant has developed site-specific emergency scenarios and responses for its cyanide emergency plans. Similarly, Intasol, the TSF contractor, has its own Emergency Preparedness Plan and use is made of the Slimes Dam emergency procedures in the COP. There is no heap leach at the mine. Any seepage from the TSF is managed according to the seepage scenario in the ERP. Tanker Services, the certified liquid cyanide transporter, is responsible for transport-related cyanide emergencies. The cyanide emergency plan combines existing procedural responses and emergency provisions to deal with the various scenarios and includes and identifies the emergency response team and coordinators who are on all shifts. These preparations are regularly reviewed in the light of changes, mock drill learning points and employee feedback.

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

X in full compliance with

The operation is

- □ in substantial compliance with **Standard of Practice 7.2**
- □ not in compliance with

Basis for this Finding/Deficiencies Identified:
The workforce is involved in the Cyanide Emergency Plan process through safety meetings, training, emergency drills and risk assessments where safety representatives are involved, representing the workers. The community is not directly involved in the Plan but is informed of its contents during dialogue sessions. Drills are used to involve hospital and ambulance staff in planning processes and keep them updated.

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

X in full compliance with

The operation is
- □ in substantial compliance with **Standard of Practice 7.3**
- □ not in compliance with

Basis for this Finding/Deficiencies Identified:
The Plant Manager and the Group Metallurgist are involved from the early stages and have the authority to commit resources to the emergency, as required. The Cyanide Emergency Plan details clear duties, roles, and responsibilities for the various emergency scenarios. The control room operator is the primary response coordinator, authorised to call ambulance, security, and plant management. The emergency equipment inventory was checked, and site inspections confirmed availability and readiness. The Plan includes contact references (telephone, and cell phone) of internal and external resources for the various scenarios, particularly with detail where external resources and skills might be needed. Call out lists and contact details are also put up in the control room. Also identified are the Emergency Response Team and their training requirements as per the training matrix. Periodic drills involving internal and external stakeholders ensure that roles and responsibilities are understood and clearly implemented.

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

X in full compliance with

The operation is
- □ in substantial compliance with **Standard of Practice 7.4**
- □ not in compliance with

Basis for this Finding/Deficiencies Identified:
The Cyanide Emergency Plan includes details for appropriate emergency notification and reporting (internal and external) and the call-out procedure and contact information lists which are updated regularly. Media communication is dealt with in the Plan.

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

X in full compliance with

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

 not in compliance with

Basis for this Finding/Deficiencies Identified:
The environmental monitoring of surface water, liquid cyanide spillage, and cover clean-up and remediation relating to releases, pipeline failures and spills, and provision of drinking water, as appropriate to the site-specific identified scenarios. Use of neutralization processes and materials is clearly covered, as is disposal of contaminated materials and the use of treatment chemicals such as ferrous sulphate in surface water which is prohibited. The procedure states, "Solutions and slurry that have been contained can be pumped into suitable containers. Alternate disposal will be arranged by the Environmental Manager with an authorised special waste disposal contractor." The Plant currently uses an Absorption Agent for cyanide spillages and no longer uses Ferrous Sulphate.

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

X in full compliance with

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

 not in compliance with

Basis for this Finding/Deficiencies Identified:
The Plan is required to be reviewed bi-annually, following incidents and emergency drills or when new information regarding cyanide becomes available.
The emergency drill file was sighted, and drills sampled and reviewed: -
Full cycle drill at Leach off-loading. The scenario was splashing with cyanide solution, undertaken on 4 October 2019. The learning points included communication issues, and 911 control room uncertain of the Plant's location,
In house drill to gate. The scenario was splashing at Leach off-loading on 17 April 2018. The positive findings: Time taken for 1st responders to arrive on the scene was 2 minutes, Areas for improvement: need to administer oxygen must be faster than 6 minutes after the alarm, and the Contractors moved close to the accident area instead of evacuating.
Drill to the gate: The scenario was a Cyanide spill drill on 30 October 2018. The Learning point was that only one responder turned up to the incident.

Reviews of emergency response procedures are conducted in terms of document control requirements. None of the reviews indicated any need to change the procedures.
The trainer is present at all drills, and this was confirmed during the review of the drill reports attendance registers.

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

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

X in full compliance with

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

Basis for this Finding/Deficiencies Identified:
All staff, Long Term Contractors, Security, and Intasol TSF Contractors, that may get in contact with cyanide are placed on the Harmony training system. Cyanide awareness is included under metallurgical plant cyanide G39, and Handling cyanide safely in the metallurgical Plant, G39001. This includes cyanide materials present at the operation, the health effects of cyanide, the symptoms of cyanide exposure, and the procedures to follow in the event of exposure.
TSF cyanide refresher training is done on return from annual leave. The training matrix was reviewed, including the refresher training, which includes cyanide. Warning and expiry are flagged in the spreadsheet (30 days before expiry), Supervisors are notified in a weekly combined summary that is due in 90 days. Refresher training is done annually, based on schedules using a training shift system (which is also used for routine update training). Selected employees were checked in interviews on their understanding of cyanide hazards, first aid and emergency response and this was further verified through checking of their training records.
Records are retained for three years on the Plant, after which the records are sent to a central archive. All training is recorded on the central Harmony Group Training Database (EMPOWER). This is used for follow-up on training status, Group-wide. The Plant training matrix ties up with the central database. The training database includes unique codes for each job. The training records of the nine interviewees were reviewed, and it was confirmed that the details required are included in the database records.

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

X **in full compliance with**

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

□ not in compliance with

Basis for this Finding/Deficiencies Identified:
A formal task training structure is in place. Training is based on theoretical training (using Standard Task Procedures (STPs), MQA (Mining Qualifications Authority) unit standards as a base), and on-the-job training. The Cyanide Training Matrix Harmony Central Plant shows the required elements for each job. The training matrix spreadsheet shows the names of the staff and job titles and the training completed per person. The matrix covers all staff names and job titles in the process plant. Maintenance staff are trained in cyanide-specific procedures as indicated on the training matrix.
The Intasol Training Matrix for Central dam 23 and Brand dam D, in hardcopy format, was reviewed. The matrix is populated with names of employees and lists medicals, e-learning, plant induction, baseline risk assessment, emergency preparedness, and Intasol site specific induction and first aid.
Task refresher training and corrective action are only undertaken should observation show that the incumbent is not complying with the Standard Task Procedures.
All Trainers are trained and registered as Assessors, basic facilitation and presentation skills, and one-on-one training. The Harmony training establishment is formally accredited by ISO 9001. Training qualifications for the Plant Trainer and the TSF trainer were sighted.
A Planned Task Observation (PTO) system is in place to evaluate if employees can perform their jobs as per the standard task procedures. The critical task analyses list is used to schedule PTO's. It is an operational requirement that each Department conducts at least 5 PTOs per week. Samples of PTOs undertaken were reviewed in 2018 and 2020. This is tracked by the Safety Officer on a weekly basis and reported. A weekly report to the Plant Manager on performance was sighted. Refresher training is only undertaken, should observation show that the incumbent is not complying with the relevant STP. STP task training is evaluated through an interview with the Candidate, discussing specific STP and their content. PTOs are used by Supervisors and Foreman for on-the-job competency evaluation of new employees.
Records are retained for three years on the Plant, after which the records are sent to a central archive. All training is recorded on the central Harmony Group Training Database (EMPOWER). This is used for follow-up on training status, Group-wide. The Plant training matrix ties up with the central database. The training database includes unique codes for each job. The training records of the nine interviewees were reviewed, and it was confirmed that the details required are included in the database records.

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

X in full compliance with

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

□ not in compliance with

Basis for this Finding/Deficiencies Identified:
All plant personnel are trained in cyanide first aid, including cyanide releases and cyanide decontamination and clean-up. All shift workers received cyanide and fire emergency training and including cyanide first aid and basic firefighting. All Intasol TSF employees are trained in the Intasol Emergency Response Plan and refresher training is given annually. It was confirmed that the training matrix detailed the required emergency training. A procedure includes actions for 1st, 2nd, 3rd and 4th Responders on the scene. Four members on each shift are designated and first responders and will carry out actions according to the order in which they arrive at the scene. It was confirmed by interview that the internal Training Assessor does on-site response equipment training during training shifts. The Training Officer and the Safety Officer form integral part of the emergency drill. The 6-Monthly Mock Drill Training Schedule for 1st, 2nd, 3rd, and 4th Responders was sighted. The Tuesday training shifts include refresher training on identified emergency training issues.
The St Helena Hospital is equipped to be able to treat cyanide emergencies and contracted by Harmony. Hospital staff are given cyanide awareness training by the Harmony training staff annually. Netcare 911 is the Harmony-contracted ambulance service undertaking patient transport. Emergency exercises are conducted periodically from the Plant to the hospital, as a part of emergency training, and additional cyanide drill training is done monthly and documented.
Records are retained for three years on the Plant, after which the records are sent to a central archive. All training is recorded on the central Harmony Group Training Database (EMPOWER). This is used for follow-up on training status, Group-wide. The Plant training matrix ties up with the central database. The training database includes unique codes for each job. The training records of the nine interviewees were reviewed, and it was confirmed that the details required are included in the database records.

9. DIALOGUE: Engage in public consultation and disclosure.

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

X in full compliance with

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

□ not in compliance with

Basis for this Finding/Deficiencies Identified:
Dialogue meetings are two-way dialogue sessions involving both dissemination of information and the answering of questions on cyanide.
The following stakeholders were identified for Central Plant: All Emergency Departments, the Community around the Mining Areas, Farmers around the Mining Areas, Livestock owners and cattle herders on and around the mine site, and the Harmony Township.
A Cyanide Meeting chaired by J Botha (Harmony One Plant Manager) was held. The meeting was to discuss the management of cyanide emergencies in the Matjabeng municipality area and held on 13 March 2019. Those invited to attend included the Emergency Services, SAPS (South African Police Service) flying squad, Matjabeng Fire and rescue, Paramedics, One Life 911, ER24, Netcare 911, St Helena Hospital, EMS, RH Private Hospital (Previous Ernst Oppenheimer Hospital), and Environmental Health Practitioners. Feedback notes were recorded. The Harmony Gold Cyanide Awareness Presentation, used at the meeting, was sighted.3. Public communication flyers were posted to the stakeholders sighted copies of flyers.
The presentation, Harmony Gold Mine Cyanide Awareness Presentation, was also used for communication to the communities. The presentation includes: Production, Transportation. Training, Dialogue Operations, and Emergency Response.
Minutes of the environmental consultation and cyanide awareness session held over three days from 19-21 November 2019 were sighted. The meetings were attended by 80 people, including medical staff from life 911, St Helena Hospital, RH Matjabeng private hospital, Mediclinic, EMS Freestate, AHC EMS, Lejwe Leputswa district municipality, traffic department. A series of practical and pertinent questions were asked, some of which were answered, and others were referred to Harmony Management. Attendance registers were reviewed to confirm attendance.
A cyanide awareness and AEL Environmental Worksop was held on 17, 18 and 19 November 2020. Presenters included Teboho Tlhobo (Plant Manager: Central Plant), and Cyril Radebe (Plant Manager: Target Plant). The presentation used was reviewed, as were the minutes of the meeting.

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

X in full compliance with

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

□ not in compliance with

Basis for this Finding/Deficiencies Identified:
Dialogue meetings are two-way dialogue sessions involving both dissemination of information and the answering of questions on cyanide.

The following stakeholders were identified for Central Plant: All Emergency Departments, the Community around the Mining Areas, Farmers around the Mining Areas, Livestock owners and cattle herders on and around the mine site, and the Harmony Township.
A Cyanide Meeting chaired by J Botha (Harmony 1 Plant Manager) was held. The meeting was to discuss the management of cyanide emergencies in the Matjabeng municipality area and held on 13 March 2019. Those invited to attend included the Emergency Services, SAPS (South African Police Service) flying squad, Matjabeng Fire and rescue, Paramedics, One Life 911, ER24, Netcare 911, St Helena Hospital, EMS (Emergency Management Services) , RH Private Hospital (Previous Ernst Oppenheimer Hospital), and Environmental Health Practitioners. Feedback notes were recorded. The Harmony Gold Cyanide Awareness Presentation, used at the meeting, was sighted. Public communication flyers were posted to the stakeholders sighted copies of flyers.
The presentation, Harmony Gold Mine Cyanide Awareness Presentation, was also used for communication to the communities. The presentation includes: Production, Transportation. Training, Dialogue Operations, and Emergency Response.
Minutes of the environmental consultation and cyanide awareness session held over three days from 19-21 November 2019 were sighted. The meetings were attended by 80 people, including medical staff from life 911, St Helena Hospital, RH Matjabeng private hospital, Mediclinic, EMS Freestate, AHC (African Health Care) EMS, Lejwe Leputswa district municipality, traffic department. A series of practical and pertinent questions were asked, some of which were answered, and others were referred to Harmony Management. Attendance registers were reviewed to confirm attendance.
A cyanide awareness and AEL Mining Services Environmental Workshop was held on 17, 18 and 19 November 2020. Presenters included Teboho Tlhobo (Plant Manager: Central Plant), and Cyril Radebe (Plant Manager: Target Plant). The presentation used was reviewed, as were the minutes of the meeting.

Standard of Practice 9.3: Make appropriate operational and environmental information regarding cyanide available to stakeholders.

X in full compliance with

The operation is
- □ in substantial compliance with **Standard of Practice 9.3**
- □ not in compliance with

Basis for this Finding/Deficiencies Identified:
The presentation: Harmony Gold Mine Cyanide Awareness Presentation, used for communication to the communities was reviewed. The presentation includes: Production, Transportation. Training, Dialogue, Operations, Emergency Response. Copies of presentations were available on request at the meetings. Presentations were given to potentially illiterate sections in their respective languages of Sotho and Xhosa.
In the case of a cyanide incident, a response would need to be prepared by Corporate Communications Dept, in terms of Harmony Group communication policy. See Page

118 of the Harmony Integrated Report 2020, which includes a discussion on the Cyanide Code in the Harmony Group (See https://www.harmony.co.za/invest). The Cyanide Code is mentioned in the sustainable development report. Information on significant cyanide exposures and releases would be made publicly available, after appropriate investigations, via the annual Harmony Integrated Report, should incidents occur.

In the case of cyanide accidents, injuries or fatal accidents or mass incidents, these will be handled via the Corporate Communications Department. Newsflashes are distributed within the Company via e-mail. Incidents are reported to the Department of Mineral Resources (DMR) by mine management. The DMR reports, selectively, on repeated or critical incidents. Information on significant Harmony cyanide exposures would be made available, after appropriate investigations, via the annual Harmony Integrated Report, should incidents occur at Central Plant. See https://www.harmony.co.za/invest

Mine cyanide releases are reported to the Departments of Water Affairs (DWA) and Environmental Affairs (DEA), following an investigation by the Mine Environmental Department. Government Departments do not routinely make all incident reports public. Harmony Group Communications Department will include the information annually on the Harmony websites. Sasol and Tanker Services are responsible for releases as a result of tanker incidents en route to the mine. Group communication policy is followed.