

***INTERNATIONAL CYANIDE
MANAGEMENT INSTITUTE***

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

***Summary Recertification
Audit Report***

***African Barrick Gold
Bulyanhulu Gold Mine
Tanzania***

9th – 13th February 2012



Name of Operation: Bulyanhulu Gold Mine
Name of Operation Owner: African Barrick Gold
Name of Operation Operator: African Barrick Gold
Name of Responsible Manager: Dennis Hoof, General Manager
Address: Kahama Shinyanga
Country: Tanzania
Telephone: (+25528) 2520 604
Fax: (+255222) 600 222
PO Box: 891
E-Mail: dhoof@africanbarrickgold.com

Location detail and description of Operation

The Bulyanhulu gold mine is located in north west Tanzania, in the Kahama district of the Shinyanga region, approximately 55 kilometres south of Lake Victoria and approximately 150 kilometres south west of the city of Mwanza, a regional business and economic hub. The Bulyanhulu process plant has the capacity to process an average of approximately 3,300 tonnes of ore per day (approximately 1.1 million tonnes per year) operating 24 hours a day on a 365 day per year basis.

The mine consists of an underground mine, a process plant, waste rock dumps, tailings containment, water management ponds and associated facilities. The mine is an underground trackless operation using long-hole as its principal stoping method, and it is transitioning towards narrow-vein conventional mining as its principal mining method. As at 31 December 2010, a total of 2,940 individuals were employed at Bulyanhulu, consisting of 2,437 Group employees and 503 contracted personnel.

Bulyanhulu is a narrow-vein gold mine containing gold, silver and copper mineralisation in sulphides. Mineralisation of Bulyanhulu is associated with steeply-dipping reefs. To date a number of distinct reefs have been identified including Reef Zero, Reef One and Reef Two. Bulyanhulu's life-of-mine is currently estimated to be in excess of 25 years, based on its proven and probable gold reserves of 11,026,000 ounces.

Process Plant description

The run of mine, after being hoisted from underground operations is crushed in a jaw crusher before milling in an open circuit SAG mill. The feed ore to plant contains gold, silver and copper. The feed grade is between 6.5 – 10.0 g/t of gold and 0.3 – 0.5% of copper. The sulphide minerals mined are mainly pyrite (FeS₂) and chalcopyrite (CuFeS₂). The plant recovers these valuables using gravity and flotation processes. Free

milling gold and electrum particles are recovered using gravity techniques and intensive cyanide leaching reaction followed by electro-winning to produce doré bars.

The primary cyclone overflow is sent to rougher flotation from where the tailings are thickened and disposed of to the tailings dam or as backfill. The rougher concentrate is classified to produce a cyclone overflow which goes to four stage re-circulating concentrate cleaner cells.

The first stage cleaner tail is cleaned in scavenger cells, the concentrate from which is returned to the second cleaner stage. The cleaner scavenger tails stream is fed to a conventional CIL plant for gold extraction to produce doré for sale. The rougher concentrate cyclone underflow reports to a flash flotation cell, the tailings of which are reground before joining the rougher concentrate, and the concentrate of which is cleaned in flash flotation cell to produce final concentrate.

The concentrate thickener receives the final sulphide and the underflow is pumped to a Larox filter via a stock concentrate storage tank to produce a cake of 8.0 -1.0% moisture content. The final concentrate is loaded into containers. Bulyanhulu Process Plant produces between 40.0 – 70.0 t of concentrate per day. The copper concentrate contains approximately 200.0 -280.0g/t gold, 200.0 – 250.0g/t silver and 11.0 – 25.0% copper. The recovery varies between 85.0 – 93.0% for gold and 75.0 – 95.0% for copper.

The use of paste tailings in the design of the Tailings Facility at Bulyanhulu was largely to do with the amounts of water that could be recovered inside the process, compared to that of a conventional tailings facility and the requirement to produce Paste Backfill product for Underground. Waste products are filtered and transported as paste for tailings deposition and placement of backfill.

Surface tailings deposition is based on building a stable stack using end-of pipe paste discharge from multiple deposition points. The paste is currently being deposited on a combined surface area of approximately 50 ha. The facility includes a stormwater run-off trench, a sedimentation pond and two return water ponds.

The process used in the Bulyanhulu Process Plant is a three-stage process which consists of: (a) Thickening stage which is performed by conventional thickeners that raise the slurry density to approximately 55% solids, (b) Filtration where a filter cake is produced with 76-77% solids and (c) Paste conditioning where the filter cake is re-pulped in a paddle mixer, which produces a consistent paste product of 75% solids and a 10-inch (250mm) slump.

The paste being generated, with a consistent 75% solids, offers a great saving of water to the process and advantages such as:- reduced risk (paste is stable at deposition point and highly unlikely to liquefy); low cyanide contaminated water seepage to the environment; access time onto the tailings surface is greatly reduced; low footprint (area of the dam) of the tailings area as stacking is possible, the stability of the paste reduces the costs associated with building a conventional dam; and reclamation of the dam can be initiated while the dam is still functional. Bulyanhulu needs to produce paste for its underground mining activities.

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.

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

Audit Company: Eagle Environmental

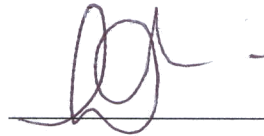
Audit Team Leader: Arend Hoogervorst

E-mail: arend@eagleenv.co.za

Names and Signatures of Other Auditors:

Name : Dawid M. L Viljoen

Signature



Date: 15/6/2012

Dates of Audit: 9th – 13th February 2012

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.

Bulyanhulu Gold Mine

Facility

Signature of Lead Auditor

Date



15/6/2012

Bulyanhulu Mine

Signature of Lead Auditor

15th June 2012

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:

African Barrick Gold, under an umbrella contract for all Barrick global subsidiaries, obtains its cyanide, on behalf of Bulyanhulu 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 African Barrick Gold for use at their Bulyanhulu 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

Bulyanhulu Mine


Signature of Lead Auditor

15th June 2012

Basis for this Finding/Deficiencies Identified:

There is a formal contract between Orica and Barrick (on behalf of African Barrick Gold Bulyanhulu 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, both of whom are signatories to the ICMI Cyanide Code and were recertified in September 2011

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:

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 for sodium cyanide and located on concrete and away from people and surface waters. Design and material Standards used were the Australian Standards or the relevant British and American Standards. The Cyanide area is within a security controlled area with adequate controls and separation to prevent mixing with incompatible materials.

The mixing and storage tanks are equipped with ultrasonic level sensors showing on the SCADA alarming at 90% (H) and 95% (HH). The Mixing tank water feed valve level is interlocked at 90% of the tank level, and there is an interlock between the cyanide storage tank and the transfer pump from the cyanide mixing tank triggering at 90%, and showing on the SCADA, alarming at 90% (H) and 95% (HH). Secondary containments built from concrete provide a competent barrier to leakages and provide adequate and appropriate containment for the tanks.

The cyanide is stored inside a double fenced security area with access control and only authorised people are allowed inside the plant. The solid cyanide store is locked and the key is only issued by the shift supervisors to cyanide mixing operators, trained in cyanide mixing. The cyanide store building is fitted with ventilation slots in the roof and entry requires the wearing of a personal HCN gas monitor. The mixing tank shed is fitted with dust extractors.

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. The procedures covering offloading from containers, mixing and disposal of packaging were sighted, reviewed and found to be effective. The disposal of packaging procedure requires that the cyanide boxes and plastic bags are taken to a designated area outside the plant to be burnt.

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.

Bulyanhulu Mine


Signature of Lead Auditor

15th June 2012

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 process plant has 62 integrated operational and engineering procedures for the CIL cyanide areas, supported by appropriate environmental procedures. A mine tailings operation maintenance and surveillance manual is in place. On the Tailings Storage Facility (TSF), weekly pond level surveys are conducted – and the water management plan (part of the Environmental Management Plan) specifies pond levels. Weekly surveyors reports covering the tailings sedimentation pond and return dams 1 and 2, were sighted for 2010, 2011 and 2012.

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 have been controlled by a software-based, Planned Maintenance System (PMS) called PRONTO. Key pumps, tanks, bunded areas, pipes and pipelines, 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, weekly and monthly inspection reports, legal inspections, and checklists for the TSF and the plant were sampled over the three years since certification. The plant is designed with minimum gravity flow back and also equipped with sumps and pumps and no risk of unintentional releases exist. All automatic valves are designed in the fail safe mode. The TSF is designed with sufficient run-off capacity to prevent unintentional releases in case of a power outage.

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 ore mined is from an underground deposit and is reported to be relatively uniform with one area being different. The ore is of a polymetallic type and contains copper, galena, pyrite, pyrrhotite, gold, and silver. The cyanide optimisation program for Bulyanhulu includes objectives to minimise impact on environment, reduce risk and reduce capital expenditure. The focus is to reduce cyanide consumption in elution, reduce recirculation to CIL and reduce WAD CN to less than 30 ppm. A systematic approach is taken with the CIL optimisation to follow the finalisation of the elution and Acacia reactor optimisation projects. A project plan with MINTEK, including extensive cyanide speciation and chemical solutions analyses with the objective to improve overall plant efficiency including cyanide usage, is also part of the optimisation programming.

The Gold Plant uses two TAC 1000 on-line cyanide analysers to control the cyanide addition to the CIL. A cyanide pump feeds a ring main system, and the dosing is done using variable speed hose pumps each to number 1 CIL and to Number 2 CIL tanks. Cyanide is added in two stages with both set points at 1 200 ppm free CN. A WAD 1000 analyser is used on the detoxification tanks 1 and 2 to monitor WAD cyanide in the feed to the tailings thickener as well as controlling the detoxification process reagent addition rates. Manual back up free cyanide samples are analysed 2 hourly and the WAD is manually checked using the Picric acid method.

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:

The Mine has used the GoldSim model since 2007 for the comprehensive probabilistic water balance (PWB) covering the whole mine area, TSF ponds and all other water ponds. Hydrology run off calculations are done using HEC-HMS software fed with the rainfall data, which then produces an input file to GoldSim when the probabilistic model is run. The Bulyanhulu automatic weather station reports are used in the model and this data is supported by a manual station at the water treatment plant. The operations use a paste disposal type TSF, limiting evaporation and the water ponds evaporation is included in the GoldSim model simulations. The model does not indicate the need for standby power or pumps although standby generators are available.

The Water Management Plan specifies pond levels and overflow risk levels which form part of operational management. The output from GoldSim is used to review the pond

freeboard parameters on a monthly to two weekly frequency using the pond survey and rainfall data.

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 TSF is a paste-type TSF and there is no pond with open water on the TSF itself. Runoff solutions are directed to the desilting pond which is deemed the first open water in the TSF. Samples are taken from the desilting and return water ponds at the TSF and analysed for WAD CN. The feed to the TSF from the plant is detoxified at the plant to less than 50 ppm WAD CN which ensures that all cyanide solutions fed to the TSF should contain less than the 50 ppm WAD CN.

WAD CN samples for the TSF return dam 1 are between <0.05ppm and 16.71ppm, return dam 2 is between 0.005ppm and 5.48ppm and the desilting pond is between 0.05ppm and 2.3ppm. Weekly samples from January 2009 to the end of January 2012 were reviewed. SGS Laboratories are used to cross check samples and confirm accuracy.

Ponds and the TSF are monitored daily for wildlife mortalities and none have been detected in the three year period since certification.

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 the nearest river, the Bulyanhulu river, is 5kms away. A surface water dam is situated below the TSF return water ponds and boreholes are placed around the ponds and sampled and analysed for WAD and free CN. The results from 08 November to 28 December 2011 show values are below 0.1ppm WAD CN. No indications of seepage were detected. The Cattle Pond sample values between January 2009 to 28 December 2011 were less than 0.1 ppm WAD CN, The Bulyanhulu river is sampled and the annual 2009, 2010, 2011 reports are all values of less than 0.01ppm WAD CN. Check samples by SGS Laboratories show less than 0.001

as the method used by them measures to lower limits of detection. The legal standard is 1 mg/l WAD CN.

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

All TSF return water dams are lined and the process plant uses a detoxification section to reduce cyanide in the tailings to less than 50 ppm WAD CN. The plant is equipped with concrete bunds for all process solution tanks to prevent seepage. Beneficial uses for groundwater are primarily mining. There is no specific legal standard for groundwater in place but the drinking water standard is 0.2 mg/l CN. Borehole results down gradient of the site and the TSF indicate that the values are less than 0.2mg/l CN and conform to the deemed legal standards for drinking water.

Backfill is placed underground and the backfill cyanide standard is to keep cyanide below 50 ppm WAD CN. The report on the impact of backfill on the underground mine was conducted and sighted during the certification audit and nothing has changed since certification. The detoxified tailings are monitored by an on line WAD 1000 analyser and sampled data for December 2010 showed values between 0.18 and 19.48ppm WAD CN. Cyanide values are reduced by a factor of 3 due to dilution of the CIL tails with the float tails.

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 inside bunds serving as secondary containment. 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 with a 100mm slab with a fabric reinforcing under the tanks. Cyanide tanks and pipelines are manufactured from materials compatible with cyanide and high pH conditions.

Reagent strength pipelines are routed across competent secondary containment bunds and are placed in a pipe where it crosses the road to the Acacia system. Preventative measures include having all pipelines on the Pronto PM system covered by operational inspections. Tailings lines and return water pipelines are contained in a lined trench. Tailings lines at the TSF are placed inside the berms to contain any spillage. Tailings lines run in a lined trench and in a pipe in pipe system where roads are crossed. All tailings lines are inspected via the Pronto Preventative Maintenance system. No special areas posing a risk to surface water have been identified and there are no rivers close by.

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:

New extensions were added to the TSF and these were supported by detailed QA / QC project files. The Cell expansion of the TSF in the Bulyanhulu Gold Mine Review of Cell 3 Construction document stated that it, "...has been constructed in substantial performance with the project design drawings and specifications". No new facilities or modifications to the existing processing plant facilities were implemented since construction. The annual report for the TSF March 2011 concluded that the structural stability of the dam is adequate, with management requirements included in an ongoing action plan. Free board is adequate above the 0.50m.

No new additions were made to the plant. A structural engineers' inspection report covering corrosion assessment and structural steel integrity in September 2010 covered the Process plant, and paste filtration plant. A structural renewal programme based on prioritised items is being implemented to ensure that the plant is structurally sound. The high priority items were outside the area defined as cyanide facilities.

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 water sampling procedure and 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 appropriately qualified site Environmental Officer. Surface water is sampled monthly, boreholes quarterly and wildlife monitoring daily by TSF staff and weekly by environmental staff.

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 International Cyanide Management Code Compliance Project: Bulyanhulu Decontamination and Decommissioning Plan, includes details of cyanide decontamination and decommissioning. An implementation schedule is in place and the details in the Plan are 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 closure cost estimates for 2007 include processing plant and associated facilities clean up. The estimates are reviewed five yearly with the next review due at the end of 2012. 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. A corporate strength statement from independent certified public accountants dated 9 May 2011 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:

The process plant has 62 integrated operational and engineering procedures for the CIL cyanide areas, supported by appropriate environmental procedures. A Mine tailings operation maintenance and surveillance manual is in place. On the TSF, weekly pond level surveys are conducted – and the water management plan (part of the EMP) specifies pond levels. Weekly surveyors' reports covering the tailings sedimentation pond, and return dams 1 and 2 were sighted for 2010, 2011 and 2012.

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 during daily toolbox meetings and weekly health and safety meetings and through worker involvement in risk assessments. 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:

The CIL 1 tank pH set point is at 11.5, and pH is measured by on-line pH probes indicating on the SCADA. Alarms are set at Low (pH 10.7), LowLow (pH 10.5), and make up water pH is adjusted to pH 12 by the addition of two 25kg bags of NaOH. pH is also measured at the cyanide make up area. The mine identified the potential hot spots

and located fixed HCN gas monitors in those areas. The fixed monitors are placed at no 1 CIL, Detox (reduction area) tanks at the bottom at Desorption, at the top of alkaline reagent mixing tanks and at the Acacia Reactor. Values are displayed on the SCADA. The first alarm is at 4.7ppm HCN for evacuation (audible as well as SCADA screen pop up alarms). There are 33 personal HCN gas monitors used by staff on the plant. Personal gas monitors are required to be worn at the CIL. Cyanide mixing is identified as a risk area and PPE, including the wearing of a Dräger PAC 7000 personal monitor is required. The solid sodium cyanide store is a risk area and workers are also required to wear personal monitors. Signage is used to indicate where cyanide gas risks are possible. The Manufacturer requires monitor calibration at 6 monthly intervals and calibration records were reviewed.

Signage was observed during the site inspections and included no eating / drinking signs. The comprehensive induction programmes details PPE requirements for the plant and TSF. Eating and drinking is only allowed in designated areas and reinforcement of this forms part of the induction training.

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. English is the operational language used, but Swahili is the local language and Swahili signs were observed. 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:

Radios are carried by the supervisors and some senior operators and used for emergency on channel 5 (inside) and 4 (outside). As a back-up, telephones are installed in the control rooms and offices. The operation has Oxy-viva oxygen kits available in the CIL control room, in the emergency kit at the Acacia reactor, and CIL PPE container. Antidote kits are at the CIL control room and the Acacia section and the clinic and stored in fridges and replaced as directed by manufacturers. Running water is available throughout the plant. All plant personnel are trained in cyanide first aid, and a mine wide Emergency

Response Team (ERT) is in place to provide emergency response, Paramedics form part of the ERT, and a fully equipped mine clinic with a medical doctor who is available 24 hours per day and an ambulance is also available for transport of patients from the plant to the clinic. Cyanide emergency procedures form part of the site-wide emergency preparedness plan which covers the whole site and includes the cyanide facilities. No local hospitals or clinics are used for cyanide exposure patients. A medical advisor or most senior doctor will make the decision to evacuate a cyanide patient as per the procedure and agreement with the MEDEVAC service provider, ISOS. Equipment is regularly checked and tested and mock drills are held on site and in conjunction with the clinic. A formal mine tracking system was recently implemented, after including the process plant in the mine wide system, to follow up on action plans from the drill reports and reviews. 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 (September 2011, revision 10) in place and functional, which includes site-specific cyanide emergency scenarios and responses. Cyanide first aid procedures are included in the Plan. 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) is circulated to Heads of Departments for discussion with their various Departments for feedback. The Plan is also discussed at safety meetings and tool box talks. 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. Camp family members are briefed on emergencies during their site induction.

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 and the roles and responsibilities 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 mock drills. The Plan includes emergency response training to 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 prepared and equipped for cyanide emergencies. Periodic full scale drills are held to 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 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, hydrogen peroxide and hypochlorite in surface water is prohibited, unless human life is under direct threat. The Plan includes no provision for 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:

All personnel working in the plant for longer than 5 days, including full time staff as well as contractors and visitors, receive 1 day chemical and cyanide awareness training during induction. The PowerPoint presentations covering cyanide awareness and recognition, as well as cyanide first aid training were reviewed in detail. Written tests are completed to assess competency. Assessment forms are also available in Swahili. Verbal assessments are done for non-literate persons. Ten 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. Site cyanide training programs were reviewed. Refresher training is conducted annually. Hard copy and electronic training records are kept as long as the person is in employment.

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:

All staff (Operational and maintenance) receive process plant induction (including cyanide) before starting their task training using the Safe Work Procedures (SWP). All workers are trained using SWP for their specific jobs. The index of training covered in the production task training was reviewed. Verified training during review of the records of the staff interviewed. All workers are trained using the SWPs for their specific jobs. Supervisors are trained as trainers using "Train the Trainer" Courses. All workers receive plant induction before being allowed to start task training on the sections under a supervisor. The worker is only allowed to work unsupervised with cyanide once assessed and signed off for each task by his supervisor and the training officer. Thereafter, supervisors conduct periodic job observations and in case of substandard performance, retraining/refresher training is done by the Supervisor. Hard copy and electronic training records are kept as long as the person is in employment.

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 Process staff act as the first responders and are trained in cyanide spillage, decontamination, cyanide first aid and cyanide emergency response. Additionally, the Emergency Response Teams (ERT), consisting of trained members from throughout the mine, are called for specialised response by the Supervisor. (At least one ERT member should be present on every shift).

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. Hard copy and electronic training records are kept as long as the person is in employment.

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 is two way and thus the forum for receiving issues and presenting responses is the same. Stakeholders were identified and they included the 19 villages surrounding the mine, hospitals, schools, district police commissioner, district commissioner, and the Tanzania Port Authority. Meetings are convened according to a schedule, establishing a chain of command in case of emergencies, including emergency number, and creation of awareness with the immediate community. Media review meetings are held quarterly attended by senior members of the press. Presentations to local communities are given annually using PowerPoint presentations, handouts, pictures, and verbal presentations. A cyanide awareness presentation DVD and PowerPoint including the whole plant process, and transportation of cyanide was viewed. Presentations in Swahili were given to the following villages: Busoka, Nyambula, Ntobo, Kalagwa, Masabi, Segese, Lunguya, Shilela, Ilogi, Bugarama, Bunango, Igudija, Kakola, Bushing'we, Igwamanoni, Busindi, Lwabakanga, Namba, tisa Iyenze. Records and minutes of meetings at the following locations were reviewed: Lunguye 18 May 2011, Nyambula 13 May 2011. Busoka 13 May 2011, Shilela 28 Aug 2011, Igwamanoni 29 Aug 2011, Bunango 9 Sept 2011. A presentation covering the ICMI Cyanide Code was given to a forum from 4 to 8 May 2009 in Mwanza which included political leaders. A further presentation was given at a meeting of education facilitators and community facilitators held 31 March 2010.

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 is two way and thus the forum for receiving issues and presenting responses is the same. Stakeholders were identified and they included the 19 villages surrounding the mine, hospitals, schools, district police commissioner, district commissioner, and the Tanzania Port Authority. Meetings are convened according to a schedule, establishing a chain of command in case of emergencies, including emergency number, and creation of awareness with the immediate community. Media review meetings are held quarterly attended by senior members of the press. Presentations to local communities are given annually using PowerPoint presentations, handouts, pictures, and verbal presentations. A cyanide awareness presentation DVD and PowerPoint including the whole plant process, and transportation of cyanide was viewed. Presentations in Swahili were given to the following villages: Busoka, Nyambula, Ntobo, Kalagwa, Masabi, Segese, Lunguya, Shilela, Ilogi, Bugarama, Bunango, Igudija, Kakola, Bushing'we, Igwamanoni, Busindi, Lwabakanga, Namba, tisa Iyenze. Records and minutes of meetings at the following locations were reviewed: Lunguye 18 May 2011, Nyambula 13 May 2011, Busoka 13 May 2011, Shilela 28 Aug 2011, Igwamanoni 29 Aug 2011, Bunango 9 Sept 2011. A presentation covering the ICMI Cyanide Code was given to a forum from 4 to 8 May 2009 in Mwanza which included political leaders. A further presentation was given at a meeting of education facilitators and community facilitators held 31 March 2010.

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:

A written description based on the PowerPoint presentation is available for distribution to the local communities, on request. The written presentation is also available in Swahili, the local spoken and written language. Although the presentations are given in Swahili, they are also given, when required, in Sukuma, a local spoken (but not written) language. 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.

