

***INTERNATIONAL CYANIDE
MANAGEMENT INSTITUTE***

***Cyanide Code Compliance Audit
Gold Mining Operations***

Summary Audit Report

***Harmony Gold Mines Limited
Target Gold Plant
South Africa***

8th – 12th February 2010



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, Target 3 shaft, and Freddie's 9 shaft waste dump with the majority being from Target 1 shaft and Freddie's 9 shaft waste dumps. The plant was recently modified by installing a run of mine mill (ROM) 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, followed by electrowinning and gold smelting using induction furnace. The other mill product is directed to the thickener for densification, followed by leaching through 4 of the 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

- in full compliance
- in substantial compliance *(see below)
- not in compliance

with the International Cyanide Management Code.


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

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: 7/10/2010

Dates of Audit: 8th – 12th February 2010

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

Facility


Signature of Lead Auditor

7/10/2010
Date

Target Gold Plant

Signature of Lead Auditor

7th October 2010

Auditor's Findings

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

Standard of Practice 1.1: 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 contract, covering all Harmony Gold Plants, in place with SASOL Polymers, as the sole supplier of liquid Sodium Cyanide, delivered by bulk tanker. This supply contract includes Target Gold Plant. SASOL Polymers is a signatory to the Cyanide Code and was re-certified as a fully compliant Production Facility with the ICMI Cyanide Code on 2 March 2010.

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:

There is a formal agreement memorandum between SASOL Infrachem and Target Gold Plant which 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. SASOL Infrachem was re-certified on 13 January 2010 as a fully ICMI Code compliant transporter.

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 agreement memorandum between SASOL Infrachem and Target Gold Plant requires that transporters be certified under the Code. SASOL Infrachem was re-certified on 13 January 2010 as a fully ICMI Code compliant transporter.

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 operation uses only liquid cyanide, delivered by bulk tanker, and no mixing takes places on site. Full and detailed design drawings for the cyanide off-loading and storage area were sighted, along with satisfactory inspection reports by the cyanide

manufacturer's technical officer. The structures were designed and located on concrete and away from people and surface waters and built with materials appropriate for use with cyanide. The tanker unloading slab is sloped and drains back into the cyanide storage bund area. The cyanide storage tanks, which are located inside concrete bunded areas, have level indicators equipped with lights and audible alarm set to go off at 85%. The offloading procedure requires the off-loader to immediately close offloading air (supplied from the plant compressors) to stop offloading. Additional high level alarms sound on the SCADA at the master operator panel in the control room. The procedure covering cyanide unloading was reviewed and found to be effective. Cyanide areas are within the access controlled plant security area which is securely fenced.

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 and is delivered via bulk tanker to storage tanks. The offloading procedure is detailed, spelling out PPE requirements, use of a buddy in the process, and clearly sequenced to prevent spillages and accidental releases during off-loading.

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.

in full compliance with

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



Basis for this Finding/Deficiencies Identified:

The site has 70 cyanide specific operational and engineering procedures for normal, abnormal and emergency conditions, supported by TSF contractor safe working procedures for TSF activities and a mandatory Code of Practice covering TSF operation. Routine daily, weekly, monthly and quarterly inspection reports, legal inspections, and checklists were sampled to check the effectiveness of systems and ensure that proactive and reactive management takes place. The plant maintenance and inspection schedule includes preventative maintenance inspections on most cyanide critical equipment.

A new PMS system (Maximo) is being implemented. Critical cyanide equipment is being loaded on the system with certain, but not all, equipment covered to date. A Corrective Action Plan is in place to complete the loading process and confirm effectiveness of the new system and there is no interim risk to health, safety and the environment. Quarterly technical inspections of the TSF facilities are undertaken to ensure integrity and safety. A change management procedure covering health, safety and environment is in place and operational.

There is a probabilistic water balance in place, and no scenario has been identified where the need has been highlighted to shut down plant to prevent overtopping (shutdown of the plant would mean no pumping or circulation capacity available). Abnormal and emergency conditions are covered in the procedures and the Emergency Response Plan.

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:

Weekly meetings are held with ore reserve manager to discuss the feed mix to the plant. Monthly bottle roll tests are conducted on all feed sources and the MINTEK laboratory conducted a study on cyanide consumption. Further testwork will be conducted based on the initial MINTEK report. A presentation, "Cyanide optimisation at Target Plant", showed cyanide reduction from 300 g/t (grams per ton) to 220 g/t.

The plant uses a TAC 2000 cyanide control system to control cyanide dosing to the leach tanks. A WAD analyser was installed and it is used to manually optimise cyanide addition settings on the TAC cyanide controller by monitoring the residual cyanide in the tails.

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 comprehensive, probabilistic water balance for the TSF and for the plant was sighted. Information is included on rainfall, storm events, and solution deposition. Rainfall data is collected daily on the TSF and combined with local rainfall measurements. The water balance has modelled the various rainfall events and the total return water and evaporation pond capacity, including the operating levels, is sufficient to prevent overtopping in case of power failures during the rainfall events. The TSF is of the paddock type and no run-on from up gradient occurs to the TSF itself. The new return water dam walls were also raised to prevent run on.

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:

WAD cyanide data from tipping points (the compliance measuring point) from February 2009 to October 2009, shows the highest value was 39 ppm. A WAD cyanide on-line analyser was installed and values sighted varying between 30 and 35 ppm WAD cyanide. Water dams weekly WAD cyanide values varied from 0.25 to 4.4 ppm WAD between October 2008 and December 2009. Thus no special measures are needed for the protection of wildlife and livestock. Daily wild life inspections are conducted on the TSF and reported to plant management and the mine environmental department conducts weekly TSF wildlife inspections. No mortalities have been recorded since becoming signatories to the Code.

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:

The site has no direct discharges to surface water. The closest stream is 3 km away and no seepage could reach the stream. Borehole values around the TSF and Plant were sighted and all levels are below the limits of detection of 0.005ppm WAD cyanide.

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 and seepage is pumped back to the TSF return water system for re-use in the process. Boreholes are sampled and monitored for cyanide. The return water dam is clay-lined to prevent seepage. Farmers are identified as beneficial users of underground water for animal use. Boreholes are sampled and analysed for WAD cyanide. The mine uses the Department of Water Affairs standard for groundwater which is 0.5ppm cyanide. Borehole samples since May 2009 indicate all are less than 0.005 ppm WAD cyanide, which is at the limits of detection.

Current backfill standards limit the free cyanide in the final product sent underground to 10ppm free CN. Ferrous sulphate is added to the batches until the correct free CN level is achieved. A Backfill Operation Procedure is in place which cross references to the standard titration procedure and a procedure in the event of a high WAD cyanide level in the tailings. Underground water pumped to the 1 million gallon dam is sampled and the WAD cyanide measured values are at limits of detection levels. An evaluation report on the impact of backfill on worker health and beneficial uses of the underground water was sighted which indicated that the risks were acceptable.

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 site's design includes bunding and containment for all reagent strength cyanide tankage and piping. Cyanide reagent strength storage tanks are placed on solid concrete plinths. All cyanide solution tanks CIP, Leach, Elution, Eluate, Electrolyte are installed on ring beams and are placed inside concrete bund areas (these tanks undergo annual thickness testing in September to evaluate and predict the condition of the tank). The CIP and Leach tanks are rubber lined to reduce risk of tank base plate leaking into the soil of the ring beam and inspected annually (the rubber lining essentially means that the tank base functions as a competent secondary containment). An RBI procedure " Maintenance on cyanide containing tanks and pipelines G06.031 rev 9/2/10" for the rubber lined and ring beam tanks is in place, covering the schedule of the inspections, cleaning of the tanks in preparation for the inspections, the visual as well as spark test method detailing the inspection of the rubber, 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 bunds are equipped with sumps and spillage pumps, returning spillage to the process. Cyanide tanks and pipelines are manufactured from materials compatible with cyanide and high pH conditions.

Cyanide solution lines in the plant are installed overhead bunds and tarred / concrete surfaces or in "pipe within a pipe" containment. No pipelines cross streams or present a risk to surface water.

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:

Although no quality control/quality assurance records for the cyanide equipment were available, written confirmation was received from the Australian Project Engineer who worked on the plant, regarding design standards used, foundation specifications, quality control systems, and radiography tests used on the tanks. The original construction company used an ISO 9001 quality control system on site and the quality manual used in construction was sighted. Additionally, a satisfactory report by a professional structural engineer entitled "Safety Audit Investigation Target Plant", dated September 2009, was sighted.

Annual TSF engineering audit reports concluded that the dams are generally in good condition with no visible signs of instability.

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 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 is done bi-weekly and wildlife is monitored daily on the TSF for any mortalities and the Mine Environmental Department monitors for wildlife mortalities on a weekly basis.

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 Target Plant Cyanide Decommissioning Plan is in place to ensure that planning and costing adequately covers cyanide decommissioning and closure. An implementation plan forms a part of the decommissioning plan. The decommissioning plan 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 mine closure costs include specific line item funds for cyanide decommissioning. Closure cost estimates are updated on an annual basis as per legal requirement. A Financial Guarantee supported by a Bank, in terms of legal requirements, to cover closure costs (including cyanide decommissioning), is in place and the currency of the Financial Guarantee was verified.

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 70 cyanide specific operational and engineering procedures for normal, abnormal and emergency conditions, supported by TSF contractor safe working procedures for TSF activities and a mandatory Code of Practice covering TSF operation. Routine daily, weekly, monthly and quarterly inspection reports, legal inspections, and checklists were sampled to check the effectiveness of systems and ensure that proactive and reactive management takes place. The plant maintenance and inspection schedule includes preventative maintenance inspections on most cyanide critical equipment. Site procedures were checked and appropriate pre-work inspections and PPE requirements were verified as included in all procedures.

A change management procedure covering health, safety and environment is in place and operational. Checks and balances are in place through worker involvement and discussion in risk assessments, daily toolbox meetings, and monthly workforce safety meetings.

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

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 runs at a pH of 10.5 on thickener, and the leach pH is run at 11. An interlock is in place on the thickener, tripping out the cyanide dosing pumps when the pH drops to less than 9. Witwatersrand ores are typically leached at a pH above 10.5 to minimise HCN gas formation. A procedure, in the event of low pH, is in place for abnormal circumstances.

Fixed gas monitors are installed on top of cyanide tank, residue tank, smelt house, and leach tanks and 3 portable PAC 7000 gas monitors are used. Currently, no calibration is needed as the units are new and still fall within the 12 month calibration period. In future, calibration of HCN monitors will be done by internal qualified Technicians. The elution bund area and the leach and elution dosing points were identified as hot spots. The residue tank was identified as a potential hot spot.

On-going inspections and checks are also used to monitor and check facilities and emergency response equipment functioning. Safety equipment such as safety showers, low pressure eye wash stations, and fire extinguishers are numerous and adequately signposted.

Slurry pipelines are marked as cyanide containing, and return water dams and lined dam equipped with warning signs indicating poisonous water. Eating and drinking is only allowed in dedicated areas and this is trained and reinforced during annual induction of contractors and plant staff. Cyanide pipelines are colour coded, and labelled. Formal employee interviews were used to check awareness and sensitivity to health and safety measures and the response from employees and contractors alike, was found to be appropriate and acceptable. Accident and incident reporting and investigation procedures, based upon the site safety reporting requirements, were found to be in place and effective.

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 and smelt house. Man down alarms are located at the offloading area and at the elution substation close to control room. Two way radios are used for communication with the control room and all shift employees are issued with radios.

In terms of the Emergency Response Plan, the Plant Emergency Response Team is in place for dayshift, with the 4 shift operators trained in cyanide emergencies after hours. Plant first aid room available inside the plant, equipped with oxygen and 2 antidote packs. 1 antidote pack is available in the smelt house. The mine dressing station is situated close by and also responds to cyanide emergencies. The cyanide equipment is regularly checked and tested and mock drills are held regularly on site.

The Harmony Ernest Oppenheimer Mine Hospital was confirmed to be able to treat cyanide emergencies and Hospital staff is given cyanide awareness training by the Harmony No 1 Plant training department annually. Netcare is the contracted ambulance undertaking patient transport.

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 used a risk assessment to develop site-specific emergency scenarios and responses for its emergency response plan. The emergency preparedness 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 Plan was circulated for comments to master operators, the emergency team captain, the medical station superintendent, the environmental manager, the electrical foreman, the training officer, the mine proto team manager, the plant engineer, and the plant safety officer. Representatives of the workforce (employees, Health & Safety Representatives and Union representatives) were involved in the risk assessment to develop the emergency scenarios and response in the emergency response plan and procedures. 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 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 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.

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 Emergency Preparedness 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 Emergency Preparedness Plan cross-references to detailed and specialised procedures which cover clean-up and remediation relating to releases, pipeline failures and spills, 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 is prohibited.

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 and emergency drills or when new information regarding cyanide becomes available. The report of a drill which

included a cyanide spill and cyanide related injury was sighted. Evidence was sighted of learning points emerging from the various cyanide man-down drills.

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) are trained in basic cyanide awareness. Modules include cyanide basic training using a 15 minute supportive video. This was confirmed during interviews with staff. Refresher training is done annually, based on schedules using training shift system (also used for routine update training), and the use of a matrix with a flagging system to ensure all staff is covered. Written tests are conducted with a 100% pass mark required. 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.

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

in full compliance with

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

 not in compliance with

Basis for this Finding/Deficiencies Identified:

The whole training system within the Harmony Group was changed from a historically less formal training structure to a formally structured well planned system, referencing to national unit standards relating to Metallurgy. The new training system was implemented and is in the process of training the staff on the revised standards and procedures, which are ICMI code compliant. Implementation is in the early stages and training on critical cyanide related tasks need to be verified for full compliance. There is no immediate risk

to health, safety or environment as the existing on-the-job training ensures cyanide competency. A corrective action plan has been developed to achieve the above within 8 months. All Trainers are trained and registered as Assessors and the Harmony Metallurgy training establishment is formally ISO 9001 accredited. A Plant specific Planned Task Observation (PTO) system is in place. Records are retained for 40 years on plant, after which the records are sent to a central archive.

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:

The Training matrix specifies training for the emergency response team, unloading, production, and maintenance personnel in the procedure to follow if cyanide is released. The plant has a dedicated emergency response team per shift, and the shift workers are trained in the response in case of any cyanide release / spillage. Cyanide section staff are currently trained in cyanide releases using emergency drills. Periodic mock drills are undertaken and training personnel attend these drills and formally evaluate response and performance.

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:

A Harmony common community communication file (with both Harmony common and site specific contents) forms the basis of communications at meetings. Evaluation forms to measure the response to the meeting are used and indicate a positive response. Meetings have been held with cattle owners, council members, at the local village, and at local schools. The opportunity to raise concerns was given during the meetings and

questions from the presentations included topics such as Voëlpan (this is a natural “pond” which only fills when it rains and questions were asked about possible cyanide content), waste dump cyanide contents, and dust blowing. Schools requested presentations after the general meetings which were given. General meeting materials of June 2009 (presented to local authorities, emergency services, councillors, farmers, and co-operatives) and August 2009 follow up meetings were sighted. SASOL, the cyanide producer, was also present at the meetings. Issues raised include cyanide in return water dams, availability of cyanide information on website, and Is cyanide pumped into reservoir. Appreciation by attendees was expressed on the information presented and a request for regular meetings was made. A communication register is placed in the plant control room to record feedback and complaints. Key Plant Contact numbers were distributed during all stakeholder meetings.

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:

A Harmony common community communication file (with both Harmony common and site specific contents) forms the basis of communications at meetings. Evaluation forms to measure the response to the meeting are used and indicate a positive response. Meetings have been held with cattle owners, council members, at the local village, and at local schools. The opportunity to raise concerns was given during the meetings and questions from the presentations included topics such as Voëlpan (this is a natural “pond” which only fills when it rains and questions were asked about possible cyanide content), waste dump cyanide contents, and dust blowing. Schools requested presentations after the general meetings which were given. General meeting materials of June 2009 (presented to local authorities, emergency services, councillors, farmers, and co-operatives) and August 2009 follow up meetings were sighted. SASOL, the cyanide producer, was also present at the meetings. Issues raised include cyanide in return water dams, availability of cyanide information on website, and Is cyanide pumped into reservoir. Appreciation by attendees was expressed on the information presented and a request for regular meetings was made. A communication register is placed in the plant control room to record feedback and complaints. Key Plant Contact numbers were distributed during all stakeholder meetings.

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:

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. Copies of presentations were made available to stakeholders who requested them. Reporting on incidents has not been done because there have been no incidents. Injuries must be reported to the Department of Minerals Resources who do not necessarily make the information publically available. Similarly, spills and releases must be reported to the Department of Water Affairs and Environment. Transport related incidents and reported by Sasol Infrachem, the transporter, through their own reporting mechanisms. Annual reports do not include details on cyanide incidents. However, in a letter from the executive: environmental management of the Harmony Gold Mining Company to the ICMI Lead Auditor, it was stated that the Harmony Group communication on cyanide-related significant incidents will be included in its public website, as well as the annual report, should they occur.