

***INTERNATIONAL CYANIDE
MANAGEMENT INSTITUTE***

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

Recertification Summary Audit Report

***AngloGold Ashanti
Noligwa Gold Plant
South Africa***

26th – 30th July 2010

Name of Operation: AngloGold Ashanti Noligwa Gold Plant
Name of Operation Owner: AngloGold Ashanti
Name of Operation Operator: AngloGold Ashanti
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Location detail and description of operation:

AngloGold Ashanti Noligwa Gold Plant is situated in the North West Province of South Africa, approximately 22 km south east of Klerksdorp near Orkney.

Noligwa plant was commissioned in 1971 and treats approximately 200 000 tons per month of reef material from the Great Noligwa, Kopanang and Moab Khotsong mines. Following milling in two run-of-mine mills, the slurry is thickened before being pumped to the uranium section for uranium extraction.

The uranium plant residue at pH 1.5 -2.5 is returned to the gold plant where it is neutralised with lime in the neutralisation section. The pH neutralisation occurs in stages to pH 7.5, pH 9.5 and final pH 10.5 respectively in air agitated pachucas. The neutralised slurry at pH 10.5 is pumped to the leach section for cyanide addition and gold extraction.

Liquid sodium cyanide is added to the leach feed slurry with cyanide dosing control being achieved by means of an on-line auto titrator integrated into a dosing control loop linked to the dry tonnage feed to the leach section. Gold

leaching takes place in a series of mechanically agitated tanks and air agitated pachucas.

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

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

The slurry exiting the adsorption section is pumped to the floatation plant where the material is acidified and conditioned prior to floatation for pyrite recovery. Backfill material for use as underground support is produced from the neutralised floatation residue material. The initial acidification and subsequent floatation process effectively destroys the residual cyanide in the material used to produce the backfill. The neutralised floatation residue material (Monitored for WAD Cyanide, Free Cyanide with a WAD Cyanide analyser) not taken for backfill production is pumped to the final residue stream exiting the plant to the Mispah TSF.

Low grade waste rock is also treated in the Noligwa gold plant through the low grade Mispah milling and recovery circuit. Following run-of-mine milling, the slurry is subjected to a cyanide leach followed by gold adsorption in a carousel operated CIP plant. Cyanide dosing control to the Mispah leach circuit is achieved by means of an on-line cyanide titrator integrated into a control loop linked to the dry tonnage feed. The loaded carbon from the CIP circuit is treated in the elution section for final recovery of gold in the electrowinning cells. The CIP residue material joins the final residue stream reporting to the Mispah TSF from where the recovered water is recycled back to the mills.

Auditor's Finding

This operation is

X 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: 30/12/2010

Dates of Audit: 26th – 30th July 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.

Noligwa Gold Plant

Facility

Signature of Lead Auditor

3/1/2011
Date

Noligwa Gold Plant

Signature of Lead Auditor

24th December 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 an AngloGold Ashanti cyanide supply contract, covering all AngloGold Ashanti Gold Plants, including Noligwa Gold Plant, in place with SASOL Polymers, as the sole supplier of liquid Sodium Cyanide, delivered by bulk tanker. The contract requires that the producer or supplier of cyanide must be a signatory to the ICMI Code and the producer or supplier must be ICMI certified. 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:

The supply contract between SASOL Polymers and AngloGold Ashanti specifically covers the responsibilities and requirements for transport, 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 SiLog 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 AngloGold Ashanti supply contract requires that the producer/supplier of cyanide must be a signatory to the ICMI Code and the producer supplier and transporter must be ICMI certified. SASOL Infrachem SiLog was re-certified on 13 January 2010 as a fully ICMI Code compliant transporter, thus meeting all the requirements for appropriate emergency response planning and cyanide management.

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 or storage of solid cyanide takes place on site. The offloading and storage facilities were designed and built with materials appropriate for use with cyanide and are located in concrete bunds away from people and surface waters. Cyanide areas are away from

incompatible materials and within the access controlled plant security area which is securely fenced. The off loading area is a concreted area equipped with humps and is marked for the lining up of trucks before offloading. Any spillage drains to a sump and drain pump from where the spillage is analysed for cyanide content and then pumped to the no 4 pre-leach tank. All cyanide storage tanks are equipped with level indicators and high level alarms which indicate on the PLC in control room and with flashing lights at the storage area. An automatic interlock shuts off the offloading air at 85% tank level and also prevents any offloading starting if the tank is 85% full. The procedure covering cyanide unloading was reviewed and found to be effective.

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 and no mixing or storage of solid cyanide takes place on site. 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.

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:

There are 97 operating and engineering procedures in place related to cyanide management, supported by 30 TSF contractor operating and management procedures. A

mandatory Code of Practice (COP) and operating manual covering TSF operations in the Vaal River area is also in place, as are operations and maintenance manuals for Mispah 2 TSF (incorporating the extension to the TSF), east and Nologwa complex Mispah 1 and 2 paddock dams and a Cyclone operating manual for the conversion of the Nologwa extension. The freeboard and design storm event (1.3m and 1:50 year 24 storm event) is defined in the COP. The Annual TSF audit report Sept 2009 concluding that the TSF's at Vaal River are generally in a good condition. Stability analyses are conducted and reported in annual and separate reports. Routine daily, weekly, monthly and quarterly inspection reports, legal inspections, and checklists for proactive and reactive management on the plant and TSF were sampled to check the effectiveness of systems. Piezometer levels and freeboard are surveyed monthly and quarterly surveillance meetings are used to report and evaluate freeboard, phreatic levels and drains. Surface water diversions are inspected monthly and all return water dams are inspected daily. Return water dams have level indicators which report to the SCADA. 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.

A CMMIS (Computerised Maintenance Management Information System) planned maintenance system and procedure, supported by a SIMM (Structural Integrity Management Monitoring) system is in place and functioning. The nature and date of corrective actions are documented using the IRMS (Integrated Risk Management System) system which also monitors and records progress and close out of corrective actions. Operational inspections conducted include: shiftly inspections; cyanide storage facility daily inspections; legal two weekly inspections; PCR (Physical Condition Rating) inspections; and Shift foreman's daily inspections. Both the plant and the TSF contractor have change management procedures covering health, safety and environment in place and operational.

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 Nologwa gold plant treats ore from Nologwa, Kopanang and Moab shafts. Waste rock is treated in a separate dedicated plant. A Nologwa Gold Plant cyanide optimisation program is in place which includes student projects, monthly test work, quarterly test work and plant related test work. Ore sources to the plant vary and each source is

characterised using monthly bottle roll tests indicating cyanide requirements and consumption.

The control strategy is to use on-line instrumentation measuring throughput and on-line instrumentation measuring cyanide levels in leach. These are integrated using set points to control reagent strength cyanide addition rates. A specialist AngloGold Ashanti cyanide control strategy team is used to investigate control strategies and implementation of the control strategy is part of the BPF (Business Process Framework) program. The Plant is also using a ratio control principle linking cyanide addition rate to the mass flow tonnage rate. TAC 2000 units are used to measure free cyanide on line. The TAC free cyanide results are used as a feed back control loop with the ratio controller. The required cyanide concentrations are reviewed as per the procedure, based on results of diagnostic leach tests, bottle roll tests or significant changes in feed ore characteristics or optimisation initiatives.

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 for the Vaal River TSF complex, including all the TSFs and return water dams and the plant is in place. The plant probabilistic Water Balance sighted including rainfall, water in ore, and water returned from TSF. Seepage assumptions were made as the plant area is small and evaporation is insignificant. Information is included in the water balances on rainfall, 1:50, 1:100 year, 24 hour storm events, evaporation, and solution deposition. Rainfall data is collected daily on the TSFs and the plant and combined with local rainfall measurements and data from the SA Weather Bureau. No run on occurs as all the TSFs are equipped with storm water cut off trenches to divert run off water away from the dams. The plant has no run on as a clean / dirty water separation system is in place and storm water cut-off trenches are located around the plant. The power outage scenario was specifically modelled and the water removal ability of the system evaluated for the 1:50 year storm. A procedure for controlling reservoir levels is used to manage levels and specify action if levels should rise above 80%, when the TSF section will investigate and bring in the emergency pumping systems, if required. Phreatic levels are measured monthly and stability analyses conducted every two years, with recommendations made on freeboard and pool management.

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



Basis for this Finding/Deficiencies Identified

There are no specific identified jurisdictional beneficial uses of groundwater. Mining processing plants process water is the only deemed beneficial use of groundwater, with all other water for domestic and livestock use being supplied from the Midvaal Water Company in pipes. The National Water Act limit is 0.5ppm cyanide, not specifying the species of cyanide. All TSFs are equipped with under drains and cut-off trenches. A successful phytoremediation project (Woodland project conducted to prevent seepage from contaminating ground water.) is in place at the Nologwa TSFs. Clean/dirty water separation systems are in place, and cut-off trenches are dug around the TSF impoundments.

The plant process area surface is covered with concrete, tarmac and storm water drains and the areas not covered fall outside the risk of cyanide solution flows from the process. Cut off trenches are in place around plant to ensure clean / dirty water separation. Boreholes downstream and upstream of the plant are sampled and monitored for cyanide contents quarterly.

A MINTEK report on the risk aspects of backfill material cyanide content for the site recommends that maximum free cyanide to be 26.5 ppm as free CN, or 50 ppm as sodium cyanide. The backfill is produced as a batch process and log sheets for 2010 indicate free cyanide values are less than 21 ppm. The report concluded that the cyanide in the backfill does not pose any risk to groundwater at the recommended levels. Only traces of CN were detected in fissure water samples taken during the investigations.

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:

All tanks are placed in bunded areas and on concrete surfaces. The Mispah leach and carbon adsorption flat bottomed tanks are placed on solid concrete bases, with the conical leach tanks, residue tanks and neutralising tanks placed on plinths and steel legs. The eluate tanks are placed on solid concrete bases inside concrete bunds. All reagent strength cyanide pipelines are equipped with secondary containment systems draining back to the reagent strength bund area. All in-plant process pipelines are either positioned over bund areas or concrete/asphalt covered surfaces. All pipelines inside and outside the plant are subject to the plant CMMIS (planned maintenance) system.

All unlined slurry pipelines are part of the CMMIS planned maintenance system, Pipelines are being lined with HDPE, urethane and rubber where previous leaks occurred. All new pipe lines will be lined. Pipelines, where risk of pollution exists, are placed in earth trenches to prevent spillage from entering the environment. One area where the slurry lines cross the 9 shaft bridge was identified as a potential risk. Special protection

measures include the lining of all pipelines before crossing and after crossing the bridge. Containment paddocks are in place to prevent any spillage from entering the Vaal River. Cyanide tanks and pipelines are manufactured from materials compatible with cyanide and high pH conditions, as per the AngloGold Ashanti Cyanide Guidelines document.

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

X in full compliance with

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

Basis for this Finding/Deficiencies Identified:

No new cyanide facilities or major modifications or additions to the existing facilities were constructed or implemented since the first certification audit. Structural investigations and recommendations for the Noligwa plant include critical items in the old leach area, and the old adsorption area. Repairs in progress on A priority items. No recommendations or findings identified required the plant to be stopped or indicated it was not fit for purpose. The Annual TSF audit report Sept 2009 concluded that the TSFs at Vaal River are generally in a good condition and no significant issues were noted in the report.

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 competent persons, were sighted and checked. Boreholes are placed and sampled upstream and downstream of the plant. The Vaal River is sampled up and downstream of the mine. Plant boreholes are sampled quarterly, wildlife is monitored daily, surface water is sampled monthly and plant boreholes are sampled quarterly.

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 formal decommissioning procedure is in place. The procedure includes a formalised schedule for decommissioning. 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 "AngloGold Ashanti annual review and update of 2009 environmental rehabilitation and closure estimate" used the WAFU (West Acid Float Uranium) plant rehabilitation costs by an outside contractor and the cyanide producer as a basis for the cyanide decommissioning estimates. The cost update for Noligwa of November 2009 was sighted and the estimate is reviewed annually. The AngloGold Environmental Rehabilitation Trust Fund (as required by SA Law) includes provision for decontamination of the cyanide equipment at Noligwa Gold Plant. Estimates include line items which are: - decontamination of storage and dosing system, flame cut old sodium cyanide tanks, chemical cleaning of storages, decontamination of SASOL tanker, and associated medicals, induction, screening training and travel. A signed audit report for the trust fund by accountants Ernst and Young, dated 7 April 2010 was sighted.

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:

There are 97 operating and engineering procedures in place related to cyanide management, supported by 30 TSF contractor operating and management procedures. A mandatory Code of Practice (COP) and operating manual covering TSF operations in the Vaal River area is also in place, as are operations and maintenance manuals for Mispah 2 TSF (incorporating the extension to the TSF), east and Nologwa complex Mispah 1 and 2 paddock dams and a Cyclone operating manual for the conversion of the Nologwa extension. The freeboard and design storm event (1.3m and 1:50 year 24 storm event) is defined in the COP. The Annual TSF audit report Sept 2009 concluding that the TSF's at Vaal River are generally in a good condition. Stability analyses are conducted and reported in annual and separate reports. Routine daily, weekly, monthly and quarterly inspection reports, legal inspections, and checklists for proactive and reactive management on the plant and TSF were sampled to check the effectiveness of systems. Both the plant and the TSF contractor have change management procedures covering health, safety and environment in place and operational.

Every procedure is developed from a risk assessment where worker input includes the Health and Safety Representatives from the workforce, artisans and management. The TSF contractor has done risk assessments for each procedure which has involved management, supervisors and workers. Procedures are also discussed at plant Safety and Health meetings. Green area meetings are used as a primary worker input and feedback on procedures and cyanide drills.

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 pH is controlled at the neutralising section where uranium residue is neutralised to 10.5 using slaked lime. The pH in the Mispah section is controlled by adding lime to the

1st Mispah leach tank. The pH control is set at 10.5 with an interlock to the cyanide pumps activated at pH10, and alarming at pH10. Hydrogen cyanide gas surveys reviewed did not show any areas where Hydrogen cyanide gas exceeded standards. The calibration records for fixed gas monitor Polytrons and portable gas monitor PAC IIIs were sighted covering 3 years. Plant calibration frequency is three monthly and the manufacturers requirement is a minimum of six monthly. On-going inspections and checks are also used to monitor and check facilities and emergency response equipment functioning and checklists covering three years since certification were sampled. Safety equipment such as safety showers, low pressure eye wash stations, and fire extinguishers are numerous and adequately signposted.

Slurry pipelines are marked as poisonous water. Eating and drinking is only allowed in dedicated areas and this is indicated on signs and trained and reinforced during annual induction of contractors and plant staff. The required signs are placed at the cyanide storage, cyanide/caustic make up and cyanide dosing point, leach, CIP and residue areas. All cyanide pipelines are colour coded, and labelled with flow direction. MSDS documentation and cyanide first aid information was located throughout the plant. 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:

The cyanide emergency cabin at offloading is equipped with water, oxygen, a resuscitator, antidote kit, radio, telephone, alarm system; the leach cyanide emergency cabin is equipped with oxygen, antidote kit and first aid box; and the neutralising cyanide emergency cabin equipped with water, oxygen, a resuscitator, antidote kit, first aid kit. A cyanide emergency trailer is equipped with medical oxygen, resuscitators and cyanide emergency clean up kit. Man down alarm and emergency stop buttons are placed strategically on the plant, linked to the SCADA system and audible alarms. The staff use radios as the primary means to communicate with the control room and mobile cell phones are also used for communication. Trained emergency team personnel on site are available on every shift. The West Vaal hospital (AngloGold Health Services hospital) at Orkney is the captive Company hospital to treat cyanide cases with ambulance contractor, ER 24, available on site for patient transport and paramedical services. Cyanide equipment is regularly checked and tested and mock drills are held regularly on site.

Man down drills are used to assure that the medical facility is competent and equipped to handle emergencies. Hospital staff are specifically trained to handle cyanide emergencies.

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 Noligwa Gold Plant Emergency Response Plan includes cyanide failure scenarios, as per a HAZOP study of emergency scenarios assessment for the Noligwa gold plant. The emergency response plan is linked to specific emergency situations and the appropriate procedures and responses within the site's systems. The Emergency Response Plan includes escalations of emergency levels from "level 1" to "level 2" or "level 3", as defined in the Plan and also includes managing such issues as plant and community evacuation and community impacts. 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:

HAZOP and risk assessments involve the work force. The update of risk assessments on emergency scenarios include Safety representatives and Union representatives. Green Area meetings and Safety and Health meetings are used to highlight and discuss cyanide issues, including the Cyanide Emergency Response Plan. Emergency drills are used to involve the workforce in the response planning process and drill reports sighted indicated evaluation and feedback. The community is not directly involved in the Plan but is informed on its contents during dialogue sessions. Drills are used to involve hospital, ambulance and paramedic staff in planning and review 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 Response 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. Internal and external communication (including the Media) 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 Response 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 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 staff entering the plant gate receives 2 days induction refresher valid for 18 months, and basic cyanide first aid valid for 12 months. Written tests are conducted with an 80% pass mark. All contractors working on the plant for longer than 2 days will receive the same induction as above, including any work involving the reagent strength cyanide facilities. All contractors or visitors working less than 2 days (working under direct supervision of a plant employee) will receive plant specific induction which includes cyanide overview. A training matrix is in place for staff and permanent contractors. Induction refresher training is done 18 monthly, cyanide related training 12 monthly, and all long term contractors induction refresher is done annually. A training matrix with a

flagging system is used to ensure all staff are covered. 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. Training records are kept permanently.

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

X in full compliance with

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

 not in compliance with

Basis for this Finding/Deficiencies Identified:

A formal training matrix covers all process and engineering staff and National Unit Standards are used as a basis for the training. Competency is tested by on the job competency assessments. No refresher training is done on National Unit Standards, but task assessments are done to ensure continued competency. Retraining is done in the case of deviations or substandard activity. On the job training is done using unit standards followed by assessment. Regular Task Assessments are done to measure continued competency. Records are kept permanently, centrally in an electronic matrix and also as hard copies. An electronic back up system is also in place.

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 Cyanide Emergency Response Team is in place on dayshift and only cyanide appointees form part of the cyanide teams. Only cyanide appointees may work with high strength cyanide and they are trained in the procedures to be followed in the event of a cyanide release and for decontamination and first aid, and “off loading of liquid Cyanide from a road tanker into a bulk storage facility”, and “handling liquid cyanide safely in a metallurgical plant”. The training matrix specifies training as per the Emergency Preparedness Plan (EPP). The shift foremen are trained in cyanide emergencies on afternoon and night shift and take responsibility as incident commander. Shift teams take part in after hour drills as part of emergency training. The EPP is trained through the emergency drills, and no classroom training on the use of the actual plan and

documentation is currently taking place. All Cyanide Appointees receive advanced training, including BA (Breathing Apparatus) set training. The West Vaal Hospital and ER24 staff receives cyanide first aid intermediate training and are assessed for competency. They are also involved in drills for training purposes. The plant training officer is present at all drills and evaluates training effectiveness and reports to the AngloGold Ashanti central training unit where any changes to training procedures are made and implemented.

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. Farmers forum meetings were held in July 2008 and Polsec (Police security) meetings held with security, police, and traffic officials included cyanide discussions. A Kanana community forum discussion on 7 April 2010, and in 2007 included cyanide issues. An emergency response workshop including the Klerksdorp Fire and Rescue, the Klerksdorp Traffic Department, Potchefstroom Fire Service, SASOL emergency services, Provincial departments, Merafong Fire and Rescue, Potchefstroom Traffic Department, Randfontein Public Safety Department, and the Randfontein and Weston Area EMS, was held on 2 Nov 2007. A NUFCOR emergency response workshop was held on 19 March 2010. Cyanide Management Brochures were issued to local workers, hostel and township members regarding cyanide information, emergency information, cyanide exposure, and uses of cyanide. Leaflets containing TSF warnings, electricity information, and vehicle safety, were distributed. A TSF water safety meeting was held and on labour day 2009, pamphlets were distributed to children, supported by a presentation. Presentations were made to Vaal Reefs primary school and the technical high school warning about cyanide contents of 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:

Dialogue meetings are two-way dialogue sessions involving both dissemination of information and the answering of questions on cyanide. Farmers forum meetings were held in July 2008 and Polsec (Police security) meetings held with security, police, and traffic officials included cyanide discussions. A Kanana community forum discussion on 7 April 2010, and in 2007 included cyanide issues. An emergency response workshop including the Klerksdorp Fire and Rescue, Klerksdorp Traffic Department, Potchefstroom Fire Service, SASOL emergency services, Provincial departments, Merafong Fire and Rescue, Potchefstroom Traffic Department, Randfontein Public Safety Department, and the Randfontein and Weston Area EMS, was held on 2 Nov 2007. A NUFOR emergency response workshop was held on 19 March 2010. Cyanide Management Brochures were issued to local workers, hostel and township members regarding cyanide information, emergency information, cyanide exposure, and uses of cyanide. Leaflets containing TSF warnings, electricity information, and vehicle safety, were distributed. A TSF water safety meeting was held and on arbour day 2009, pamphlets were distributed to children, supported by a presentation. Presentations were made to Vaal Reefs primary school and the technical high school warning about cyanide contents of 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:

Cyanide Management Brochures were issued to local workers, hostel and township members regarding cyanide information, emergency information, cyanide exposure, and uses of cyanide. Leaflets containing TSF warnings, electricity information, and vehicle safety, were distributed.

Any cyanide exposure is reported to the national Department of Mineral Resources and the Department of Water Affairs and exposure reports are available on the AngloGold Ashanti public web site. Cyanide incidents are reported in the AngloGold Ashanti Country Report South Africa West Wits Operations (<http://www.anglogold.co.za/NR/rdonlyres/8E6B8C1D-05C4-43E0-B63E-8CD8ACD12391/0/vaal.pdf>). An incident was reported on leak on CIL cyanide delivery line 9 Feb 2007 in the AngloGold Ashanti Country Report 2007. No cyanide exposures, hospitalisation or fatalities occurred or were reported during the period since certification.