

***INTERNATIONAL CYANIDE
MANAGEMENT INSTITUTE***

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

***Summary Recertification
Audit Report***

***African Barrick Gold
Tulawaka Gold Mine
Tanzania***

18th – 23rd July 2011

Name of Operation: African Barrick Gold Tulawaka Gold Mine

Name of Operation Owner: Pangea Minerals Ltd (Tulawaka Site)

Name of Operation Operator: Pangea Minerals Ltd (Tulawaka Site)

Name of Responsible Manager: Roy Dias, Process Manager

Address: Pangea Minerals Ltd.
Tulawaka Mine site
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Location detail and description of operation:

The Tulawaka gold mine is a 70/30 joint venture between Pangea Minerals Ltd., a wholly-owned subsidiary of African Barrick Gold, and MDN inc, Gold mineralization was discovered on the Tulawaka property in September 1998 and the first ore was mined in December 2004, with the first ore being processed in February 2005. Underground mining commenced at Tulawaka in late 2007 and the current mine life is expected to be two to three years.

Tulawaka mine is situated some 1,000 kms west-northwest of Dar es Salaam in Tanzania, towards the border with Rwanda, 160kms southwest of Mwanza, in the western Lake Victoria Goldfields District of north western Tanzania.

The processing operation uses gravity separation technology to recover approximately half the gold, with the balance coming from conventional carbon-in-leach (CIL) technology. The ore is crushed via a single stage circuit to – 100mm. It is then delivered to a 60 tonne bin, which overfilled, will spill onto a conveyor and be transported to the emergency stockpile. The 60 tonne bin then feeds into a single stage SAG mill. The oversize from the mill trommel is fed to a re-crush crusher and the undersize is pumped to a cluster of five cyclones with three on duty and two on standby. The product P80 is between 106 - 150µm. Within the grinding circuit are two 30” automatic discharge Knelson concentrators, fed with a portion of cyclone underflow. Concentrate from the

Knelson concentrators pass to the refinery where they are intensively leached. The high grade eluate is electro-won and the solid tails are returned to the grinding circuit.

The cyclone overflow reports to a thickener, followed by a standard CIL circuit where there is one leach tank followed by six CIL tanks. The slurry is agitated in the leach tanks to increase the contact of the cyanide and oxygen with the gold and enhance the efficiency of the leach process. The cyanide then dissolves gold from the ore and forms a stable gold-cyanide complex. Gold is recovered from carbon utilizing a pressure Zadra stripping process and electro-winning circuit. The CIL tailings are discharged into a detoxification tank utilizing Inco method for cyanide detoxification/destruction. The detoxified slurry is then sampled and pumped to a tailings storage facility. Cathodes from the stripping and gravity electro-winning circuits are cleaned and that concentrate smelted in the gold room to produce gold Dore for shipment.



Auditor's Finding

This operation is

in full compliance

X 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.

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

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: 17/11/2011

Dates of Audit: 18th – 23rd July 2011

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.

Tulawaka Gold Mine



17/11/11

Facility

Signature of Lead Auditor

Date

Tulawaka Mine

Signature of Lead Auditor

17th November 2011

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:

Barrick, under an umbrella contract for all Barrick global subsidiaries, obtains its cyanide, on behalf of Tulawaka Gold Mine, from Orica, who produce and transport the product. Orica is a signatory to the ICMI Cyanide Code, and the contract requires that the producer must comply to the provisions of the Cyanide Code. Orica's Yarwun production facility is fully certified, as a cyanide production facility, under the ICMI code, and supplies solid sodium cyanide to Pangea Minerals Ltd for use at their Tulawaka Gold Mine.

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 contract between Orica and Barrick (on behalf of Barrick Gold Tulawaka Gold Mine) which cover the responsibilities and requirements for safety, security, unloading, emergency response (spills prevention and clean-up), route planning and risk assessments, community liaison, emergency response resource access and availability, training, and communication.

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 contract with Orica requires that the transporters comply with all the provisions of the ICMI Cyanide Code. The Australian Supply Chain covers the transportation of solution sodium cyanide and solid sodium cyanide from the manufacturing facility in Yarwun, Australia, by road and rail direct to its end point users within Australia and the Port of Brisbane and was fully certified on 5th October 2010. Orica's transport supply chain for East Africa was published on the ICMI website on May 19th 2011. The East Africa Supply Chain covers the transportation of solid sodium cyanide by ship from the Port of Brisbane, Australia to the Ports of Mombasa, Kenya and Dar es Salaam, Tanzania via the Mediterranean Shipping Company. Within Kenya and Tanzania solid sodium cyanide is transported by road to end point users by Freight Forwarders Kenya and Freight Forwarders Tanzania.

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.

in full compliance with

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

 not in compliance with

Basis for this Finding/Deficiencies Identified:

Design and quality control/quality assurance documentation audited during the certification audit was confirmed for the cyanide mixing storage tanks i.e. detailed, professionally designed, drawings for the cyanide mixing and storage areas were sighted which clearly indicated the structures were designed and located on concrete and away from people and surface waters. The Cyanide area is within a fenced and security controlled area with adequate controls and separation to prevent mixing with incompatible materials.

The cyanide tank is equipped with a DP cell level indicator and an ultrasonic unit. Levels are indicated on the SCADA control room screen. Makeup water is closed automatically at 85% of tank level until overflow. A “High Level” audible alarm sounds at 85%, and a “High – High Level” audible alarm sounds at 90%. Secondary containments built from concrete provide a competent barrier to leakages and provide adequate and appropriate containment.

Boxed and bagged solid cyanide was stored in old sea containers designed to transport solid cyanide, but not to store it. Access to the sea containers is currently only via confined space entry procedure and the area is barricaded off, preventing passing access during container entry. As operational and maintenance inspections of the facilities were inadequate and not meeting the minimum inspection requirements suggested by the producer, the cyanide storage area was deemed not fully compliant with Code requirements and appropriate manufacturer’s guidelines and inspection requirements. A corrective action plan has been agreed to correct this deficiency. The site showed good faith in immediately setting about designing cyanide storage area modifications which were Code compliant. The CAP and associated plans were seen to be an effective, quick, and practical way of correcting the problem and reducing overall cyanide risk. The interim risk was managed by temporarily storing the cyanide in another contained chemical storage area and instituting interim controls and additional inspections, until the permanent cyanide storage solution is completed.

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:

No liquid cyanide is delivered and all cyanide used is mixed from solid briquettes. Procedures covering offloading from containers, mixing and disposal of packaging were sighted, reviewed and found to be effective. The disposal of packaging procedures require that the cyanide bulk bags and plastic bags are taken to the incinerator area and

the wooden boxes are dismantled for burning in the landfill. An environmental procedure governs the burning of empty cyanide wooden boxes in the landfill and a register is used to control the removal, transport to landfill site and burning of the empty wooden boxes. The plastic and bulk bags are burned in the incinerator according to the incinerator safe operation procedure.

The mixing procedure spells out the sequence of tasks clearly to avoid spillages and releases and includes pre-work inspections, required PPE, and the use of a sentry.

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 mine's cyanide management is covered by 86 procedures, covering both operational and maintenance, supported by related environmental procedures. A Tailings Storage Facility, Water Storage Facility and Storm Water Management Pond Operations Manual is in place. This was operated by the site until February 2011 when a specialist TSF contractor took over management of the TSF, but using the same manual and system. Inspections include an annual environmental inspection, an annual technical audit, weekly environmental inspections, daily shift operator reports, spigot reports, raw water readings, and wildlife mortality checks. The PMS system covers the pipelines and decant pump. The weekly Environmental Department TSF inspections include notes on piezometer, seepage, freeboard, WAD Cyanide, and bank inspection drainage tower. A change management procedure is in place and functioning and change management exercises are signed off by Health, Safety and Environmental officials.

Throughout the site, preventative maintenance and inspections has been controlled by software-based, Planned Maintenance System (PMS) called PRONTO. Key pumps, tanks, bunded areas and equipment were checked on the system and found to be systematically maintained through visual and mechanical checks, thickness tests and historical reviews. Routine daily and monthly inspection reports, legal inspections, and checklists for the TSF and the plant were sampled and employees interviewed to check the effectiveness of systems and ensure that ensure proactive and reactive management. The site generates its own power, with 3 generators operating and 3 generators on standby and maintenance.



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:

A CIL Cyanide Dosing Optimisation Procedure is in place. Bottle roll tests were conducted on extended leach of CIL residue and on the new underground source. Reports indicate low cyanide consumption of less than 0.5 kg and low concentrations of Arseneopyrite are present. A report dated Oct 2009 indicating low copper contents at 34 ppm suggested that this should not have any impact on cyanide consumption. Cyanide consumption tests were done indicating 89.93% extraction at 0.31 kg/t cyanide consumption. Leach and cyanide profiles are done weekly.

The control strategy utilizes a TAC 1000 analyser to sample for free cyanide in the Leach tank every ten minutes and in No 3 CIL tank every hour. Manual free cyanide is titrated in the leach tank and terminal cyanide titrated on No 6 CIL. The future strategy is to get on-line free cyanide measurement and control in No 6 CIL linked to the cyanide feed control to the Leach Tank, as well as the free cyanide measured in CIL 3 linked to the feed control to the Leach Tank.

A TAC 1000 online cyanide analyser and controller are used to control the cyanide addition to No 1 leach via a PLC - auto valve system.

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:

Water management of the tailings facility was modelled using real time software (EXTEND) to simulate a range of rainfall patterns. This commercial EXTEND software is used to run the probabilistic water balance. The mine generates its own power and has over 100% standby power for the purposes of preventing overtopping. For the modelling analysis, major pump flows among facilities are represented as inputs by model users. To

test power outages, users can simply enter zero flow rate values in any target month's to test the consequence of the timing and duration of any failure mode of water transport. Weather data is collected using an automatic weather station and rainfall data from 2004 to May 2011 was sighted. TSF water management procedures and operating plans were developed, based upon the direction given from the Tailings Storage Facility and Water Management, Bankable Feasibility Study of April 2003. TSF operating freeboard is above the design level of 0.3m (the parameter is 0.5m) and actual freeboard is around 0.8m. The storm water pond cyanide level is consistently below 0.5ppm WAD CN (and below levels of detection) and therefore falls outside the scope of the audit.

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 process plant controls cyanide WAD levels at below 50 ppm. Sample results indicate that the cyanide slurry discharged to the TSF does not exceed 50 ppm WAD CN and thus no special measures are required to restrict access by wildlife to open waters at the TSF. No cyanide-related bird, or wildlife mortalities have been experienced at the TSF or the plant. Storm water pond cyanide levels are below 0.5ppm WAD CN and fall outside the scope of the audit. The plant samples the detoxification tank discharge which is pumped to the TSF. This value is controlled at between 20 and 30 ppm using a detoxification process adding sodium meta bisulphide and copper sulphate. WAD CN data from the final tails sample going to the TSF was sighted for the period Jan 2008 to date July 2011.

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:

There is no direct discharge to surface water and there are no surface water sources close to the operations. No indirect discharge takes place to the Muhama River (approximately 4 km away), and there is no physical evidence of seepage into the river. Borehole sample data downstream of the operation does not indicate any WAD cyanide values with the

results all below limits of detection. Sample values of WAD CN from the river down stream of the plant are all below limits of detection.

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 which "leak" to the collection tower and liquids are pumped back to the TSF supernatant pool. The plant is equipped with concrete bunds for all process solution tanks to prevent seepage. No beneficial uses were identified for groundwater down gradient of the plant. Monitoring boreholes are in place and sampled quarterly. Results of boreholes for period 2008 to date indicate levels of >0.001mg/l WAD CN (below limits of detection). The Government regulates cyanide limits at 0.5ppm WAD CN cyanide.

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:

All tanks are placed inside bunds serving as secondary containment with the various bunds being linked. All bunds are equipped with sumps and dedicated sump pumps returning any spillage back to the process. The cyanide storage tank is placed on a solid concrete base. CIL tanks are placed on ring beams and are equipped with leak detection systems. Cyanide tanks and pipelines are manufactured from materials compatible with cyanide and high pH conditions.

No special areas posing a risk to surface water have been identified and there are no rivers within the potential zone. The only surface water is the storm water pond, used for collecting plant and TSF storm water. An interim lined catchment (Process catchment pond) is in place between the plant and the storm water trenches leading to the storm water pond. This pond can be used in case of any cyanide solutions spillage from the plant to the storm water trenches.

The TSF slurry as well as return water lines are placed inside a concrete trench, equipped with catchment areas. The TSF feed line is a ring main line placed on the top of the TSF

wall. A section of the TSF pipeline and return water pipeline is buried 0.5m deep between the residue pipe rack and the trench (part of which is inside the plant), a distance of approximately 50m. However, no evidence of groundwater contamination from leaks was identified. A corrective action plan has been agreed for this item. The site showed good faith in immediately setting about designing cyanide storage area modifications which were Code compliant. The CAP and associated plans were seen to be an effective, quick, and practical way of correcting the problem and reducing overall cyanide risk. The interim risk was managed by temporarily storing the cyanide in another contained chemical storage area and instituting interim controls and additional inspections, until the permanent cyanide storage solution is completed.

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:

The plant was constructed by Ausenco in 2004 and commissioned in 2005 as a gold plant using a cyanide leach process. A quality control/quality assurance (QA/QC) program was implemented and confirmed in the first certification audit. No new facilities or modifications to the existing facilities were implemented since construction.

The TSF was designed by professional engineers and a quality control / quality assurance program was implemented and confirmed in the first certification audit. No new facilities or modifications to the existing facilities were carried out since construction. A QA/QC program reviewing document, Pangea Minerals Limited Tulawaka Gold Project "Tailings Storage Facility, Water Storage Facility and Storm Water Management Pond Construction Report" was reviewed.

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 monitoring program is in place to sample both surface and groundwater for cyanide. The general sampling procedure specifies roles and responsibilities, actions and methods,

cleaning of equipment, preparation, sample labelling, sampling, sample preservation, the sampling packaging and transportation, and notification of the laboratory. Monitoring, sample preservation and custody and chain of custody procedures were developed internally by the site Environmental Coordinator. Surface water is sampled monthly, boreholes quarterly and wildlife monitoring daily.

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:

The Tulawaka decontamination and decommissioning plan, which forms part of the Mine Closure Plan, includes details of cyanide decontamination and decommissioning. An implementation schedule is in place and the details are reviewed regularly.

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

X in full compliance with

The operation is in substantial compliance with **Standard of Practice 5.2**
 not in compliance with

Basis for this Finding/Deficiencies Identified:

The closure cost estimates of August 2010 include line items for plant cyanide decontamination, and flushing out of process plant piping system. The Barrick asset retirement obligation and cost review checklist is reviewed quarterly. There are no jurisdictional requirements for the decommissioning of the cyanide-related activities but Barrick provides this through a Corporate Guarantee backed by a report of independent certified public accountants.



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 mine's cyanide management is covered by 86 procedures, covering both operational and maintenance, supported by related environmental procedures. A Tailings Storage Facility, Water Storage Facility and Storm Water Management Pond Operations Manual is in place. Inspections include an annual environmental inspection, an annual technical audit, weekly environmental inspections, daily shift operator reports, spigot reports, raw water readings, and wildlife mortality checks. The PMS system covers the pipelines and decant pump. The weekly Environmental Department TSF inspections include notes on piezometer, seepage, freeboard, WAD Cyanide, and bank inspection drainage tower. A change management procedure is in place and functioning and change management exercises are signed off by Health, Safety and Environmental officials. Appropriate PPE and pre-work inspections are specified in procedures for all cyanide-related tasks. Worker input is solicited through discussions with the operators by the shift leaders and points made are documented and signed off by both parties. Procedures are discussed during daily toolbox meetings and weekly health and safety meetings. This was confirmed in interviews with staff across the disciplines.

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:

Test work was done and the pH operating range identified at 9.5 to 10.5. Historical pH set points have been 9.6 to 10.5 however, preferred operation is above 10.2. The current Leach set point is 10.3. Values for pH in the logbook vary from 9.6 to 10.3. Target pH is

10.0 to 10.3. The Mixing tank pH is adjusted to above 10.5, if required. Operators wear portable HCN gas monitors at all times. Fixed HCN monitors are located at the thickener top, leach tank top on the side of the tank, and in the ILR in the gold room. Portable HCN monitors are used in the Gold Room, CIL section, and the cyanide make-up section. Signs are placed at the main entrance prohibiting eating and drinking except in Crib rooms and offices and warning that all pipes and equipment in the plant may contain cyanide. A PPE signboard requiring wearing of overalls, safety shoes, hardhats is placed at the main entrance. On-going inspections and checks are also used to monitor and check facilities and that emergency response equipment is 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. MSDS's are available in the warehouse, the control room, reagent mix area and reagent storage shed, and Barrick spill management signs are displayed at the main entrance. English is the operational language used, but Swahili is the local language. Plant Management encourages good communication and supports the use of Swahili on the radios. The emergency procedure is displayed in Swahili. 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 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 plant uses two-way radio communication in case of any cyanide spill or emergency. A telephone line is also available in the control room. Four Oxy-viva medical oxygen sets are available on the mine in the supervisors' office, fire truck, control room and clinic. Raw water is available at the mixing area and on the plant. Cyanide antidote kits are available in the clinic and may only be administered by the Doctor. An on-site clinic is available, located in close proximity to plant, equipped to handle cyanide emergencies and an ambulance is available for transport of patients from the plant to the clinic. The Mine Emergency Response Team is available 24 hours, and plant personnel are trained in chemical and cyanide awareness which includes the use of oxy-viva units and cyanide hazards. Spare medical oxygen bottles of different sizes are available at the warehouse and the clinic. Cyanide emergency procedures form part of the site-wide emergency preparedness plan which covers the whole site and includes the cyanide facilities. The Doctor at the Mine clinic will make a decision, in consultation with ISOS (MEDEVAC contracted Service provider), on the medical evacuation of cyanide emergency cases.

Equipment is regularly checked and tested and mock drills are held on site and in conjunction with the clinic. Interviews confirmed employee knowledge of cyanide hazards, and emergency response.

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:

There is an Emergency Response Plan (January 2011, revision 5) in place and functional, which includes site-specific cyanide emergency scenarios and responses. The various scenarios include appropriate actions such as Cyanide Release that May Affect nearby Communities, Emergency Evacuation, Exposure to Cyanide, and Cleanup and Decontamination Procedures. Cyanide first aid procedures are included in the Plan. Emergency teams are in place on each shift in the plant. The 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 Emergency Response Plan (ERP) draft is circulated to Heads of Departments for discussion with their various Departments for feedback. The workforce is involved in the testing of the plan through emergency drill feedback. No communities are directly involved with the ERP but they are briefed through the community dialogue structures.

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 ERP designates emergency controllers and the cyanide emergency response team the relationship and roles of the controllers and team are defined in the Plan. The emergency response team will commit the resources necessary to deal with the emergency. Competency of emergency response coordinators is checked through and mock drills. The Plan includes emergency response training be undertaken. 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. Emergency Team members were checked and training records and assessments showed the individuals to be well prepared and well equipped for cyanide emergencies. Periodic full scale drills are held to ensure that roles and responsibilities are understood and clearly implemented. A Barrick Emergency response mutual aid agreement between Barrick sites at Bulyanhulu, Tulawaka, North Mara and Buzwagi is in place and functional.

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 full details of appropriate emergency contacts and reporting, media communication and the call-out procedure and contact information lists which are updated regularly.

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 links to environmental procedures which cover clean-up and neutralisation of solid or solution spills, sampling, PPE and materials to be used/are used. The use of treatment chemicals such as ferrous sulphate and hypochlorite in surface water is prohibited. The Plan does not include the provision of alternative drinking water supplies as there are no communities receiving water from sources that could be contaminated by the mine.

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 Emergency Preparedness Plan is reviewed annually in terms of a continuous improvement requirement and the procedures are reviewed after every incident or drill. Reports were sighted of learning points emerging from the various 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:

A cyanide awareness course is given to all people working inside the plant fence, including the clinic staff and the Mine Emergency Team. The site training matrix details cyanide awareness, chemical awareness, emergency response plan and plant induction, as well as cyanide refresher training. Site cyanide training programs were reviewed. Eleven 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. Refresher training is conducted annually.

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:

Operational training is based on using the Safe Working Procedures as training material and on-the-job training for each circuit. Some tasks, e.g. permit to work, are not trained by procedure but by PowerPoint presentations and on-the-job training. The process training matrix, including cyanide processes, was reviewed. Supervisors are trained as trainers using “Train the Trainer” Courses. Workers work under supervision and are only allowed to work with cyanide, unsupervised, following successful assessment. Training and competency is assessed using the safe working practice procedures. Formal assessments are done by a trained assessor after 6 months of the operator performing the job on his own. Thereafter, supervisors conduct periodic job observations and in case of substandard performance, retraining/refresher training is done by the Supervisor. Training records are kept in the form of hard copies, as well as electronically, from the beginning of the mine’s operation.

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 awareness course includes procedures to be followed in case of cyanide exposures, including decontamination and basic first aid procedures. All plant staff responds to the emergency alarm. The Mine-wide Emergency Response Team (ERT) members are trained in cyanide emergencies and respond to take care of the cyanide patients. The Emergency Response Team members are trained in the use of the appropriate cyanide response equipment, including Oxy-viva, chemical suits, and full, encapsulated chemical suits. The Doctor and ERT Coordinator are the only persons trained to administer the antidote and are trained accordingly. No local community or

offsite emergency responders are involved in the plant ERP except ISOS (the MEDEVAC contract service providers). Periodic mock drills are undertaken and training personnel attend these drills and formally evaluate response and performance. Training records were checked to confirm attendance and successful completion. General cyanide worker refresher training is scheduled annually. Specialized Emergency Team refresher training (including relevant external responders) is done annually as per the site's Training Matrix. Training records are kept in the form of hard copies, as well as electronically, from the beginning of the mine's operation.

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:

Presentations were given in Swahili, in 2011, to the villagers of Mavota and Mkunkwa by mine staff from the environmental department, process plant staff and community affairs department on the cyanide processes in the plant and the effects of cyanide. The presentations included descriptions of the process plant, TSF, cyanide neutralisation, what cyanide looks like and its dangers, emergency response, and signage, as well as PPE used when working with cyanide. Questions on worker protection against cyanide risks were answered. Mine tour was conducted, including students and teachers from a class of the Nyantakara secondary school in 2010. Opportunities for the stakeholders to communicate issues were given during the meetings and visits. A Media visit by 5 Tanzanian news editors occurred in Sept 2009.

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:

Presentations were given in Swahili, in 2011, to the villagers of Mavota and Mkunkwa by mine staff from the environmental department, process plant staff and community affairs

department on the cyanide processes in the plant and the effects of cyanide. The presentations included descriptions of the process plant, TSF, cyanide neutralisation, what cyanide looks like and its dangers, emergency response, and signage, as well as PPE used when working with cyanide. Questions on worker protection against cyanide risks were answered. Mine tour was conducted, including students and teachers from a class of the Nyantakara secondary school in 2010. Opportunities for the stakeholders to communicate issues were given during the meetings and visits. A Media visit by 5 Tanzanian news editors occurred in Sept 2009.

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:

PowerPoint presentations in English and Swahili are made available to communities and include descriptions of the Tulawaka process plant, TSF, cyanide neutralisation, what cyanide looks like and its dangers, and signage, as well as PPE used when working with cyanide. A cyanide education leaflet has been produced, written in Swahili and using the cartoon graphic technique, and issued to communities and stakeholders. Illiteracy in the communities is high, estimated at 46%. Oral presentations in Swahili using the PowerPoint presentation as a base were given to the Community Forum. The presentation contained photos as well as writing. The operation has the mechanisms and procedures to make information publicly available following a cyanide release or exposure incidents, but no such incidents have occurred to date. The Barrick website, www.barrick.com, contains Global Reporting Initiative performance data which includes health, safety and environmental statistics since 2004.

