INTERNATIONAL CYANIDE MANAGEMENT INSTITUTE

Cyanide Code Recertification Audit Gold Mining Operations

Summary Audit Report

Harmony Gold Mines Limited Target Gold Plant South Africa

7th – 11th September 2020

For the International Cyanide Management Code

Name of Operation:	Target 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:
Target Mine is one of the mines owned by Harmony Gold Mining, acquired from Avgold in 2004. The mine is located between Klerksdorp and Welkom, on the Witwatersrand basin. Target Gold Plant was designed and commissioned in November 2001 to treat ore from Target 1 Shaft. The plant was designed to treat a 105 000 tons per month with a potential to expand to 160 000 tons for future demand. Currently, the plant treats ore from Target 1 shaft, Joel clean-up material and Waste Rock dump material, with the majority being from Target 1 shaft material. The plant was modified by installing a run-of-mine (ROM) mill to replace the two-stage milling circuit, due to steelball costs.

Ore is treated by run-of-mine milling, with part of the mill product directed to the gravity concentrator to recover the gravity recoverable gold, which is then leached through the Intense Leach Reactor (ILR), followed by electrowinning and gold smelting, using an induction furnace. The other mill product is directed to the thickener for densification, followed by leaching through 7 mechanical agitated leach tanks. The leached ore gravitates to the Carbon In Pulp (CIP) circuit, where activated carbon is added from the last tank. The pulp moves downstream while the carbon moves upstream. Loaded carbon is then removed from the first adsorption tank and pumped to the elution circuit. Carbon is then acid washed with hydrochloric acid, and eluted with a solution of sodium hydroxide and sodium cyanide. Gold is recovered from the elution solution using electrowinning cells. The electrowinning sludge is dried and smelted in the induction furnace, and then dispatched to Rand Refinery for refining. The eluted carbon is pumped to the regeneration kiln, and then to the CIP circuit. The tailings from the CIP circuit are screened to remove fine carbon, and then pumped to the tailings dam for storage. The plant uses potable water, return water from tailings dams, and water from Target 1 shaft.

Auditor's Finding

This operation is

X in full compliance

☐ in substantial compliance

☐ not in compliance

with the International Cyanide Management Code.

This operation has not experienced compliance problems during the previous three year audit cycle.

Audit Company: Eagle Environmental

Audit Team Leader: Arend Hoogervorst

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Names and Signatures of Other Auditors:

Name : Dawid M. L Viljoen Signature  Date: 08/01/2021

Dates of Audit: 7th – 11th September 2020

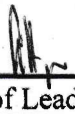
I attest that I meet the criteria for knowledge, experience and conflict of interest for Code Verification Audit Team Leader, established by the International Cyanide Management Institute and that all members of the audit team meet the applicable criteria established by the International Cyanide Management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

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

Target Gold Plant

08/01/2021

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, Cyanide Supply and Transport Agreement, covering all Harmony Gold Plants, in place with Sasol South Africa, as the sole, direct supplier of liquid Sodium Cyanide, delivered by bulk tanker. This supply contract includes Target 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 cyanide is produced at a facility that has been certified as being in compliance with the Cyanide Code. However, as Target Plant receives cyanide from the Sasol ICMI-certified production plant, 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 Cyanide Supply and Transport Agreement covering all Harmony Gold Plants (including Target) is in place with Sasol South Africa as the sole supplier of liquid Sodium Cyanide. Sasol is also responsible for the transport of cyanide, solely using Tanker Services Food and Chemicals/Imperial Logistics. Tanker Services Food and Chemicals/Imperial Logistics recertified as an ICMI transporter on 21st November 2018. A Memorandum of Agreement (MOA) for the offloading 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 Food and Chemicals/Imperial Logistics and Harmony Gold Mining Company is in place. The supply contract and MOA cover 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 in the Harmony Group Agreement. Site procedures do not refer to the need for addition of dye to the liquid cyanide storage tanks.
However, the Safety Data Sheet (SDS), which forms a part of the contract, 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:
The Group wide Cyanide Supply and Transport Agreement covering all Harmony Gold Plants (including Target) in place with Sasol South Africa, as the sole supplier of liquid Sodium Cyanide, requires cyanide to be supplied by road tankers. Offloading is covered by a Memorandum of Agreement (MOA) for the offloading of dangerous goods between Tanker Services Food and Chemicals/Imperial Logistics and Harmony Gold Mines Target Gold Plant. The supply contract and MOA cover 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.
Chain of Custody documentation was sampled and reviewed for 2018 and 2020 and included: - original Purchase Orders, Invoices, Certificates of Analysis, completed

cyanide offloading checklists, Sasol delivery note and invoice information, and Tanker Services 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 previous certification audits provided evidence on cyanide offloading and design drawings, reagent mixing slab and foundations, reagent mixing sheet 1 of 3 of Piping and Instrumentation Drawings (P&IDs), and reagent mixing sodium cyanide storage tanks arrangement and details. The drawings were signed and approved by the Project Manager, with the qualifications, B Eng. Civil and a Chartered Professional Engineer. Inspection reports by the cyanide manufacturer, Sasol's technical officer gave a score of 99% for the 2019 inspection report and 95% for the 2018 inspection report.
The structures 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. The concrete tanker unloading slab is sloped and drains back into the cyanide storage bund area. Only liquid sodium cyanide is used, and storage tanks are equipped with ventilation pipes at the top of the tank.
The cyanide storage tanks, which are located inside concrete bunded areas, have level indicators equipped with lights and an audible alarm set to go off at 85% of actual capacity, to indicate on the SCADA ("**S**upervisory **C**ontrol **A**nd **D**ata **A**cquisition") control system. The off-loading procedure requires the off-loader to then immediately close the offloading air (supplied from the plant compressors) to stop offloading. The procedure also requires checking of tank levels, before offloading of a tanker commences.
The cyanide storage area is within an access-controlled plant security area and the facilities are separately fenced and locked.

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 cyanide is used which is delivered via bulk tanker to dedicated, cyanide storage tanks. The offloading procedure is detailed, spelling out Personal Protective Equipment (PPE) requirements, the use of a buddy in the process, and with clearly sequenced tasks covering air supply valves, storage facility valve and coupling of flanges to prevent spillages and accidental releases during off-loading.
The Sasol Safety Data Sheet for liquid sodium cyanide was reviewed and it was confirmed that the colour was noted as light to dark red. The dye is added during the cyanide production process.

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 68 cyanide specific procedures, which include process and engineering procedures. These are supported by the Harmony Tailings Dams Mandatory Code of Practice (COP) for Mine Residue Deposits. There is an Intasol (Tailings Storage Facility contractor) Tailings, site specific, Baseline Risk Assessment leading to 13 procedures site specific for the TSF (Tailings Storage Facility) operations. The Intasol Tailings Operational Manual, Harmony Target Plant includes sections on Distribution Pipes, Deposition Point change over procedure, Under Drainage, Piezometers, Decant System, Pool Wall, Catchment Paddocks, and the Return Water System. Routine daily, weekly, monthly, quarterly and annual operational and TSF inspection reports, legal inspections, and checklists were sampled to check the effectiveness of systems and ensure that proactive and reactive management takes place.

TSF assumptions and parameters such as minimum required freeboard including 1:50 and 1:100 year storm events, and maximum WAD cyanide levels, are specified, monitored and reported in TSF inspection reports.

The plant maintenance and inspection schedule include preventative maintenance inspections on cyanide critical equipment, using a DMS (Drumblade Maintenance & Safety – proprietary name) computerised Planned Maintenance System (PMS). Inspection checklists contain the date of the inspection, and the name of the inspector. Faults are recorded on a job card where the deficiency, date created, and date of corrective action is recorded. Once the corrective work is completed, the artisan hands in the details of the job card repair to the Planned Maintenance Forewoman who arranges for the data to be loaded onto the DMS electronic system and database. The DMS system was thoroughly reviewed and sampled electronically with the supervising forewoman and found to be sound with good record-keeping. All critical cyanide equipment is loaded on the DMS. Tanks are inspected annually for leaks, corrosion and integrity and thickness testing is undertaken. All leach and CIL (Carbon in Leach) tanks are rubber lined and the lining is inspected annually and spark tested. All secondary containments are inspected and included in the DMS. In addition, the cyanide storage bund is flood tested annually. The leach tanks are equipped with leak detection holes in the ring beam and these are inspected as per the Task Based Risk Assessment (TBRA). A Risk based Inspection (RBI) program procedure and report, which includes a detailed explanation of RBI and the leak detection test procedure for all of the leach tanks was reviewed. The two weekly tests are included on the DNS PMS. A three yearly plan is currently in place and runs from 2019 – 2021. Pipes, valves and pumps are included in the DMS for both the plant and the TSF. Daily TSF pipeline inspections are conducted by the security, shiftly, and pipeline leaks are reported by exception.

Quarterly technical inspections, with independent consulting geotechnical and tailings engineers, of the TSF facilities are undertaken to ensure integrity and safety, in addition to the daily, weekly and monthly TSF inspections involving the site staff and TSF contractors. Reports and inspections were sampled in 2018, 2019 and 2020.

Preventive maintenance programs and inspections implemented and activities are documented and implemented at a frequency deemed adequate to ensure that equipment and devices function as necessary for safe cyanide management.

A change management procedure covering health, safety and environment is in place and operational. The Management of Change exercise carried out for the improvement of handling of the secondary containment discharge pipeline was reviewed and signed off by the plant metallurgist, plant safety officer and the plant environmental officer.

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 TSF is not affected by power outages as a large excess volume to take up any surge is available in the evaporation ponds, as confirmed by the probabilistic water balance. The plant is designed to contain releases during power failure. Bund areas and sump pumps are in place to contain and return spillage to the process. A portable diesel generator is available to pump water from the no 1 plastic lined return water dam, to the top return water dam and thus prevent overtopping, in the case of simultaneous high rainfall and significant power outages.

There is a Covid-19 operational procedure which is a start-up procedure in the case of a shutdown due to Covid-19. Section 3.2, Training and HR, also makes additional provision for refresher and task training after Covid-19 lockdown recommencement.

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:
Ore characterisation tests were done by MINTEK (South Africa's national mineral research organisation) on a combined feed sample for mineralogical investigations and diagnostic leach tests were done and no indications of significant cyanide consuming constituents were identified. Bottle roll tests done on residue to determine leachable gold in residue, indicated that additional leach time could improve recovery. The bottle roll test program, "Gold optimisation testwork on Harmony Ore", covered sodium cyanide concentrations from 25 to 1000 mg/l and optimum concentration of between 200 and 300 mg/l was identified. Current concentrations are between 200 and 250 mg/l. An ore mineralogical characterisation of a gold feed sample from Target identified the presence of gold nuggets bigger than 7micron, requiring longer retention time. The copper content was less than 0.05%, thus indicating no significant concentrations of WAD (Weak Acid Dissociable) cyanide constituents being present.
Improved dosing equipment technology was investigated and it was decided to install a peristaltic pump system with better dosing control.
Currently, cyanide dosing is controlled by measuring the cyanide in the leach tank number 2 using a TAC 1000 on-line analyser. Cyanide addition is controlled by a flow control valve and flow meter on the return line system. The feed is controlled using a ratio control feed forward control to the flow control valve with feedback control from the TAC 1000 on-line analyser. Morning production meetings include cyanide dosing discussions using graphs, and remedial action is taken immediately, as appropriate.

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 probabilistic water balance (PWB) is in place covering the plant and the TSF which is updated monthly with actual data. Information included in the model is: - Tailings deposition rates including the backfill Plant; Evaporation, Rainfall (actual), Design rainfall events as 1:50 and 1:100 year 24 hour events, TSF Interstitial water, Seepage (standard assumption of 2.5% losses), Return water dams and other TSF dams' volumes, and Design surface areas of TSF and water dams. Rainfall data is collected on the TSF and logged daily. The TSF is of the paddock type and no run-on from up-gradient of the TSF reports to the TSF itself. The new return water dam walls are raised to prevent run-on.
Phreatic surface is used to evaluate the dam stability in the Tailings Engineers' annual report. Annual and Quarterly TSF reports by the Engineers were reviewed, looking particularly at the freeboard and stability analyses. Stability issues were identified and appropriate action recommended and implemented. The TSF freeboard is surveyed monthly.
The TSF is operated with sufficient freeboard to contain storm water during rain events. The PWB modelled the various rainfall events and the total return water and evaporation pond capacity, including the operating levels, are sufficient to prevent overtopping in the case of power failures during the rainfall events. The total capacity of the return water pond and evaporation pond system is more than adequate to contain the design storm event as per the water balance model.

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

X in full compliance with

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

□ not in compliance with

Basis for this Finding/Deficiencies Identified:
Indications from tip point data, adjusted tip point data, and the on-line WAD analyser is that the WAD cyanide is less than 50 ppm and thus no special measures are needed for the protection of wild life and livestock.
The compliance point used by the plant is the residue transfer tank system where an on line WAD 1000 analyser has been used since 2009. Weekly samples are taken by the Environmental Department at the active tip point at the TSF, as a control WAD cyanide compliance sample. This sample shows a degradation of WAD cyanide in the residue pipelines of 33.4% when compared to the on-line WAD 1000 sampler at the plant. All exceedances were investigated and the investigations report file sighted and sampled. It was observed that WAD cyanide levels degraded in the tailings pipeline between 33 and 45% from the tailings tank to the TSF tip point. This is checked formally on an annual

basis and correlated with the weekly tip point samples. The adjusted figures are included in the exceedance investigation reports.

WAD cyanide values for 2017: (degradation for 2017 was 33.4%) No Exceedances of the 50mg/l WAD cyanide limit were noticed except on 14 to 17 December 2017. Sighted investigation report relating the exceedances to 64.25 mg/l WAD cyanide. The sample at the TSF tip point degraded (33.4%) in the pipeline to less than 50 mg/l. The tip point is the last compliance point as per the ICMI guidelines under 4.4.1 and 4.4.2

WAD cyanide values for 2018 (degradation for 2018 was 42%) On the 19 January an exceedance of 57 mg/l was investigated. (Degradation for 2018 was 42% and thus the tip point was below 50 mg/l WAD cyanide based on the degradation.) The weekly tip and daily average WAD 1000 analyser values for 2018 were sighted and no further exceedances were noticed in the two data sets. Consistency in the logging of data was identified as a problem and resolved. The plant was also not operating at various times during 2018, due to ore supply issues. This resulted in gaps in the WAD cyanide data base, where no samples were taken.

WAD cyanide values for 2019 (degradation for 2019 was 47.3%): Exceedances of 73mg/l on 7 and 11 January, 58.3mg/l on 13 June, 70.13mg/l on 7 July, 62.91mg/l on 6 September, and 98.73 mg/l on 21 September were noted and investigated. After adjustment, all the exceedances were calculated to be below 50 mg/l WAD cyanide.

WAD cyanide values for 2020 to date (degradation for 2020 is 45%) Exceedance occurrences were as follows:- 88.42mg/l on 23 April (adjusted cyanide figure 48.63 mg/l), 51.62 mg/l on 22 July (adjusted figure 26 mg/l), and 99.63mg/l for 13 August (adjusted figure 53.9 mg/l).

Check samples are taken weekly from the residue tank. Check samples have also been taken weekly at the deposition points to verify WAD 1000 on-line analyser results and the cyanide degradation profile in the tailings pipe. Environmental graphs for 2017, 2018, 2019 and 2020 were reviewed and confirmed.

Monthly samples are taken from the return water dams by the Environmental Department and weekly by the plant. Graphed results were reviewed and no values exceeding 50 mg/l WAD cyanide were noted. No wildlife mortalities have been recorded in the daily TSF reports since the last certification audit (this was further confirmed in the interview with the TSF supervisor) so it can be concluded that maintaining a WAD cyanide concentration of 50 mg/l or less is effective in preventing significant wildlife mortalities.

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 and this was verified during the site inspection. The closest stream, the Losdoring Spruit, is 3 km away and no seepage could reach it.

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

X in full compliance with

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

 not in compliance with

Basis for this Finding/Deficiencies Identified
The TSF is equipped with under drains, paddocks and cut-off trenches with seepage pumped back to the TSF return water system for re-use in the process. Boreholes are sampled and monitored for cyanide. The old Return Water dam is clay-lined to prevent seepage, contains less than 0.5 ppm WD cyanide, and therefore is not classified as a cyanide facility and excluded from the audit scope. The Lined Dam is plastic lined to prevent seepage. No boreholes are used for livestock, irrigation or drinking water. Boreholes are sampled 6 monthly and analysed for WAD cyanide. The mine uses the Department of Water Affairs standard for groundwater which is 0.5ppm free cyanide but the Department no longer applies the standard. Since the last certification audit, all values have been less than 0.5 mg/l WAD cyanide.
Current Backfill standards limit the free cyanide in the final product sent underground to 20ppm. Ferrous sulphate is added to the batch until the correct free cyanide level is achieved. There are procedures in place to manage and monitor batch levels going underground. The underground water pumped to the 1 Million Gallon dam is sampled and the WAD cyanide measured values are less than 0.25mg/l WAD cyanide detection level from 2017 to date August 2020. An evaluation report on the impact of backfill on worker health and beneficial uses of the underground water is available and the Risk Survey Report of 26 January 2010 indicates maximum WAD cyanide from the bulkhead water at 1.46 ppm and HCN gas measurements indicate zero where people work, with one spot of 1.3 ppm HCN gas.
At the time of the re-certification audit, the Backfill Plant was only decommissioned a week before the audit, as there was no demand for backfill from the shaft. It was confirmed that the backfill DMS planned maintenance work is up-to-date.

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 cyanide reagent storage tanks are placed on solid concrete plinths above the bund floor inside a concrete bund.
All cyanide solution tanks are installed on ring beams and are placed inside concrete bund areas. All cyanide solution tanks, CIP (Carbon in Pulp), Leach, is installed on ring beams and are placed inside concrete bund areas. The CIP and Leach tanks are rubber lined to reduce risk of tank base plate leaking into the centre soil filling of the ring beam and are inspected annually. An RBI procedure, " Maintenance on cyanide containing tanks and pipelines", for the rubber-lined tanks is in place, covering the schedule of the inspections, cleaning of the tanks in preparation for the inspections, the visual and spark test method of inspection of the rubber-lining, thickness testing of the tanks, and the corrective action in case of faults, which includes the checking of the steel base in case of leaks in the rubber lining.
All tanks are included on the DMS PMS system and are thickness tested. Thickness testing records were sighted for 2013, 2015, 2017, and 2018 for Backfill tanks, all leach tanks, 1-4, Adsorption tanks 1-8, Barren electrolyte tank, Cyanide Storage tanks 1 & 2, and the Residue Tank.
The leach tanks are equipped with leak detection holes in the ring beams. These are inspected as per the Task Based Risk Assessment (TBRA) showing a remark: no leaks on any tank. The risk-based inspection program procedure and report includes a detailed explanation of RBI and the leak detection test procedure for all of the leach tanks. The two weekly tests are included on the DMS PMS. A three yearly plan is currently in place and runs from 2019 – 2021.
All bunds are constructed with sumps and sump pumps designed to pump spillages back to the process tanks. All sumps are equipped with level switches, automatically starting the sump pumps. However, the cyanide bund sump pump must be started manually. All bunds and linked bunds have sufficient capacity to contain a volume greater than the largest tank.
The reagent strength pipes are installed inside a pipe-in-pipe, custom-designed, system from the cyanide dosing pumps in the cyanide storage to the leach and elution circuits. The TSF line is equipped with a spillage trench to contain spillage. Daily security TSF pipeline inspections are conducted and reporting is done, by exception, to the security control room, who then informs the plant control room to raise a job card, or to do an emergency shutdown to prevent any leakage spreading. No pipelines cross streams or present a risk to surface water.
The Cyanide tanks are constructed of steel and there are steel pipelines, and stainless steel ball valves. Pipe and valve materials and types compatible with cyanide & high pH conditions are specified in plant drawings. The new cyanide pipeline is made of HDPE (High Density Poly Ethylene).

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 QA/QC (Quality Assurance/Quality Control) documentation was available, as indicated in previous audits, and thus reliance is placed upon on-going structural audits to ensure fit-for purpose. A Structural Audit of Target Plant, dated July 2019 and signed by an ECSA (Engineering Council of South Africa) registered professional engineer (Pr. Eng.) was reviewed. The report included a visual inspection of the plant with repair recommendations prioritised as: - 1. Emergency repair (Potential for serious damage should be done within 12 months), 2. Maintenance (to be repaired to original condition before maintenance can commence, should be done within 24 - 36 months), and 3. ongoing maintenance items (Preventative and corrective should be done on a continuous basis).
Only one cyanide-related emergency repair was identified: namely, to replace a severely corroded brace element in the absorption area. The repair needed to be completed within 12 months and it was confirmed that the repair was successfully completed. No other emergency repairs were identified but there were on-going maintenance repair items required to concrete work in the leach circuit, and structural steel and concrete repair requirements in the adsorption and elution sections. No repairs were identified in the cyanide areas.
A Structural Audit of Target Plant, dated April 2020, also signed by an ECSA registered professional engineer (Pr. Eng.) was reviewed. The report followed the same format and structure as the July 2019 report. The report had identical maintenance repairs recommendations for the leach, and structural steel and concrete repair requirements in the adsorption and elution sections. The author, in the conclusions, stated, "...This report describes the structural repairs necessary, to bring the various installations to a safe and functional condition. Guidelines are also provided that will assist the client in planning and in budgeting for the required repair and maintenance actions..." Evidence was sighted of on-going maintenance work as a result of the structural audit, totaling an approved R1.5 million(R-South African Rands), scheduled to be completed by the end of the 2020/2021 financial year.
With regard to the TSF, the 2019 independent Jones and Wagner (J&W) Annual Report, under “Life Assessment and Deposition”, indicated, “…The rate of deterioration of the facility’s stability is a major concern, especially given that deposition is expected to continue for approximately 5 years as per Target Plant’s LOM (Life of Mine).

The appropriate assessments should be conducted, and the necessary remediation measures be investigated / implemented as a matter of urgency. The buttressing of current outer wall sections previously assessed to have inadequate stability are critical. It may be required to alter the deposition strategy to minimise the rate at which the phreatic surface is rising. Close monitoring of the critical flanks, as outlined in the report, should continue, and changes and concerns communicated to J&W immediately..."
Under Current Remediation, the Report further noted, "…Designs for the Dam 1 western flank and Dam 2 northern flank were completed during the 2019 review period. Implementation commenced along the Dam 2 northern flank early in 2020. The construction of the buttress on the western flank of Dam 1 is scheduled to start toward the middle of 2020, following completion of the Dam 2 northern flank buttress. J&W communicated to Target Plant that, should the stability in this area deteriorate prior to the planned start date, that the work should be expedited.
In the interim, close monitoring of these areas should continue, and any distress or concerns reported to J&W immediately. If necessary, it may be required to expedite planned remediation and/or provide additional remediation measures as and when necessary…"

Standard of Practice 4.9: Implement monitoring programs to evaluate the effects of cyanide use on wildlife, surface and ground water 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 how samples are taken, where samples are taken, sample preservation and chain of custody procedures) of surface water and borehole water, developed by a competent person, were sighted and checked. There are no discharges to surface water but boreholes are in place up and down stream of the plant. Surface and borehole sampling are undertaken, with plant borehole sampling being done weekly. WAD cyanide in open waters is sampled on-line using a WAD 1000 analyser, with samples by the Environmental Department biannually. Wildlife is monitored daily on the TSF for any mortalities and the Environmental Department monitors wildlife on a monthly basis. It is deemed that monitoring is conducted at frequencies 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 Plan for Target Plant Cyanide Facilities, dated May 2020, is in place which includes a decommissioning schedule. The decommissioning plan is reviewed every two years.

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 document, "Closure Cost Assessment for Harmony Gold Mining Company Limited:
- Closure Cost Assessment Report, Closure Cost Report, Target", prepared for: Harmony Gold Mining Company Limited, June 2020 by Digby Wells Environmental, was sighted and reviewed. The Report includes, under section 12, cyanide decontamination, reference to the requirement for funds set aside for cyanide decontamination. An amount of R 355 494 has been included for the cleaning and removal of sodium cyanide systems. The estimate was sourced from a reputable, third-party, cyanide cleaning specialist.
A letter was sighted addressed to the Department of Mineral Resources; Free State Region, dated 10/8/2020, for attention: Department of Mineral Resources Delivery notification August 2020. The note includes the Target Mining licence. The note includes attached financial statements for 2019 for the legally required Trust Fund to fund Closure and Decommissioning. The letter was signed by Thomas Wilson, Harmony Senior Environmental Manager. The Trust Fund is established by legal requirement, in terms of the Minerals and Petroleum Resources Development Act, for closure, decommissioning and rehabilitation of Target Mine.

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 68 cyanide specific procedures, which include process and engineering procedures. These are supported by the Harmony Tailings Dams Mandatory Code of Practice (COP) for Mine Residue Deposits. There is an Intasol (Tailings Storage Facility contractor) Tailings, site specific, Baseline Risk Assessment leading to 13 procedures site specific for the TSF (Tailings Storage Facility) operations. It was confirmed that the procedures ensure that tasks are conducted to minimise worker exposure to cyanide. Procedures reviewed included: - Cyanide decontamination, Change Pipes in Cyanide Area, Liquid Cyanide Off-loading, Clearance Certificate for Vessel Entry, Clearance Certificate for Hot Work, Engineer's Permission for Maintenance, Working in Confined Space and Cyanide Storage Vessel, and Removal of Redundant Cyanide Equipment. All procedures specify required PPE and pre-work inspections.
The Intasol Tailings Operational Manual, Harmony Target Plant includes sections on Distribution Pipes, Deposition Point Change Over Procedure, Under Drainage, Piezometers, Decant System, Pool Wall, Catchment Paddocks, and the Return Water System.
The Plant and TSF uses the Harmony Continuous Risk Assessment SLAM system ("Stop - Look - Assess and Manage") and it is used before any task is conducted, as part of pre-work inspections. This was also confirmed during the one-on-one interviews with selected staff.
The "Management of Change" Managerial Directive was reviewed and noted to require sign off by Environmental and Safety Officials. A Management of Change exercise for improvement of the cyanide handling of the secondary containment discharge pipeline was reviewed. This was not a project and therefore consisted of only a risk assessment (RA). The RA team consisted of the plant metallurgist, the plant safety officer and the plant environmental officer.
Workers are involved in formal risk assessments, daily toolbox meetings, weekly safety meetings, and monthly workforce health and safety meetings where safety and health procedures and issues are discussed.

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

X in full compliance with

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

□ not in compliance with

Basis for this Finding/Deficiencies Identified:
The plant is run at a pH of 10.5 on the thickener and the leach pH is run at 10.5 to 11. An interlock is in place on the thickener, tripping out the cyanide dosing pumps if the pH falls to less than 9. Witwatersrand ores typically are leached at a pH of above 10.5 to minimise cyanide gas formation.
Fixed Polytron cyanide gas monitors are installed on top of the cyanide storage tank, in the cyanide bund, near the residue tank, in the smelt house, in the leach area and in the backfill area. Furthermore, there are 5 portable PAC 8000 cyanide gas monitors used in the plant. Portable cyanide gas monitors alarm at 4.7 and 10ppm and fixed Polytrons alarm at 7.5 and 10 ppm cyanide gas. Portable monitors include software to calculate and alarm when the worker is exposed to 4.7 ppm HCN (Hydrogen Cyanide) gas continuously over an eight-hour period. Employees are trained to evacuate when the alarm sounds. The manufacturer maintains the monitors on contract and although they recommend 6 monthly calibration, the plant calibrates quarterly. The Instrumentation Department on site undertakes monthly calibration and maintenance and this was confirmed in an interview with the instrument technician. Calibration records were sighted, including manufacturer's Calibration Service Reports dated: - 24 August 2020, 27 May 2020, December 2019 and 22 August 2019.
Fixed cyanide gas monitors are located at all the identified cyanide "Hot Spots", namely one on top of the cyanide tank and one in the cyanide bund, one adjoining the residue tank, one in the smelt house, one in the leach area and one in the backfill plant.
Appropriate warning signage was observed throughout the plant, particularly at the cyanide offloading area and the cyanide addition points. Eating and drinking is only allowed in designated areas. Warning signs at TSF access points have been erected. Concrete signs are used to warn of no potable water, no eating and drinking, no swimming, no livestock, no cycling, no walking, and no motorcycling. English is used together with symbolic signage. A major sign has been erected at the entrance of the TSF, highlighting potential assembly and access points. Sasol Safety Data Sheets, including the colour of the cyanide as being light to dark red, were available throughout the plant.
Safety showers and low pressure eye wash stations are located at appropriate places throughout the plant and inspected regularly, as well as being on the DMS PMS system. The use of dry powder fire extinguishers was confirmed during site inspections. Fire extinguishers are inspected as part of the DMS systems (monthly) and by contractors (annually). This was confirmed, electronically, during the DMS electronic review.
The plant uses colour coding and direction flow for reagent strength cyanide lines and other lines and labelling was observed. Slurry lines are labelled "cyanide" at strategic positions. Colour coding boards are displayed in the plant. The Harmony incident /

accident reporting system is used. No cyanide exposure incidents were recorded for the period since the last recertification.

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:
Oxygen is available in the first aid room, smelt house, control room and cyanide offloading PPE locker. Antidote is available in the first aid room, at the backfill plant and the smelt house and stored in fridges according to manufacturers' requirements. The Harmony Group uses Tri-packs which contain ampules of inhalation doses of amyl nitrite, intravenous sodium nitrite, and intravenous sodium thiosulfate. Trained first responders can administer the inhaled amyl nitrate, but only medical personal (medical practitioners or trained paramedics) can administer the intravenous antidotes. The antidote expiry dates, as well as the re-order date, is pasted on the fridge door. Potable water is widely available. Mandown alarms are located at the offloading and at the elution substation close to the control room and at the leach cicuit. Radios are used for communication with the control room. All shift employees are issued with radios. The cyanide alarm is also connected to the Medical Hub at the mine. First aid inspections are carried out by the Business Unit Leader and the Safety Officer. The Doctor's medical bag checklist was sampled for 2020 and the cyanide trailer inspection checklists were sampled for 2018 and 2020.
At the TSF, communication is undertaken via radio and cell phone with the plant control room. Medical oxygen is available in the TSF Light Delivery Vehicle (LDV). A sealed first aid kit is also carried in the LDV, as well as with the Teams on the TSF. This is checked monthly and if the seals are broken, the kit is then checked and refurbished.
The cyanide equipment is regularly checked and tested and mock drills are held regularly on site. All shifts are trained as emergency responders with additional people on dayshift as first, second, third and fourth responders. Emergency Response Plans are in place covering the plant and the TSF. Cyanide emergency cabinets, as well as a cyanide emergency room and cyanide emergency trailer, are available on the plant.
Agreements are in place with the St Helena Hospital and Netcare 911 (ambulance service provider) for the transport and treatment of cyanide patients. Emergency exercises (mandown and spill) are conducted periodically from the plant to the hospital and additional cyanide drill training is done and documented. A full cycle drill (gassing at the offloading area) was carried out on 20 June 2019, as was a mandown drill at the storage area on 7 September 2018, and a cyanide spill drill undertaken on 1 June 2020. Adverse findings from drills were corrected through the provision of additional equipment, refresher training, and change of procedures and practices.

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 a Cyanide emergency preparedness procedure and has the Mandatory Code of Practice of emergency preparedness and response - Target Plant, as required by the Department of Mineral Resources. Within the emergency preparedness procedure, the plant has developed site-specific emergency scenarios and responses. The TSF cyanide and failure scenarios are covered in the Emergency Preparedness Table and Appendices in the TSF COP for Free State Operations Tailings Dams, Mandatory Code of Practice For Mine Residue Deposits. Any cyanide releases relating to cyanide transport are covered by the Cyanide transporter's emergency response plan. The certified transporter is also supported by Sasol and its emergency resources.
The emergency preparedness documentation includes references to evacuation, first aid treatment for cyanide patients, emergency environmental monitoring of surface water and cyanide solution and slimes spills and cleanup.

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 emergency response planning process through safety meetings, shift meetings, training and emergency drills. Furthermore, the Plan was circulated for comments to master operators, emergency team captain, medical station superintendent, environmental manager, electrical foreman, training officer, proto manager, plant engineer, and plant safety officer. The community is not directly involved in the Plan but is informed on its contents during dialogue sessions. Drills are used to involve hospital and ambulance staff in the planning processes.

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 Emergency Preparedness 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, cell phone, etc) of internal and external resources for the various scenarios, particularly with detail where external resources and skills might be needed. Periodic drills involving internal and external stakeholders ensure that roles and responsibilities are understood and clearly implemented.
The St Helena Hospital has been used since 2015. A full project, including a Management of Change exercise, was used to communicate the cyanide emergency responses to St Helena Hospital staff. The Hospital is also included in full cycle cyanide drills from all the Harmony Free State Gold Plants.

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 Preparedness Plan Procedure and the TSF Code of Practice (COP 13) include 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 Procedure.

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 use of ferrous sulphate procedures cover clean-up and remediation relating to releases, pipeline failures and spills, as appropriate to the site-specific identified scenarios. The procedures include sampling methodologies for soil and water. Sampling locations are determined by the Environmental Manager. Use of neutralization processes and materials is clearly covered in plant procedures, as is disposal of contaminated materials (covered in the Environmental Procedure on Management of Waste) and the use of treatment chemicals such as ferrous sulphate in surface water which is prohibited. The use and management of ferrous sulphate as a treatment chemical is described in detail in one of the plant procedures.

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 annually, following incidents, following a drill, following a cyanide process modification or following modification of cyanide safety equipment.
Drill schedules for 2020 were reviewed, including mandown and spill scenario drills. A full cycle man down drill (gassing at offloading area) was conducted on 20 June 2019 from the plant to the Hospital. The report included good points: all personnel evacuated to the assembly point; deficiencies identified included not enough PPE available for medical staff personnel. The cyanide spill drill on 1 June 2020 (spill at offloading area delivery pipe not properly closed) was reviewed. The report comments included: - notify shaft control room at all times. Feedback included social distancing not adhered to, no stable team and the need for assistance from other departments, and checking of air sock not done. The mandown drill on 7 Sept 2018 in the storage area had findings which were: - 1. Netcare phone number did not function, 2. The Doctor was not present at the scene, 3. Old cyanide PPE for medical personnel must be replaced and inspection list updated. 4. Ambulance siren must always be switched on.

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 plant personnel inside the plant fence (including security, contractors, and Intasol, the TSF contractors) are trained in basic cyanide awareness. The cyanide basic training uses a 15 minute video (sighted program material). The video includes section on cyanide emergency response from identification of the incident to the despatch to the hospital by the ambulance. The video further includes a section on offloading of cyanide.
The basic cyanide awareness is being done using e-learning. The cyanide awareness module forms part of the e-learning system. The cyanide awareness training records are contained in the e-learning system.
The access card system is used to block staff who have not undertaken the induction program or refresher training, which includes cyanide hazard awareness. The training matrix for induction and cyanide training was reviewed and confirmed that the matrix data is up to date. Refresher training is carried out annually.
Training matrix includes Target employees and all contractors. 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 40 years on the Plant, after which the records are sent to the central Harmony archive. Sample Records were verified by reviewing interviewee training 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:
The training matrix covers all operational tasks, using Safe Work Procedures, and includes Mining Qualifications Authority unit standards. The Plant Training Officer is a trained Facilitator and Assessor. He has also completed a "train the trainer" course. All his accredited certificates were sighted.
All employees are trained before being allowed to work on a cyanide section (linked to access card system and Human Resources). Assessments are done on job competency for a section by the Training Officer. A yearly workbook is completed containing all procedures and is signed off by the operator. Assessments are used to test knowledge and competency. E-learning uses multiple choice assessments and the assessment must be repeated if learners do not score 100%. Tests are done as per the Mining Qualification Authority (MQA) in the e-learning system.
A PTO (Planned Task Observation) system is in place. Pre-work assessments are conducted that could lead to additional refresher training, as required. Each Supervisor is required to do two PTOs per 24 hours.
Records are retained for 40 years on plant, after which the records are sent to a central archive. Sample Records were verified by reviewing interviewee training 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:
Every plant employee receives induction which includes cyanide emergency response and cyanide first aid knowledge. The training matrix also includes training for cyanide releases and emergency team training. Every shift is trained in Emergency Response, and covering first, second, third, fourth responder tasks.
The Emergency responders are involved in mock drills, and training is given to the St Helena Hospital and Netcare 911 ambulance and Paramedic staff by Harmony staff annually. Training and participating in drills was confirmed during interviews. There are no community members in the area of the Mine and thus are not involved in the Emergency Response Plan.
Periodic mock drills are undertaken and training personnel attend these drills and formally evaluate response and performance. A full cycle man down drill (gassing at offloading area) was conducted on 20 June 2019 from the plant to the Hospital. The report included good points: all personnel evacuated to the assembly point; deficiencies identified included not enough PPE available for medical staff personnel. The cyanide spill drill on 1 June 2020 (spill at offloading area delivery pipe not properly closed) was reviewed. The report comments included: - notify shaft control room at all times.

Feedback included social distancing not adhered to, no stable team and the need for assistance from other departments, and checking of air sock not done. The mandown drill on 7 Sept 2018 in the storage area had findings which were: - 1. Netcare phone number did not function, 2. The Doctor was not present at the scene, 3. Old cyanide PPE for medical personnel must be replaced and inspection list updated. 4. Ambulance siren must always be switched on.
Refresher training is done annually. Records are retained for 40 years on plant, after which the records are sent to a central archive. Records were verified by reviewing interviewee 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: All Emergency Departments, Community around the Mining Areas, Farmers around the Mining Areas and Livestock owners and cattle herders.
An area Cyanide Meeting chaired by J Botha (Harmony No 1 Plant Manager) to discuss the management of cyanide emergencies on the Matjabeng municipality area, was held on 13th March 2019. Emergency Services attendees included the South African Police Services flying squad, staff from Matjabeng Fire and Rescue Department, Paramedics, One Life 911; ER24; and Netcare 911 ambulance services representatives, St Helena Hospital representatives, staff from EMS, RH Private Hospital (Previously called the Ernst Oppenheimer Hospital), and Environmental Health Practitioners. Feedback notes were recorded. The Target Gold Plant Cyanide Awareness Presentation used at the meeting was reviewed.
Public communication flyers were posted to the local clinic and the police station on 28 August 2018. Pictures of flyers were sighted and the contents reviewed. Flyers on the Target Plant ICMI Community Mine Waste Water Awareness Posters Distribution to schools undertaken on 11th September 2019 were sighted. Feedback notes and pictures were reviewed. The programme highlights the water and cyanide hazards on TSF pools. A cyanide awareness presentation was given to the Alanridge Police Station in September 2019. Photos of the event and the presentation given were sighted and reviewed.

The presentation, Harmony Gold Mine Cyanide Awareness Presentation, used for communication to the communities was reviewed and it was noted that the presentation includes sections on: - Production, Transportation. Training, Dialogue, Operations, and Emergency Response.
Minutes of the environmental consultation and cyanide awareness session held over 3 days, 19 -21 November 2019 were reviewed. The session was attended by 80 people, including medical staff from Life 911, St Helena Hospital, RH Matjabeng private hospital, Mediclinic, EMS Freestate, AHC EMS, and 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.

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: All Emergency Departments, Community around the Mining Areas, Farmers around the Mining Areas and Livestock owners and cattle herders.
An area Cyanide Meeting chaired by J Botha (Harmony No 1 Plant Manager) to discuss the management of cyanide emergencies on the Matjabeng municipality area, was held on 13th March 2019. Emergency Services attendees included the South African Police Services flying squad, staff from Matjabeng Fire and Rescue Department, Paramedics, One Life 911; ER24; and Netcare 911 ambulance services representatives, St Helena Hospital representatives, staff from EMS, RH Private Hospital (Previously called the Ernst Oppenheimer Hospital), and Environmental Health Practitioners. Feedback notes were recorded. The Target Gold Plant Cyanide Awareness Presentation used at the meeting was reviewed.
Public communication flyers were posted to the local clinic and the police station on 28 August 2018. Pictures of flyers were sighted and the contents reviewed. Flyers on the Target Plant ICMI Community Mine Waste Water Awareness Posters Distribution to schools undertaken on 11th September 2019 were sighted. Feedback notes and pictures were reviewed. The programme highlights the water and cyanide hazards on TSF pools. A cyanide awareness presentation was given to the Alanridge Police Station in September 2019. Photos of the event and the presentation given were sighted and reviewed.
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Minutes of the environmental consultation and cyanide awareness session held over 3 days, 19 -21 November 2019 were reviewed. The session was attended by 80 people, including medical staff from Life 911, St Helena Hospital, RH Matjabeng private hospital, Mediclinic, EMS Freestate, AHC EMS, and 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.

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 and it was noted that the presentation includes sections on: - Production, Transportation. Training, Dialogue, Operations, and Emergency Response. Copies of presentations were made available to stakeholders who requested them.
Posters are used to communicate cyanide issues and fliers have also been developed which explain cyanide and its uses. Owing to literacy problems, most of the cyanide presentations have to be given verbally in the predominant local languages of Sotho and Xhosa, as well as English.
The Harmony Group communication policy is followed. Cyanide incident response would need to be prepared by Corporate Communications Dept. The Harmony Website contains an item, "Harmony and the Cyanide Code" https://www.har.co.za/10/businessreview_sustainable.htm#incidents. The Cyanide Code is mentioned in the Corporate Sustainable Development Report. Information on significant cyanide exposures and releases would be made available, after appropriate investigations, on the company website (https://www.harmony.co.za/responsibility/environment/materials-waste) and via the annual Sustainable Development Report, should incidents occur.
Fatals or mass incidents 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 any significant cyanide exposures occurring would be made available, annually, after appropriate investigations, on the company ESG website https://www.harmony.co.za/responsibility/environment/materials-waste and via the annual Sustainable Development Report.

Mine releases are reported to the Department of Water Affairs (DWA) and Department of Environmental Affairs (DEA) following an investigation by the Environmental Department. Sasol and Tanker Services are responsible for releases as a result of tanker incidents en route to the mine. Group communication policy is followed. Government Departments do not routinely make all incident reports public. The Harmony Group Communications Department will include the information annually on the Harmony website. Tanker Services Food and Chemicals/Imperial Logistics, the certified transporter, is responsible for transport incidents and reporting off the mine property.
No cyanide accidents or incidents occurred since the last recertification audit.