

***INTERNATIONAL CYANIDE
MANAGEMENT INSTITUTE***

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

Summary Audit Report

***Harmony Gold Mines Limited
Kusasalethu (formerly Elandsrand)
Gold Mine
South Africa***

18th – 22nd January 2010



Name of Operation: Kusasaletu (formerly known as Elandsrand)
Gold Mine

Name of Operation Owner: Harmony Gold Mines Limited

Name of Operation Operator: Harmony Gold Mines Limited

Name of Responsible Manager: Thabang Hlalele (Acting Plant Manager)

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Location detail and description of operation:

The Harmony Kusasaletu (formerly known as Elandsrand) Gold Plant is situated 18 km from Carletonville, which is 85 km from Johannesburg, South Africa.

The gold plant consists of the Milling section for grinding of ore, Thickeners for dewatering (pulp for leach feed), Leach section for dissolution of gold using liquid Sodium Cyanide as one of the reagents, Carbon in Pulp for adsorption of dissolved gold and Backfilling for producing support material for underground, of which only 30% is subjected to classification for backfilling, and the 70% is pump to the tailings storage facility.


Ore Reception

Run of Mine (ROM) is conveyed from underground to the stock pile facility of 28 000 tons capacity. The stock pile material feeds to the three parallel silo bins of 2550 tons live storage capacity, from which ore is drawn from each silo to be taken to the three parallel run of mine mills for grinding to required size. Other surface source material is fed to the silos through a conveyor from an open stockpile feed grizzly, taking the ore up into one of the three silos.

Milling

The milling section consists of three ROM mills with design capacity of 140 tons per hour (t/h). The three parallel and independent milling lines, each having a conveyor underneath each silo, get material delivered onto the conveyor via a Langlaagte chute.

Kusasaletu Gold Mine

Signature  Lead Auditor

11th April 2010

Steel balls are used as grinding media, supplemented by wide range particle size of mill feed. The current feed rate is 70t/h. The mill feed and discharge pumps have variable drives to enable control of optimal efficiency for grinding and classification. There is two stage classification for each mill with each primary cyclone overflow combined into a common tank, the secondary cyclone feed tank, for second stage classification by secondary cyclone. The overflow of the secondary cyclone is further screened on a linear screen for the removal of coarse woodchips and tramp steel. The material passing through the linear screen is normally at a density of 1.1 -1.2 Kg/m³ and a grind of 80% - 75 micron and allowed to gravitate to the thickeners for dewatering.

Thickening

There are three thickeners, two of which are always online, fed from a distribution box of the thickeners feed launder, with the one thickener available as a standby in case of emergency. Calcium oxide (lime) is added at the thickeners for maintaining a level of alkalinity with a pH of 10.4 to prevent the generation of poisonous HCN (cyanide) gas at the leach section. Flocculent is added to aid with settling of solids, pulping the slime to densities of 1.5 to 1.6 Kg/m³. Each thickener is equipped with variable speed drives to control leach feed densities which are linked to the installed densitometers that speeds or slows down the pump, based on the underflow densities. The overflow water of the thickeners gravitates to the two mill return tank to be reused in the mills.

Leach

The leach circuit consists of 12 tanks, each with a height of 20m and diameter of 1.9m. Cyanide is automatically added to the first tank at a concentration of 160ppm, for dissolution of gold. Compressed air is used to agitate the slurry, suspending solids in pulp and raising dissolved oxygen to about 10ppm for optimal leach efficiencies. Retention time in each tank is 5 hours, totalling a 35 hour leach period for the seven tanks online. Leach slurry gravitates from the first tank through to the seventh tank, while consuming 100ppm of cyanide in the process.

Carbon in pulp

The carbon in pulp circuit is a carousel system design with eight tanks of 1.2m diameters and 10m height each. A cylindrical screen with 0.630mm apertures is used in every tank to retain activated carbon added at concentration of 50g/l. The first tank loads up to 10Kg/t by adsorbing the dissolved gold while allowable dissolved losses at the last tank on line is controlled at 0.01g/t. The loaded head tank is dropped and bagged to be transported to another plant for a further refining process.

Backfill

The backfill plant consists of four modules. Each module comprises of a primary, scavenger and cleaner cyclone. All four modules draw feed from the common tank with a level sensor linked to the splitter box for directing flow from CIP. The feed tank level is set at 80% to subject material to classification and material is pumped to the TSF when the feed tank is above 80%. An automatic WAD cyanide analyser is installed at the residue line (feed to the backfill) to sample and analyse WAD cyanide levels for environmental compliances of allowable discharge levels of WAD from the mine process circuit in case of spills and water overflows. The underflow of the primary cyclone is further subjected to classification by cleaner cyclone, producing a final product of 1.7Kg/m³ and permeability of over 200mm/s. The overflow of the cleaner cyclone and

the underflow of the scavenger cyclone are recycled to the primary feed tank for reclassification while the overflow of the scavenger gravitates to the reject tank where it is pumped to the slime dam tank. About 0.11ppm of ferrous sulphate is added to neutralise the cyanide concentration of backfill product to less than 10 ppm free cyanide concentration.



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

E-mail: arend@eagleenv.co.za

Names and Signatures of Other Auditors:

Name : Dawid M. L Viljoen Signature  Date: 27/02/2010

Dates of Audit: 18th – 22nd January 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.

Kusasalethu Gold Mine

Facility


Signature of Lead Auditor

Date

2/9/10

Kusasalethu Gold Mine


Signature of Lead Auditor

11th April 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 Kusasalethu Gold Mine. 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 Kusasalethu Gold Mine which covers the responsibilities and requirements for safety, security, unloading, emergency response (spills prevention and clean-up), route planning and risk

Kusasalethu Gold Mine

Signature  Lead Auditor

11th April 2010

assessments, community liaison, emergency response resource access and availability, training, and communication.

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 Kusasalethu Gold Mine requires that transporters be certified under the Code. SASOL Infrachem has been re-certified on 14 January 2010, fully ICMI Code compliant, as a 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 only uses liquid cyanide delivered by bulk tanker and design drawings for the cyanide off-loading and storage area were sighted. The structures were designed and located on concrete and away from people and surface waters and built with materials appropriate for use with cyanide. Due to weaknesses in the sloped containment humps at either end of the tanker unloading bay, the site has redesigned the offloading containment area. The Cyanide storage tanks are equipped with level indicators and level alarms set at 75% of physical capacity and an automatic off-loading air shutoff valve activated at 90% of physical capacity. The procedures covering cyanide unloading were reviewed and found to be effective. Cyanide areas are fenced, locked with key control, and security

controlled, with adequate controls and separation to prevent mixing with incompatible materials.

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 delivered in bulk to storage tanks. The off-loading procedure is detailed, using a buddy in the process, and sequenced to prevent spillages 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.

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 73 cyanide specific operational and engineering procedures for normal, abnormal and emergency conditions, supported by TSF Contractor procedures for TSF activities and a mandatory Code of Practice covering TSF operation. Routine daily and monthly inspection reports, legal inspections, and checklists were sampled to check the effectiveness of systems and ensure proactive and reactive management. The plant maintenance and inspection schedule included preventative maintenance inspections on all cyanide critical equipment. Quarterly technical inspections of the TSF facilities are undertaken to ensure integrity and safety. A change management procedure covering

health and safety and environment is in place and appropriate signed off examples were available.

A PMS spreadsheet based system was implemented on the TSF in October 2009. There is insufficient evidence to judge the effectiveness of the PMS and this is the subject of a corrective action plan to generate sufficient historic data to demonstrate effectiveness.

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.

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

X in full compliance with

- The operation is**
- in substantial compliance with **Standard of Practice 4.2**
 - not in compliance with
 - not subject to

Basis for this Finding/Deficiencies Identified:

The plant receives ore from a single shaft system with consistent Witwatersrand type gold ore with surface reclaim material being treated at times, which can result in increased cyanide requirements. Oxygen injection has been tested and is being considered. Current test work includes a comprehensive leach optimisation program which is indicating that lower cyanide tenor is needed at shorter contact time. WAD 1000 cyanide measurement and control is used and a WAD analyser on the plant tails was installed and commissioned to improve control.

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 available on rainfall, storm events, and solution deposition. Rainfall data is collected by the plant staff. The TSF freeboard is specified and surveyed annually and measured using datum poles monthly. Return water dam level is checked by Artisans

three times per week and recorded for water balance purposes. Storm water diversion trenches are formally inspected and cleaned.

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

X in full compliance with

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

 not in compliance with

Basis for this Finding/Deficiencies Identified:

The plant uses the tip point value for WAD CN compliance. All WAD CN levels at the tip point sighted from May 2009 to date were below 30 ppm. Return dam water WAD values sighted from May 2009 to date are below 0.5 ppm WAD CN. A WAD 100 analyser was installed in line on the CIP tails and is used for controlling the WAD at less than 50ppm in the pool. Daily wild life inspections are conducted on the TSF and reported to plant management. 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. One indirect discharge occurs to the Loopspruit from the bottom of the return water dam. Provision is made for a pump to return seepage from the trench back to the return dams. The Seepage point is sampled monthly and analysed for WAD CN. The values from May 2009 to December 2009 indicate <0.5ppm WAD CN. Level monitoring of the seepage pump sump is being done every second day, together with the normal dam inspections carried out three times per week.

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 toe drains flowing into the return water dam. A seepage pump is installed to return seepage to the return water dam and this was verified during a site inspection. Water from the seepage pump sump is sampled weekly and the values since May 2009 have been below limits of detection. Borehole samples have been taken to establish WAD CN in groundwater. Independent sampling concluded that the WAD values in the boreholes varied between 0.001 and 0.003 mg/l WAD CN. A report looking at backfill used in the mine concluded that the backfill product contained low enough cyanide levels to rule out Safety & Health, as well as groundwater, issues resulting from the seepage water.

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

in full compliance with

The operation is **X 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. All bunds are equipped with sumps and spillage pumps, returning spillage to the process. However, although the leach tanks are not equipped with adequate bund capacity, the tanks are located on a slope and the gap is at the top of the slope, and the risk of spillage at that point is low. Any spills, in the interim, will be managed using the spills cleanup procedures. The Corrective Action Plan is to repair the damaged drainage paths and channels with lined trenches leading to the unlined emergency spillage pond which will have sufficient containment capacity. Emergency procedures are in place to empty the emergency spillage pond as soon as possible to prevent ground water contamination. TSF tailings lines are old and are not provided with an effective secondary containment and are being replaced. This is part of the PSM and the TSF expansion strategy and is part of the Corrective Action Plan. Cyanide tanks and

pipelines are manufactured from materials compatible with cyanide and high pH conditions.

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

X in full compliance with

- The operation is**
- in substantial compliance with **Standard of Practice 4.8**
 - not in compliance with

Basis for this Finding/Deficiencies Identified:

No quality control/quality assurance records for the cyanide equipment were available and the plant was visually inspected by specialists who covered the whole plant excluding the reagent strength cyanide storage. The cyanide storage facilities were inspected by the plant engineer, who concluded that the facility was fit for purpose. The Annual report on TSF concluded that the foundation was considered to be stable. At current rates of rise and overall outer slopes the facility was not considered to be at risk of overall slope failure. The return water dam wall was noted to be in good condition and there was no seepage from the sump.

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:

A sampling plan is in place to sample both surface and groundwater for cyanide, which was reviewed. Monitoring, sample preservation and custody and chain of custody procedures were developed externally by competent persons in an analytical laboratory that undertakes, not only the sample analysis, but also carries out the sampling. Daily monitoring for mortalities is carried out and no mortalities have been found. Monitoring frequencies are weekly for streams, boreholes and open waters.

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 is in place to ensure that planning and costing adequately covers cyanide decommissioning and closure. An implementation schedule forms an appendix in 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 includes specific funds for cyanide decommissioning. Closure cost estimates are updated on an annual basis as per legal requirement. The Elandsrand and Deelkraal Rehabilitation Trust has been established, in terms of legal requirements, to cover closure costs (including cyanide decommissioning) and the existence and currency of the Trust 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 73 cyanide specific operational and engineering procedures for normal, abnormal and emergency conditions, supported by TSF Contractor procedures for TSF activities and a mandatory Code of Practice covering TSF operation. Routine daily and monthly inspection reports, legal inspections, and checklists were sampled to check the effectiveness of systems and ensure proactive and reactive management. Site procedures were checked and pre-work inspections and PPE requirements verified. A change management procedure covering health and safety and environment is in place and appropriate signed off examples were available.

Checks and balances are in place through worker involvement in risk assessments, through consultations in Health & Safety Committee meetings and during shift 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 controls the pH at 10.5 which is optimal for the type of ore treated and the process water used. The plant controls the pH using slaked lime by measuring pH at the thickeners, leach tank no 1. pH meters are installed in no 1 leach tank, backed up by manual pH measurements. Hot spot surveys were carried out but no specific areas were identified. 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. A site wide pipe colour coding system is in operation which includes cyanide pipe colour coding and directional flow signage which is included on the PMS. Fixed and mobile HCN gas monitors are used on site and are calibrated and maintained according to procedures using manufacturers' recommendations. 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:

Medical oxygen resuscitators and antidote kits are in place (Cyanide emergency cabin, top of leach, and in the Clinic), telephone, radios, man down alarms and cell phones are used for communicating cyanide emergencies. Cyanide emergency procedures form part of the site-wide emergency preparedness plan which covers the whole site and includes the cyanide facilities. The scope of the plan includes site-based responses, the use of an emergency response team on each shift, and includes provision for evacuation of patients by ambulance to a local hospital which is adequately staffed by appropriately trained personnel. Emergency first aid equipment, antidotes, medical oxygen and BA sets are accessible and this is supported by a formal cyanide first aid procedure. The Cyanide equipment is regularly checked and tested and mock drills are held on site.

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 site 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:

Health and Safety Committee and Shift meetings are used to communicate developments and changes in all cyanide activities, including emergency response. 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. Emergency equipment lists were 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 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 which 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 full cycle drill to hospital 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. Refresher training is done annually, based on schedules using a training shift system (also used for routine update training) and the use of a matrix with a flagging system to ensure all staff are covered. Written tests are conducted with a 100% pass mark required. Randomly selected employees were checked in interviews on their understanding of cyanide hazards, first aid and emergency response and this was 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. 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 – and the requirement is currently for the completion of 4 PTO's, per Supervisor,

per month. 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.

in full compliance with

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

not in compliance with

Basis for this Finding/Deficiencies Identified:

The Training matrix was updated to specify 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.

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. A corrective action plan has been developed to achieve the above within 8 months. 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:

Two way dialogue meetings were initiated with stakeholders including schools (Xhobani primary school, Wedela primary school and technical school including the principals), two community development workers, a community police forum representative, farmers,

and a community ward councillor. The presentation given to the stakeholders included information on the ICMI Code, use of cyanide at the mine, what to do at an accident scene, symptoms of cyanide poisoning and cyanide transportation. Questions were asked, mostly about borehole sampling but also covered children and access to return water dams and slimes dams.

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:

Two way dialogue meetings were initiated with stakeholders including schools (Xhobani primary school, Wedela primary school and technical school including the principals), two community development workers, a community police forum representative, farmers, and a community ward councillor. The presentation given to the stakeholders included information on the ICMI Code, use of cyanide at the mine, what to do at an accident scene, symptoms of cyanide poisoning and cyanide transportation. Questions were asked, mostly about borehole sampling but also covered children and access to return water dams and slimes dams.

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:

Owing to literacy problems, most of the presentations have to be given verbally in the local language. 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 public. Similarly, spills and releases must be reported to the Department of Water Affairs and Environment. Transport related incidents are 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.

