### INTERNATIONAL CYANIDE MANAGEMENT INSTITUTE

Cyanide Code Compliance Audit Gold Mining Operations

Summary Audit Report

AngloGold Ashanti Savuka Gold Plant West Wits

7-8<sup>th</sup> May & 14<sup>th</sup> - 17<sup>th</sup> May 2007

14-17<sup>th</sup> May 2007

Name of Operation:

AngloGold Ashanti Savuka Gold Plant West

Wits

Name of Operation Owner:

AngloGold Ashanti Africa Underground Region

Metallurgy

Name of Operation Operator:

AngloGold Ashanti Africa Underground Region

Metallurgy

Name of Responsible Manager:

Robbie Turner, Plant Manager

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Location detail and description of operation:

West Wits Savuka Gold Plant is located in the Carletonville area, approximately 90 km South West of Johannesburg in the Gauteng Province, South Africa. It currently receives its feed sources from Savuka Waste Rock Dump and TauTona and Savuka Mines and has a maximum capacity to treat 250 000 tons of ore per month.

Underground ore is transported to the plant from Savuka Mine directly via conveyor belts. Ore is received from TauTona via railway and is processed through a screening plant for size distribution prior to crushing. The oversized material from the screens is crushed by conventional jaw, standard, short head and omnicone crushers before being conveyed to the milling plant.

The milling section is divided into 3 milling modules, viz. Carbon Leader, VCR (Ventersdorp Contact Reef) West and VCR East. Each module consists of two stage milling, with ball mills being the first stage and tube mills being the secondary stage milling, with the exception of VCR East which utilises pebble mills in the second stage. Cyclones are used for classification. In total, the milling circuit consists of 8 ball mills, 32 tube mills and 2 pebble mills.

The mill product is then gravitated to the thickener section, which consists of 21 thickeners. Lime is added to the thickener feed launder as slaked lime. Lime aids in the settlement of the milled ore and maintains a protective level of alkalinity in the leach section. Flocculant is added to assist in the settling of the milled ore. The thickened underflow slurry is pumped to the leach circuit and the thickener overflow water is used in the milling circuit.

The leach circuit consists of 2 process streams. Stream 1 consists of 32 pachucas, and Stream 2 consists of 6 pachucas. Sodium Cyanide (NaCN) is added to the circuit for the purposes of gold dissolution. The Pump-cell adsorption circuit consists of 8 mechanical agitated vessels. Granulated carbon is used as the adsorption medium. The carousel feed system is used on the pump-cell plant, with 1 vessel constantly off-line.

The low-grade slurry (residue) is then screened for fine carbon and transferred to the residue tanks, where it is either pumped to the slimes dam or to the backfill plant, which supplies backfill to both Savuka and TauTona Mines. The backfill reject is thickened and pumped to the residue tank for disposal. The thickener overflow is reused at the backfill plant.

The loaded carbon is screened from the pulp and transported to Mponeng Gold Plant by road. Gold recovery from the carbon is completed at Mponeng Gold Plant and the regenerated carbon is transported back to Savuka Gold Plant. The Tailings Storage Facility vary in age, some being long established. The TSF's are raised using the paddock and day wall system. This is the typical method used by the plants in the area.

### 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.

Audit Company: Eagle Environmental

Audit Team Leader: Arend Hoogervorst

E-mail: arend@eagleenv.co.za

Names and Signatures of Other Auditors:

Signature Name: Dawid M. L Viljoen

Date(s) of Audit: 7<sup>th</sup> – 8<sup>th</sup> May & 14<sup>th</sup> – 17<sup>th</sup> May 2007

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.

Facility: AngloGold Ashanti Savuka Gold Plant West Wits

Signature of Lead Auditor

Date 24/8/07

Date: 24/08/2007

Certified/notarized:-

LYNETTE HEATHER LAUDERDALE

Conveyancing Paralegal
Ewing McKeown Inc.
(Formerly Ewing Adams & Associates)
Commissioner of Oaths RSA
28 Old Main Road, Hillcrest 3610
REF: 9/1/8/2 Pinetown 18/11/2004

Savuka Gold Plant West Wits Signature of Lead Auditor

### 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.
  - ☐ in full compliance with
- The operation is X in substantial compliance with Standard of Practice 1.1
  - □ not in compliance with

Basis for this Finding/Deficiencies Identified:

The plant's cyanide manufacturer, Sasol Polymers, is a ICMI Code Signatory and has undergone an compliance audit which resulted in a substantial compliance finding. This prevents the Savuka Gold Plant from achieving full compliance with this Standard of Practice. The Sasol Corrective Action Plan is expected to be complied with, and thus enabling full ICMI compliance, by the end of the third quarter of 2007.

The supply contract stipulates that the producer must be a signatory to the ICMI and must be ICMI compliant.

- 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 and transport contract stipulates that the transporter must be a signatory to the ICMI and must be ICMI Code compliant. The transporter, Sasol Infrachem SILog, is a

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ICMI signatory and has been audited by an independent third party auditor and was found to be ICMI transportation compliant on 8<sup>th</sup> March 2007. Clearly identified lines of communication and responsibility exist between the producer, transporter and operation and evidence of training, full integrated drills, and liaison was sighted.

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 supply and transport contract stipulates that the transporter must be a signatory to the ICMI and must be ICMI Code compliant. The transporter, Sasol Infrachem SILog, is a ICMI signatory and has been audited by an independent third party auditor and was found to be ICMI transportation compliant on 8<sup>th</sup> March 2007. Emergency response plans were sighted along with evidence of adequate capabilities, training and resources.

### 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  $\ \square$  in substantial compliance with Standard of Practice 3.1  $\ \square$  not in compliance with

Basis for this Finding/Deficiencies Identified:

The operation only receives and stores liquid cyanide and no mixing is done on site. Sighted original drawings and design documentation for unloading and storage indicate clearly that facilities were designed for effective cyanide management and control. Drawings were signed off by appropriately qualified and competent engineers. Recent civil engineering inspections suggested that loading on cyanide tank structures might be

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problematic. As a result, and on advice of the civil engineer, the plant has reduced tank levels to 45% of tank capacity to reduce loads on civil structures until a more permanent solution can be found. Site inspections showed that the cyanide areas (off-loading and storage) were effectively concreted with adequate bund capacity. Bunded areas contain liquids and these are pumped back into the circuit. Cyanide storage tanks were fitted with level measurement, level alarms and automatic closure of off-loading air valve if set levels were exceeded. The cyanide area is fenced off within the plant area which is within a security area ensuring access by only authorized, appropriately trained, persons.

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 substa

☐ in substantial compliance with **Standard of Practice 3.2** 

□ not in compliance with

Basis for this Finding/Deficiencies Identified:

No mixing of solid cyanide is carried out on-site. The site utilizes liquid cyanide which is delivered in bulk tankers and off-loaded into storage tanks. The offloading process was subject to a risk assessment which guided both procedures for normal operations and contingency plans for abnormal events and activities. PPE requirements are included in the off-loading procedure, as is spill response and the requirement that driver and off-loader apply the "buddy system" during off-loading. Off-loading checklists were sighted and interviews conducted which confirmed cyanide awareness and competency. All reagent cyanide facilities are covered in the CMMIS (Computer Maintenance Management Information) computerized preventative maintenance system, with maintenance frequencies having been determined by Failure Mode Evaluation Critical Analysis (FMECA). Regular documented inspections are undertaken by shift staff and these are supported by regular legal inspections by safety officers and management.

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.

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	X7 . 6 H
	X in full compliance with
The operation is	$\Box$ in substantial compliance with <b>Standard of Practice 4.1</b>
	□ not in compliance with

Summarize the basis for this Finding/Deficiencies Identified:

The site has no heap leach operations and there are no cyanide regeneration or disposal systems in place. There are 84 site procedures which integrate health, safety, environment and emergency management activities and plans to manage cyanide effectively. The systems were reviewed and tested and shown to be effective and integrated well. Change management procedures are in place and are currently being upgraded to improve response and sensitivity. Inspection systems were also in place and preventative maintenance was controlled by a Computer Maintenance Management Information (CMMIS) electronic system. Random sampling of cyanide equipment was undertaken to check the effectiveness of the CMMIS and review equipment histories. TSF facilities managed externally were also reviewed and checked and systems and procedures found to be effective. Annual technical inspections of the TSF facilities are undertaken by a professional engineer to ensure integrity of the development activities. AngloGold Ashanti Cyanide Safe Handling Guidelines require TSF freeboard limits in excess of legal requirements. Water management procedures and data on site, and at the TSF, were checked for normal and abnormal operation and found to be effective. Routine inspection reports and checklists were sampled and employees interviewed to check the effectiveness of systems. Good communications was found to be in place between the operation and the central facilities and service groups, (Environmental management, water management, risk assessment, TSF management)

Regular laboratory testing is undertaken to optimize cyanide consumption against design parameters and changes in ore feed to minimise potential for cyanide reaching ponds and impoundments. Regular reviews and checks of the site and regional water balance are undertaken to ensure that water movement within the system is optimized and cyanide risk at the TSFs minimized.

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 In not in compliance with In not subject to Savuka Gold Plant West Wits Signature of Lead Auditor 23rd August 2007

Basis for this Finding/Deficiencies Identified:

The corporate strategy is to evaluate feed mix, conduct laboratory diagnostic leach programs and make addition changes based upon the results. Original plant test work, modeling and simulation for cyanide consumption is undertaken on an ongoing basis by an independent laboratory and reports and related documentation was sighted, along with the programs in place to evaluate ore changes, and implement changes where necessary. Cyanide addition is automated using the TAC 2000 system (auto cyanide titrator). The plant has evaluated the replacement of the TAC 2000 with the TAC 1000 to improve the ability to measure range changes and sensitivity. Any changes in cyanide set points is procedurally controlled and must be formally authorised by the Plant Manager. WAD cyanide on tailings is measured using an on-line Oxitrol analyser.

Standard of Practice 4.3: Implement a comprehensive water management program to protect against unintentional releases.

### X in full compliance with

The operation i
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☐ in substantial compliance with Standard of Practice 4.3

□ not in compliance with

Basis for this Finding/Deficiencies Identified:

Water balances are in place which cover both the plant and the West Wits TSF (which supports both Mponeng and Savuka gold plants). The plant water balance takes into account all of the key elements including potable water, underground water, slimes dam return, anti-pollution dam, return water dams, water to backfill, water to residue, water from backfill, water from shaft and rainfall. Evaporation and seepage is not significant and probabilistic calculations were sighted. Water management includes controls such as plant containment (three anti-pollution dams are available), clean/dirty water separation, concrete surfacing, return water dam containment, dam level alarming, and excess (in excess of legal minimums) freeboard capacities. Water balance data and calculations for the West Wits TSF were sighted, as was the detailed report by consultants covering water management for the area. TSF and plant stormwater management scenarios cover the 1:50 year storm probability model with supporting work also looking at the 1:100 year storm event. Plant provisions for handling flood events during power outages include the use of dam and thickener capacities and an agreement is in place with a contractor to supply emergency pumping equipment on 5 hours notice. Plant dams have on-line, level indicators which alarm on the control room SCADA.

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

☐ in full compliance with

Savuka Gold Plant West Wits Signature of Lead Auditor

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The operation is	X in substantial compliance with Standard of Practice 4.4
	□ not in compliance with
Plant tailings WAD occasions and the plant control of the modification to ope cyanide levels at the available at the tisustainability of the Currently, should his plant warn the TSF are equipped with a have been comment completed in Octob water, environment development of be identification is begansence of birds a reported by the plant reported no mortality. A corrective action is data demonstrating	Cyanide have exceeded the 50 ppm WAD levels on a number of ant recently commenced an intensive, cyanide optimization program, ement of their TAC 2000 with a higher level, more sensitive, TAC in improved performance, leading to the ability to reduce cyanide improvement of the cyanide measurement and control system and erating procedures. This new strategy also results in lower WAD is plant and the TSF tip point. Approximately two weeks of data was me of the audit which was deemed insufficient to prove the activities and the appropriateness of the new procedures. If the properties are the thigh WAD cyanide levels be reported at the TSF tipping point, or the that high WAD cyanide levels could be expected, contractors on site air homs to proactively scare off any birds, when required. Studies are 2007) which have looked at bird behaviour and related this to and habitat characteristics on the TSF. This has contributed to the effect wildlife management practices. Training of staff in bird inning to contribute to better quality data relating to the presence and the absence of mortalities. No wildlife mortalities have been the since signing to the ICMI Code and the University study team have less since commencement of their studies. In provide at least three months of the effectiveness of the new measures and controls, including borts on variables and the revised procedures.
Standard of Practice	e 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
	ng/Deficiencies Identified: ect or indirect discharges to surface water.

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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

Seepage potential is minimised because the plant design is based upon a containment principle which means surfaces are concreted or tarmac-ed to direct and control flows or releases. Cutoff trenches are installed around the plant to ensure clean/dirty water separation. Three lined, anti-pollution dams are used to contain stormwater and any plant runoff water and prevent seepage. Boreholes up and downstream of the plant are sampled and monitored for cyanide content but have indicated no detectable or "at limits of detection" cyanide levels in boreholes. Backfill quality controls, specified by the AngloGold Ashanti Cyanide Safe Handling Guidelines, are in place. A continuous ferrous sulphate solution addition system is used to fixate free cyanide as SAD cyanide and shaft QC titrations form the final test before backfill is transferred underground. Upfront dosing control using TAC 100 prevents overdosing of cyanide (Including interlocks with cyanide dosing pumps and slurry pumps to prevent overdosing). A clean/dirty water separation system is in place at the TSF with cutoff trenches dug around the TSF impoundments. TSF design includes under drains and trenches to collect seepage and prevent contamination.

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:

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All reagent strength cyanide pipelines are equipped with secondary containment systems which drain back to the reagent strength bund area. All in-plant process pipelines are either positioned over bund areas or concrete/asphalt-covered surfaces. The plant is designed with bund walls around all cyanide tanks, leach tanks, CIL tanks, Elution section and residue section. All cyanide equipment (including tanks, pipes, valves, couplings and bunds) is included in the CMMIS preventive maintenance system and is regularly inspected by operational staff. All cyanide equipment is constructed from materials that meet the engineering design specifications of the AngloGold Ashanti Cyanide Safe Handling Guidelines. Plant Procedures and standards were sighted covering equipment maintenance and pipe fabrication for cyanide usage. The TSF pipelines are patrolled daily and artisans inspect pipes, valves and pumps weekly. Paddocks exist around pipelines in areas where spillage could pose and environmental risk. Pipes crossing streams are covered with culverts and paddocks dug to contain any spillage.

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 has been formally inspected by a Professional Engineer, who produced a report on his inspection, and signed off subsequent remedial work undertaken. Annual inspections of the TSF, against the Code of Practice and Operating Manual, are signed off by a professional Geotechnical Engineer to ensure that operation and design meet legal. engineering and design requirements. TSF Quality control documentation was sighted for an upgrade system which included soil compaction data, concrete strength testing and top soil management, all of which was countersigned by a professional engineer. No major modifications or additions to the plant facilities have been undertaken since signing to the ICMI Code.

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 Signature of Lead Auditor 23<sup>rd</sup> August 2007 Savuka Gold Plant West Wits

Basis for this Finding/Deficiencies Identified:

Wildlife observations (including mortality checks) are correlated with studies conducted by the University of the North West and bird identification training programmes for monitors and inspectors have been introduced to add value to mortality observations on plant and the TSFs. Although the studies are only due to be completed in October 2007, interim peer reviews indicate that the studies are sound and scientifically viable. Monitoring and inspections are guided by appropriate procedures and guidelines. Mortality inspections and borehole and surface water quality data was sampled and sighted. Broad based studies conducted by MINTEK (independent laboratory and research body) were undertaken to ensure that the most appropriate areas are checked and sampled. Monitoring programs are in place to sample both surface and groundwater for cyanide. The programs are conducted according to formal procedures and the AngloGold Ashanti Cyanide Safe Handling Guidelines.

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

Summarize the basis for this Finding/Deficiencies Identified:

The plant is covered by an organization-wide, corporate level Closure Plan which is updated regularly and costs updated annually. Site specific documentation relating to decommissioning of cyanide facilities and costs were sighted. Specific procedures are in place covering decontamination and removal of cyanide contaminated or redundant equipment. Decommissioning is further supporting by the AngloGold Ashanti Cyanide Safe Handling Guidelines.

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

### X in full compliance with

	A in run compnance with	
The operation is	☐ in substantial compliance with S	tandard of Practice 5.2
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□ not in compliance with

Basis for this Finding/Deficiencies Identified:

Plans and funding of cyanide decommissioning activities are a requirement of the Minerals and Petroleum Resources Development Act and these plans and the latest cost estimates and details of financial provisions were sighted. Cost estimates are updated annually. Planning and costing is supplemented by actual cyanide facility decommissioning experience of an old AngloGold Ashanti plant, using costs from the contractors involved.

### 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:

Procedures were developed from HAZOPs and risk assessments and reflect responses to normal and abnormal conditions, operations and various exposure scenarios. Risk assessments and procedural HAZOPs are in place and regularly revised, or undertaken, for new or changed circumstances. A formal change management procedure is in place and operational. All cyanide maintenance tasks (including confined space entry) require clearance certificates approved by the Plant Engineer. These tasks are detailed in the CMMIS system and equipment must be decontaminated by operational staff before it can be worked on by maintenance staff. Procedures and tasks were extensively checked through review, examination and interview during the audit. Recently introduced, expanded change management procedures broaden the base for risk and hazard identification and control. Checks and balances are in place through worker involvement in HAZOPs and through consultations in Health & Safety Committee meetings and Green Area meetings. Trade Unions are also involved in Health & Safety meetings to represent worker health & safety interests. Procedures are in place which cover PPE level of usage, and equipment inspection and maintenance.

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.

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### X in full compliance with ☐ in substantial compliance with Standard of Practice 6.2 ☐ not in compliance with

Basis for this Finding/Deficiencies Identified:

AngloGold Ashanti Cyanide Safe Handling Guidelines establish pH requirements and the plant has pH monitoring with interlocks to cyanide pumps. Instrumentation functional specification pH control is set at 10.5 with interlock to Cyanide pumps activated at pH 10, and alarms at >pH 10.2. Personal and fixed monitoring devices are used to check cyanide exposure levels. Personal monitoring equipment is alarmed for both STEL and TWA exposures. Personal monitoring equipment use is prescribed by procedure in many routine and non-routine activities. Calibration of this equipment exceeds the frequency required by the manufacturers. Effective and numerous warning signs are in place which not only warn of hazards but also inform on PPE, control access and supplement good safety practices. Employee interviews were used to check awareness and sensitivity to cyanide health and safety measures. Accident and incident reporting and investigation procedures were found to be in place and effective although the absence of cyanide incidents made checking of this area of reporting for cyanide difficult. On-going inspections and checks are also used to monitor and check facilities and emergency response equipment functioning. Safety equipment such as safety showers, eye washes, fire extinguishers and man-down alarms are appropriately located and well signposted.

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:

Emergency response plans, procedures and equipment are in place to deal with worker exposure to cyanide. Equipment availability and inspections records were thoroughly checked. Mock emergency drills are held in rotation with neighboring plants to enable effective checking of plant and full cycle (i.e. plant, ambulance, hospital) response and reports on these exercises were sighted. The Emergency Team are well trained and identified on lists located around the site. The plant's cyanide emergency station and emergency response trailer were checked and found to be well equipped and regularly checked. Medical oxygen, BA sets, safety showers and man-down alarms were randomly checked throughout the plant. Fridges were in place to keep the antidotes and response

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kits at optimum temperature and expiry dates were marked and supported by a external checking system to ensure appropriate and timeous replacement. AngloGold Ashanti Cyanide Safe Handling Guidelines (which apply to all AGA Gold Plants) include specific requirements and agreements relating to ambulance evaluation, agreements with hospitals and service providers, notifications of exposures and man-down alarm drill frequencies.

7. EMERGENCY RESPONSE Protect communities and the environment through the development of emergency response strategies and capabilities.

Standard of Practice 7.1: Prepare detailed emergency response plans for potential cyanide releases.

### X in full compliance with

The operation is	☐ in substantial compliance with Standard of Practice 7.1
	□ not in compliance with

Basis for this Finding/Deficiencies Identified:

The plant has used a HAZOP study to developed site-specific emergency scenarios and responses which are incorporated into the detailed site emergency response plan. The response plan combines procedural responses and emergency provisions to deal with the various scenarios. The cyanide producer and transporter are ICMI Code compliant and transportation emergency response plans are appropriately integrated. The emergency response procedures comply with the AngloGold Ashanti Cyanide Safe Handling Guidelines.

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:

Representatives of the workforce were involved in the HAZOP Study to develop the emergency scenarios and response in the emergency response plan and procedures. Emergency response is also discussed at Health & Safety meetings which include health

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and safety representatives (full and part-time), and Trade Union representatives. Meetings have been held with the local business community, local authorities, local police and the local Disaster Management Department. Presentations have been given to schools regarding the dangers of cyanide and TSFs. There is effective, on-going liaison with the cyanide producer and transporter (Sasol) on emergency response, drills, and learning points from drills. There is close liaison and communication with medical services (ambulance and local hospital).

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 <b>Standard of Practice 7.3</b>
	$\square$ not in compliance with

Basis for this Finding/Deficiencies Identified:

The Emergency Response Plan details clear roles and responsibilities for the various emergency scenarios and includes extensive contact references (telephone, cell phone, etc) of resources for the various scenarios, particularly where external resources and skills might be needed. (The Plan's framework and content is dictated by a corporate procedure.) The Plan cross references relevant procedures which guide availability and use of resources and appropriate response. Emergency equipment is fully listed in the Plan and available to Emergency Coordinators. A Decision Tree in the Plan further guides scenario classification and appropriate decision making and resource provision. The Plan includes Emergency Team members and their various roles and responsibilities. The Team's training records and assessments were checked and showed the individuals to be well prepared and well equipped for cyanide emergencies.

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 Response Plan includes cross references to procedures for appropriate emergency notification and reporting and the call-out procedure and contact information

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lists which are updated regularly (Updated lists sighted). Media communication is done centrally via a formal corporate procedure. Contact details for neighbours were sighted.

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 Response Plan cross-references to detailed and specialised procedures which cover clean-up and remediation relating to pipeline failures and spills, as appropriate to the site specific, identified scenarios. There are also cross references to the centralized environmental and clean up procedures which form part of the Environmental Management System. A specific procedure governs the conditions under which ferrous sulphate may be used, i.e. not under circumstances where surface water may be contaminated. The plant does not use sodium hypochlorite or hydrogen peroxide and no stocks are kept on site. Procedures covering handling and detoxification of chemical spillages (including cyanide) and environmental pollutant discards were sighted.

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

 $\square$  not in compliance with

Basis for this Finding/Deficiencies Identified:

Regular emergency drills are held as per a corporate schedule, to optimise rotation of full cycle drills amongst all the AGA gold plants in the Region. Previous versions of emergency response plans were sighted. Evidence was sighted of learning points emerging from fire, lightening and cyanide man down drills. The Emergency Response Plan includes a section covering "Plan Maintenance and Review" which dictates circumstances for Plan review and revision.

### 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:

Detailed checks were made of the centralized cyanide training and refresher programs. These were cross-checked with plant records and randomly selected employees were checked on understanding in interviews. Checks were made on basic cyanide training, advanced cyanide training and basic cyanide awareness and hazard recognition through interviews and training record checks. There was a good understanding of cyanide hazards and the appropriate response to emergencies. The Training Centre sends qualified trainers to carry out assessments and checks on cyanide knowledge competency (both "class room" and "on-the-job" based) and re-training or refresher training is assigned according to results.

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:

Site Training is conducted by the Training Department in accordance with the South African Mining Qualifications Authority National Unit Standard Met-G136 LG "Handle Liquid Cyanide Safely in a Metallurgical Plant" and the AngloGold Ashanti Cyanide Safe Handling Guidelines. Formal assessments of performance are conducted by assessors to check competency and understanding using PDAs (Personal Digital Assistants). Training for engineering maintenance staff includes cyanide training and specialised training is provided for Cyanide Off-loaders. Full training records, including details on the trainer, course content and assessment results are kept at the AngloGold Training and Development Services (ATDS) centre.

Savuka Gold Plant West Wits Signature of Lead Auditor

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Standard of Practice 8.3	: Train appropriate	workers and	personnel to	respond to	worker
	exposures and en	vironmental i	releases of cy	anide.	

## Exposures and environmental releases of cyanide. X in full compliance with The operation is In substantial compliance with Standard of Practice 8.3 In not in compliance with Summarize the basis for this Finding/Deficiencies Identified: All employees receive basic cyanide training which includes raising the alarm and

All employees receive basic cyanide training which includes raising the alarm and protecting themselves. The Emergency Response Team (cyanide appointees) receives advanced cyanide training which includes incident command and confined space rescue, and are trained in the Emergency Preparedness Plan. Only the Team will respond to cyanide emergencies. 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.

### 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:

Evidence of meetings held with the local communities where cyanide was discussed specifically was sighted. The communities were given the opportunity to raise issues and ask questions. Sighted presentation material and meeting minutes.

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
	A 1.

Savuka Gold Plant West Wits Signature of Lead Auditor 23<sup>rd</sup> August 2007

Eagle Environmental	
AngloGold Ashanti Savuka	Gold Plant West Wits

14-17<sup>th</sup> May 2007

□ not in compliance with

Basis for this Finding/Deficiencies Identified:

AngloGold Ashanti Central Services, on behalf of the plant, initiated discussions with local emergency services, fire and rescue on hazardous chemicals, transportation procedures, risk assessments and cyanide management. This is also done in liaison with discussions held by the cyanide producer and transporter, Sasol, with emergency services.

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:

Various newsletters, articles, posters and placards covering cyanide management, dangers of Tailings Storage Facilities, pipelines, and information on the ICMI which have been made available to the public and specific interest groups were sighted. All information on releases and exposures is reported to the regulator who then releases the information via regular newsletters and reports to stakeholders. The information is then in the public domain and can be requested from the regulator by interested parties. Should releases and exposures occur, they will also be reported on the company's website. Information is also distributed to the Health and Safety Committee at which the employees are represented.