January 2015

ICMI GOLD MINE RECERTIFICATION AUDIT - SUMMARY AUDIT REPORT

Gold Fields South Deep Gold Plant

Submitted to:
Mr. Stephen Joseph
Senior Manager Metallurgy
South Deep Mine - Metallurgical Plant
Farm Modderfontein
Old Vereeniging Road
Westonaria
1779

REPORT

A world of capabilities delivered locally

Report Number. 1402914

Distribution:

1 Copy - Gold Fields
1 Copy - ICMI
1 Copy - Golder Files

Report no.

Golder Associates

Table of Contents

1.0 SUMMARY AUDIT REPORT FOR GOLD MINING OPERATIONS

Name of Cyanide User Facility:	South Deep Gold Plant
Name of Cyanide User Facility Owner:	Gold Fields Limited
Name of Cyanide User Facility Operator:	Gold Fields Limited
Name of Responsible Manager:	Mr. Stephen Joseph
Address:	South Deep Mine - Metallurgical Plant Farm Modderfontein Old Vereeniging Road Westonaria 1779
State/Province:	Gauteng
Country:	South Africa
Telephone:	+27 11 411 1858
E-Mail:	stephen.joseph@goldfields.co.za

2.0 LOCATION DETAIL AND DESCRIPTION OF OPERATION

The South Deep Gold Mine is the only remaining asset for Gold Fields Limited (Gold Fields) in South Africa with the mature underground KDC and Beatrix mines unbundled to Sibanye Gold in 2013, with the impact that peripheral services are being consolidated around the one mine, South Deep.

Gold Fields Limited holds a 100% interest in GFI Mining South Africa (Pty) Limited (GFIMSA), which holds a 100% interest in South Deep. The Mine, situated in the Magisterial District of Westonaria 45 kilometres southwest of Johannesburg, is an intermediate to deep level gold mine comprising two shaft systems, the older South Shaft complex and the newer complex known as Twin Shafts. Ore is processed at a central metallurgical plant. The primary economic target is the Upper Elsburg Reef package with the Ventersdorp Contact Reef being a secondary economic target. The mining right area totals 4,232 hectares.

South Deep has been designated by Gold Fields as a developing mine, and a project to increase the ore mined per month to 330,000 tonnes has almost been completed. This project included the establishment of a new tailings storage facility in 2011 (Doornpoort TSF), the deepening and equipping of the ventilation shaft at the Twin Shaft complex to hoist waste and reef, as well as to establish the underground infrastructure to access the mineral reserves to the south of the current workings. In order to be able to process the increased tonnage, the metallurgical plant capacity is being increased to treat an additional 110,000 tonnes per month. This included 4 new leach tanks and a new elution column . At the tail end of the process a full plant tailings plant has been built at the South Shaft, but is not currently operational, to ensure that the backfill requirements, as the underground mining increases, can be met.

South Deep Gold Plant
Name of Facility

Signature of Lead Auditor

12 October 2014
Date

The plant consists of an open plan stockpile feeding a SAG-BALL milling circuit with up to 30% of the plant feed reporting to a Gravity Recoverable Gold (GRG) Knelson Concentration Circuit. Mill circuit cyclone overflow at 80% -75 microns is directed to linear screens to remove tramp material before being thickened in preparation for cyanide leaching. The plant uses liquid sodium cyanide. Leached ore is then pumped to a carousel Carbon-in-Pulp unit for adsorption of gold in solution on to activated carbon. Loaded carbon is acid washed prior to elution in an AARL (Anglo American Research Laboratories) strip circuit. Pregnant eluate solution is electrowon in sludge reactors. The gold bearing sludge is filtered and dried before being smelted in an induction furnace to produce gold bars. Carbon is regenerated and screened prior to recycling to the CIP circuit. Barren slurry from the CIP circuit is transferred to a Backfill plant for cyclone classification of material prior to transfer to the tailings dam. The classified material (CCT) is sent underground as backfill for the large stopes as well as the distress sections. This cyclone classification method will in future be replaced by the full plant tailings system.

South Deep Gold Plant
Name of Facility

Signature of Lead Auditor

12 October 2014
Date

SUMMARY AUDIT REPORT

Auditors Findings

	☒ **in full compliance with**	
		The International
Gold Fields	☐ in substantial compliance with	**Cyanide Management**
South Deep Gold Plant is:		**Code**
	☐ not in compliance with	

Audit Company: Golder Associates Africa (PTY) Ltd

Audit Team Leader: Ed Perry, Lead Auditor

Email: eperry@golder.com

South Deep Gold Plant has not experienced any significant cyanide incidents or compliance problems during the previous three year audit cycle.

Name of Other Auditors

Marie Schlechter, ICMI pre-certified Mine Technical Specialist

Dates of Audit

The Re-certification Audit was undertaken between 4 August 2014 and 8 August 2014.

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 Cyanide Production and using standard and accepted practices for health, safety and environmental audits.

South Deep Gold Plant		12 October 2014
Name of Facility	Signature of Lead Auditor	Date

PRINCIPLE 1 – PRODUCTION

Encourage Responsible Cyanide Manufacturing by Purchasing from Manufacturers that 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.**

The operation is

☒ **in** full **compliance with**

☐ in substantial compliance with **Standard of Practice 1.1**

☐ not in compliance with

Summarise the basis for this Finding/Deficiencies Identified:

The operation is in full compliance with Standard of Practice 1.1; to 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.

Gold Fields has a contract with Sasol Polymers (the only producer of liquid sodium cyanide in South Africa) for the supply of liquid sodium cyanide. The contract states the supplier "must be certified with the International Cyanide Management Institute"

Sasol Polymers cyanide production facility in South Africa was recertified on 7 May 2013.

South Deep Gold Plant
Name of Facility

Signature of Lead Auditor

12 October 2014
Date

PRINCIPLE 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.**

☒ **in full compliance with**

The operation is

☐ in substantial compliance with **Standard of Practice 2.1**

☐ not in compliance with

Summarise the basis for this Finding/Deficiencies Identified:

The operation is in full compliance with Standard of Practice 2.1; to establish clear lines of responsibility for safety, security release prevention, training and emergency response in written agreements with producers, distributors and transporters.

The contract between Gold Fields and Sasol includes the transportation of the liquid sodium cyanide. The contract states that "the supplier shall be responsible for the safe and timely transportation of sodium cyanide". The contract and its associated memorandum also includes the following: packaging as required by the United Nations; labelling in languages necessary to identify the material; evaluation and selection of routes, including community involvement; interim loading, storage and unloading during shipment; transport to the operation; unloading at the operation; safety and maintenance of the means of transportation; task and safety training for transporters and handlers throughout transport; security throughout transport; and emergency response throughout transport.

Storage prior to shipment and storage and security at ports of entry, are not applicable as the Plant uses liquid sodium cyanide which is transported by road tanker directly from the production facility.

The memorandum associated with the contract specifies the responsibilities with Tanker Services as Sasol's transportation contractor with no provision for the services to be subcontracted.

Standard of Practice 2.2: **Require that cyanide transporters implement appropriate emergency response plans and capabilities and employ adequate measures for cyanide management.**

☒ **in full compliance with**

The operation is

☐ in substantial compliance with **Standard of Practice 2.2**

☐ not in compliance with

Summarise the basis for this Finding/Deficiencies Identified:

The operation is in full compliance with Standard of Practice 2.2; to require that cyanide transporters implement appropriate emergency response plans and capabilities and employ adequate measures for cyanide management.

The contract between Sasol and Gold Fields states that the transport contractor used by Sasol is required to be certified with the ICMI. Tanker Services became a certified ICMI transporter on 13 December 2011.

Liquid sodium cyanide is delivered directly from Sasol production facility by Tanker Services to Gold Fields South Deep Plant. There are no interim storage facilities.

PRINCIPLE 3 – HANDLING AND STORAGE

Protect Workers and the Environment during 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

☐ in substantial compliance with **Standard of Practice 3.1**

☐ not in compliance with

Summarise the basis for this Finding/Deficiencies Identified:

The operation is in full compliance with Standard of Practice 3.1; to 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.

Previous cyanide code audits have observed Murray and Roberts Structural equipment and civil handover certificates MM737. Observed Murray and Roberts vendor acceptance of installation certificates for civil, electrical, mechanical and instrumentation, cyanide tank mechanical drawing QAD2703466001-A, cyanide storage P&ID QAD27015001, civil drawing QAD 255010011 rev 5. Fit for purpose inspection conducted: Observed reports by Tony Smith Associates - observed CV of Tony Smith - registered civil and structural engineer Pr Eng 770048. Observed action plans for both reagent strength cyanide offloading and storing, prioritised and planned completion dates noted.

The auditors observed the current drawings including Murray and Roberts drawings for Off-loading (Drawing Number: QAD280010031), Reagent Storage (Drawing Number: QAD270346051 Rev 03 and QAD270346052 Rev3).

Fit for Purpose Inspection was undertaken on the Gold Plant (including Cyanide Storage) by Tony Smith (Pr Eng 770048) Associates Structural Engineers, 20 December 2013, Rev No: AMS/ams/1/2917/8678.

Fit for Purpose Inspection done for the Backfill Plant and Off-loading section by Willem van Schalkwyk (Pr Eng 810497) Structural Engineering Consultant, 5 June 2014, Report No. GF 2014/05.

Sasol Structural Inspections are undertaken annually with the relevant reports being observed.

The Cyanide Off-loading and Storage areas are located within the security boundary of the plant. The Off-loading area is outside the main plant area but still within a controlled area. It is located away from surface water and the public. The Cyanide Storage area is locked to prevent any unauthorised plant personnel from entering. When personnel enter the area, there is a buddy stationed outside.

The following was verified by the auditors during the site inspection: that the cyanide off-loading area is concreted, sealed with a sealant and have bunds and humps to prevent any spillage to the subsurface; that all the wash water and possible spillage from the tanker will drain into the sump from where it can be pumped to the cyanide storage tank bund; that the cyanide storage mixing and storage tanks are located in concrete bund areas; and that no cracks were observed at the secondary containment bunds for the cyanide off-loading, storage and mixing areas.

South Deep Gold Plant
Name of Facility

Signature of Lead Auditor

12 October 2014
Date

The Reagent Storage tanks' levels are displayed at two places at the off-loading area. Offloading must not take place if tank levels are above 65%. A high level alarm will sound at 85% and offloading air valve will automatically shut off at a maximum storage level of 90%.

The reports detailing the flood tests undertaken for the relevant areas, over the past three years were observed.

Ventilation pipes from each of the cyanide storage tanks go into a scrubber to contain any gas released from the tanks.

Signs prohibiting any eating or drinking are located at the off-loading and storage areas.

Standard of Practice 3.2: **Operate unloading storage and mixing facilities using inspections, preventative maintenance and contingency plans to prevent or contain releases and control and respond to worker exposures.**

The operation is

- ☒ **in full compliance with**
- ☐ in substantial compliance with **Standard of Practice 3.2**
- ☐ not in compliance with

Summarise the basis for this Finding/Deficiencies Identified:

The operation is in full compliance with Standard of Practice 3.2; to operate unloading storage and mixing facilities using inspections, preventative maintenance and contingency plans to prevent or contain releases and control and respond to worker exposures.

Only liquid sodium cyanide is used as per the contract with SASOL Polymers.

The operation has developed and implemented procedures to prevent exposures and releases during cyanide unloading and mixing activities. The procedure: SWPP-275-01, Offload Bulk Cyanide, 28 July 2014 Rev 11 was observed. This procedure addresses the opening and closing of valves and valve covers.

During site inspection, the auditors interviewed Sipho Mohlala and Johnson D. Gaorakwe (both chemical off-loaders) regarding opening and closing of valves, coupling and their response complied with the procedure.

Procedure SWPP-275-01, Offload Bulk Cyanide, 28 July 2014 Rev 11. Procedure states that off-loader, truck driver and buddy are to put on all PPE: PVC suits, Elbow length PVC gloves, Gumboots, Face shields, hard hat, Mask with Canister, and Mobile HCN Gas monitor.

The procedure states that a buddy must be present and should not be involved in any activities during the preparation and offloading of cyanide. The standby foreman also stands outside the gate of the offloading area as an additional buddy. He is also equipped with the required PPE.

South Deep Gold Plant
Name of Facility

Signature of Lead Auditor

12 October 2014
Date

PRINCIPLE 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 including contingency planning and inspection and preventative maintenance procedures.**

☒ **in full compliance with**

The operation is

☐ in substantial compliance with **Standard of Practice 4.1**

☐ not in compliance with

Summarise the basis for this Finding/Deficiencies Identified:

The operation is in full compliance with Standard of Practice 4.1; to implement management and operating systems designed to protect human health and the environment including contingency planning and inspection and preventative maintenance procedures.

South Deep Gold Plant has the following Procedures: 41 Maintenance Inspection Guidelines; 71 Safe Work Procedures; 14 Safe Work Procedures Backfill; 2 Safe Work Procedures Tailings; 60 Emergency Procedures; 79 Mechanical Procedures; 53 Electrical Procedures; and 20 Instrumentation Procedures.

The operation has plans / procedures that identify the assumptions and parameters on which the facility design was based. These include Freeboard Procedure: SSMSTO-WRTO003-SWP-014 Rev 2, dated 4 July 2012, which states that vertical freeboard on the TSFs must be above 1m at all times.

Detailed Design of the Proposed Doornpoort Tailings Dam includes the stage capacity calculations for the dam. "South Deep Metallurgical Plant Mandatory Code of Practice for Cyanide Management", 14 July 2014 Rev 4 states that the Cyanide monitoring criterial is less than 50 ppm CN WAD in open bodies of water. Managerial Directive for the Optimization Plan Sodium Cyanide MAN_DIR001, Rev 0, dated 7 Oct 2011 states that pH must be kept above 10.5. The water balance is managed through the use of GoldSim to run a probabilistic water balance.

Preventative maintenance programs are implemented and activities documented. Inspections are done daily, weekly, and monthly in addition to 3rd party (legal inspections) inspections on the plant. South Deep uses the PRAGMA system to schedule and implement inspections and preventative maintenance activities. Procedures dealing with maintenance related inspections including the following: MIG-100-11 Sodium Cyanide Caustic Soda Leach Dosing Pumps Rev 1, dated 9 June 2014; MIG-250-04, Sodium Cyanide / Caustic Soda Leach Dosing Pumps, Rev 1, dated 9 June 2014; SWPT-400-02, Daily Operational Inspections: Tailings Storage Facility Rev 1, dated 16 July 2014.

Planner puts the schedules on the PRAGMA system on a weekly basis. The Data Capturer generates the request on the system. The requests are then sent to the Engineering Department. The Foremen will distribute these to the artisans who will do the inspections. If any deviations are found during the planned inspections, an unplanned job card is generated to correct the deviation. A weekly report is generated to indicate progress. Pumps are run to failure and therefore do not require inspections.

South Deep Gold Plant
Name of Facility

Signature of Lead Auditor

12 October 2014
Date

The weekly report is generated for the entire South Deep Operations with a slide for the Gold and Backfill Plants (Mechanical), Instrumentation - the graph indicates the following information: Total Scheduled, Done within Scheduled Period, Done Outside Scheduled Period, Work Order Cancelled and Work in Progress.

The PRAGMA system lists the components that are included in the planned maintenance including the frequency of the inspection and the sub-tasks for the inspection. Once the inspection is completed the item is closed out on the system. The work is undertaken via a job card that is issued to the relevant personnel.

Tailings pipelines, pipe trench, valves, pumps stations, slimes dam, wildlife mortalities, etc. are inspected on a daily basis.

Quarterly Audits of the Old South Deep TSF are conducted by SRK Consulting, Stefanutti Stocks Mining Services and the Mine. The audit covers maintenance to be done on and around the dam. Quarterly audits of the Doornpoort TSF are conducted by Stefanutti Stocks, SLR and the Mine. The audit report covers inspection done on all the drains, condition of the paddocks, penstock, storm water channels, dam levels, erosion observed, etc.

Change Management Procedure: SMS002/MET/PRO/01 Rev 04, 3 May 2014 identifies changes to the facility or its operating practices that may increase the potential for workers to be exposed to chemicals and/or other hazards or increase the potential for chemical releases before such changes are implemented so that they can be evaluated and addressed as necessary. The Procedure requires that a risk assessment is performed and recorded on the Change Management Implementation and Control Form (CMIC_01). Change management and Risk Assessments are attended by Plant Management Team including Safety and Health Rep, Environmental Officer, etc.

The operation has cyanide management contingency procedures including the following: Procedure EMP 100-11, Rev 3, 25 June 2014 - Primary Power Outage, Cyanide Related. South Deep Gold Plant can receive electricity from two different Eskom substations. The Gold Plant has an emergency generator for emergency lights, thickener and security cameras. All cyanide pumps and offloading will stop automatically if there is an interruption in the power supply. Procedure EMP 100-15, Rev 2, 25 June 2014 - Adverse weather and Seismic Conditions; Procedure EMP 400-14, Rev 3, 16 May 2014 - Tailings Storage Facility Failure Doornpoort; Procedure EMP 100-29, Rev 2, 25 June 2014 - Elevated WAD Cyanide levels in the plant residue. In the event of a cessation of operations all materials will remain sitting in their respective tanks. When there is a cessation of activities in a particular part of the plant to undertake maintenance this is covered by one of the 41 individual procedures dealing with maintenance

The operation inspects the cyanide facilities on an established frequency, which is sufficient to assure and document that they are functioning within design parameters (see 3.1 for more details).

The operation inspects the unloading, storage, mixing and process areas with the following reports being produced: Technical Auditing Services (TAS) Report for thickness testing on Leach Tanks, Cyanide Reagent Tanks and Tailings Tanks. The 2013 report showed that the tanks at the backfill were under the stipulated 70% thickness, which resulted in repairs through the welding of extra plates on to the tanks. This was visually confirmed by the auditors together with the tests by the Plant on the welding.

Procedure MIG 400-01 Maintenance Inspection Guideline states that thickness testing of pipelines must be undertaken annually. The pipelines for the transfer of tailings from the plant to the TSF are HDPE lined. A minimum thickness of 3mm being stipulated. The pipes were found to be compliant.

Flood test of the relevant bunds are undertaken on an annual basis.

Freeboard is monitored on a daily basis by the staff at the TSF. In addition this is inspected as part of the quarterly inspection by SLR.

Daily inspections are undertaken of the plant which includes the name of the inspector, the date of the inspection and any deficiencies observed. If any deficiencies are detected these are converted into a job card.

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

☒ **in full compliance with**

The operation is

☐ in substantial compliance with **Standard of Practice 4.2**

☐ not in compliance with

Summarise the basis for this Finding/Deficiencies Identified:

The operation is in full compliance with Standard of Practice 4.2; to introduced management and operating systems to minimise cyanide use, thereby limiting concentrations of cyanide in mill tailings.

Bottle Roll Tests are undertaken for all newly introduced material into the plant to determine the lime and cyanide requirements prior to introduction into the plant. Tests were conducted for CCT Stockpile material and Old South Deep TSF Catchment Paddock material.

The samples were tested (CCT Stockpiles) for their gold content in order to find out if it was feasible to introduce them into the gold plant. Their behaviour during leaching is mostly investigated in order to understand the parameters required for their efficient processing. The material was found not worth introducing into the plant due to the high cost that will be incurred for the low recoveries.

The bottle roll test for the Catchment Paddock material indicated that the material has a lower recovery compared to the ore introduced into the plant and that it requires more cyanide and lime to achieve low residues.

Bottle Roll test are conducted every three months on a composite sample for the past three months.

Observed (in plant) Bottle Roll Test Report for 17 Dec 2013 - roll test for weekly leach feed back-up samples (23 - 29 November 2013). Set point 270 ppm. Results indicated that waste material needs too much cyanide and will have a negative impact on plant performance.

Tests conducted for composite sample Feb - April 2013, set point 250 ppm. Report indicated that 95% recovery was achieved and recovery was optimal therefore the cyanide dosage can be reduced.

Observed South Deep Set point Logbook - records date, authorisation and level of set point (reduced or increased) as well as reason for change.

When only underground ore is treated in the plant, the plant conducts three monthly bottle roll tests to ensure that the optimum set point is maintained.

Observed Mineralogical Report No. MIN 0211/023 dated 25 April 2012 - Gold and Uranium Department Studies on Gold Ore Samples from South Deep Gold Mine, Batch 2. Most of gold associated with the sulphides leading to under recovery.

South Deep Gold Plant
Name of Facility

Signature of Lead Auditor

12 October 2014
Date

Various control strategies for cyanide additions have been investigated with the result that a two stage cyanide dosing has been implemented. First dosing in head tank (currently tank 2), the cyanide levels are analysed in tank 2 and 4 and additional dosing is undertaken in tank 4 if needed. TAC 1000 monitor is used to monitor the cyanide levels in Tanks 2 and 4. A TAC 2000 monitor measures cyanide levels in tank 3 and 5 to determine the effect of the additions.

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

☒ **in full compliance with**

The operation is

☐ in substantial compliance with **Standard of Practice 4.3**

☐ not in compliance with

Summarise the basis for this Finding/Deficiencies Identified:

The operation is in full compliance with Standard of Practice 4.3; to implement a comprehensive water management programme to protect against unintentional releases.

The Operation has developed a comprehensive, probabilistic water balance. The GoldSim Probabilistic Site Wide Water Balance for the South Deep Mine Water Balance (m3/d) was observed. Simulation period: 1 August 2014 to 31 December 2014.

South Deep has recently started running the model from their consultants (the developer) to run own simulations and better understand the model.

The plant can run simulations dependent on the current situation with regards to tonnage received from the mine. Currently treating low tonnage, the existing Return Water Dam is modelled to increase by 337m^3/d and the Doornpoort Return Water Dam (RWD) is modelled to increase by 953 m^3/d. The model takes into account the water lost by evaporation as well as seepage.

Observed probability plot that predicts when both RWDs will overflow.

This has resulted in the Mine exploring other option including increased use of the Reverse Osmosis plants and an application to the Department of Water and Sanitation for an amendment to the current Water Use Licence to be able to release water to surface water if water quality objectives are met.

SWPP-100-27 - Spill Prevention Control Procedure Rev 0 3 July 2014 documents where and at what levels water can be pumped between storage facilities. Spill Prevention Control Flow Diagram MET-FRM-0057 Rev 00 7 July 2014 illustrates the flow of water between facilities to prevent spillages.

The auditors verified that the model takes into consideration the deposition rates for the Doornpoort TSF, precipitation, surface runoff, evaporation, seepage and the movement of water between various elements of the water system including backfill to underground, water entrained in the TSF, use of RO plant and tailings to TSF.

The model can be run using relevant climatic data for the area. Verified that precipitation and evaporation is taken into account in the model.

The Water Management Assessment Report dated September 2011 states that the RWD can accommodate a 1:10 year storm event. Due to the current tailings level behind the started wall being low, water can be stored on the TSF.

South Deep Gold Plant
Name of Facility

Signature of Lead Auditor

12 October 2014
Date

The water balance is run on a monthly basis and the then current levels of the RWDs and precipitation as measured on site are incorporated. Current RWD levels are obtained from the Tailings Day Shift Foreman. Observed: SDR-Cascade Feeder TOP and Bottom Dam Levels 2014 Spreadsheet. Includes levels from Jan 2014 to July 2014. Dam water levels can be observed on SCADA

The TSF is operated in accordance with the minimum freeboard of 1m.

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**

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

☐ not in compliance with

Summarise the basis for this Finding/Deficiencies Identified:
The operation is in full compliance with Standard of Practice 4.4; to implement measures to protect birds, other wildlife and livestock from adverse effects of cyanide process solutions.

Open waters including penstock and Return Water Dams are shown to have a WAD cyanide level not exceeding 50 mg/l. The TSF perimeter has a 2m chain link fence with a 5 horizontal strand barbed wire topping that prevents access by livestock.

Wildlife mortalities are recorded at the Plant during daily inspections and at the TSF during daily inspections. No wildlife mortalities due to cyanide have been recorded. Reports in to wildlife and livestock deaths were observed none reported cyanide as a cause of death.

Prior to 2013 the CN levels were not monitored in the tailings leaving the Plant; levels were only monitored at the penstock. From 2013 onward a new monitoring location was put in place to monitor the level of CN in the tailings leaving the Plant.

In 2013 there was an episode of high readings (>50 mg/l) during August and September. This was determined to be due to the misplacement of the monitoring probe giving erroneous readings. There were two actual exceedances on the 8 October 2013 and the 9 December 2013 but these did not lead to an exceedance at the penstock.

The tailings leaving the plant had two episodes of exceedances in 2014 once in mid-May due to the malfunction of the monitoring equipment and at the end of June beginning of July due to pilot testing of re-mining the old TSF.

There are no leach solutions at the Plant.

Standard of Practice 4.5: **Implement measures to protect fish and wildlife from direct and indirect discharges of cyanide process solutions to surface water.**

☒ **in full compliance with**

The operation is ☐ in substantial compliance with **Standard of Practice 4.5**

☐ not in compliance with

South Deep Gold Plant
Name of Facility

Signature of Lead Auditor

12 October 2014
Date

Summarise the basis for this Finding/Deficiencies Identified:

The operation is in full compliance with Standard of Practice 4.5; to implement a comprehensive water management programme to protect against unintentional releases.

There are currently no direct discharges to surface water.

There have been a number of episodes of the Twin Shaft Pollution Control Dam and the Old Return Water Dam overflowing. 2 episodes in 2012, 7 in 2013 and 3 to date in 2014. The WAD concentration in the overflow for these episodes was less than 0.5 mg/l except for one occasion when it was recorded as 5 mg/l. It is unknown whether this was a typographical error or not.

It is likely that there is an indirect discharge from the Old South Deep TSF and Doornpoort TSF and Old South Deep RWD as they are unlined. Seepage from Old South Deep TSF and RWD will go to the Leeuwspruit stream. See page from the Doornpoort TSF will go to the Loopspruit stream. The Doornpoort RWD is lined.

Surface water monitoring is undertaken on a weekly basis but due to the cost and availability of analysis the limit of detection is 0.5 mg/l. All of the sampling showed concentrations of WAD cyanide less than 0.5 mg/l.

A groundwater monitoring report is prepared quarterly by at Rison Consulting. The results for the boreholes adjacent to the Leeuwspruit and Loopspruit streams upstream and downstream of the TSFs and RWDs for the three year recertification period were observed and all of the results for WAD cyanide were below 0.02 mg/l.

Therefore in the opinion of the auditors any indirect discharge to surface water does not result in a concentration of free cyanide in excess of 0.022 mg/l.

Standard of Practice 4.6: **Implement measures designed to manage seepage from cyanide facilities to protect the beneficial uses of groundwater.**

☒ **in full compliance with**

The operation is

☐ in substantial compliance with **Standard of Practice 4.6**

☐ not in compliance with

Summarise the basis for this Finding/Deficiencies Identified:

The operation is in full compliance with Standard of Practice 4.6; to implement measures designed to manage seepage from cyanide facilities to protect the beneficial uses of groundwater.

The Old South Deep TSF is dormant. The RWD still contains process water. A cut-off trench has been installed south of the Old South RWD. The water captured is pumped back to the RWD. Investigations have commenced to determine the possible use of current borehole and new boreholes as scavenger boreholes. The water will be pumped back to the system. Toe drains and cut-off drains on Compartments 3 and 4 of the Old South Deep TSF assist with removal of process water to the RWD.

The Doornpoort RWD was constructed with a HDPE liner and leakage detection system. An additional pump has been installed in S21 (monitoring point downstream of Doornpoort RWD) to pump seepage water back to the RWD. Toe drains and cut-off drains have been installed at the Doornpoort TSF to ensure

removal of process water to the RWD. The solution trenches at the Doornpoort TSF have been cement lined to prevent seepage from the trenches.

There is no numerical standard established by the applicable jurisdiction for WAD cyanide or any other species of cyanide in groundwater, therefore there are no compliance points below or down gradient of the gold plants or tailings facilities.

The mine uses tailings from the Plant as backfill. Every batch of backfill is tested for WAD cyanide in the tank before it is sent down the mine. If WAD is not under 50 ppm, ferrous sulphate is added in tank and retested in accordance with Procedure SWPB-230-01 Batching Backfill Procedure Rev 05 8 May 2014.

The AED Report that was a review of the Mintek Report (MINTEK ReP GF S-Deep 080817: RO - Cyanide Tracking Underground as a function of Backfill seepage) dated 19 Oct 2011 concluded that as per the MINTEK report, if the present status quo is maintained the backfilling operations would comply affirmatively with the code question relating to underground backfilling of tailings. Similarly there are sufficient factors that will prevent any build-up of the gaseous phase of cyanide in the well ventilated mine workings to unacceptable levels. While the mine is still in operation, the changes of groundwater pollution is very unlikely to occur, due to the pressure differential between the high water pressure in the aquifer overlying the mine working and the low (about 1 atmosphere) pressure in the mine workings. It is unlikely that mine water would leave the mine in any other way than physically being pumped out of the mine.

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

☒ **in full compliance with**

The operation is

☐ in substantial compliance with **Standard of Practice 4.7**

☐ not in compliance with

Summarise the basis for this Finding/Deficiencies Identified:

The operation is in full compliance with Standard of Practice 4.7; Provide spill prevention or containment measures for process tanks and pipelines.

The offloading area for the liquid sodium cyanide is closed off with restricted access, installed on a concrete surface equipped with humps and drains to contain any spills. The drainage for this area is to a spillage sump equipped with a pump, which delivers any liquid into the main bund area for the sodium cyanide storage tanks from where it can then be pumped to any other part of the Leach Tanks.

The cyanide feed pipes from offloading to the cyanide reagent storage tanks are drained immediately after offloading and inspected for any spillage. The feeder cyanide tank for dosing of the leach tanks is located above the leach tanks into which any spillage will fall.

Leach tanks and CIP tanks are located in a concrete bunded area. The bunds overflow to the Gold Plant's Pollution Control Dam. Greater than 110% of a tanks volume is provided by the bund in conjunction with the Plant's Pollution Control Dam. The Plant's Pollution Control Dam is unlined but is only used in emergencies and there is a procedure for the immediate clean up of any spill, SWPP 100-08 Cleanup Process Strength Cyanide Spillages.

The Plant is designed so that any spillage of cyanide reagent or cyanide containing material is routed back to the leach tanks. In the event of a catastrophic failure of a leach tank the material will collect in the bund and

the Plant's Pollution Control Dam. If this were to overflow it would be collected in the Twin Shaft's Pollution Control Dam.

Special measures to prevent spillage include the tailings slurry pipe specification for 6mm API 5L GadeX42 ERW steel pipe, lined with an 8mm thick HDPE liner. Site inspection verified that the pipes are placed inside earthen trenches. Pipeline inspection is undertaken on a daily basis and thickness testing of pipework on an annual basis.

Pipes for the transfer of reagent strength cyanide solution within the Plant are constructed of steel. The materials are all compatible with cyanide and high pH conditions.

There is a risk to surface waste where the tailings lines cross the Kariegaspruit stream flowing to the Leeuwspruit. The steel pipe, which is HDPE lined is located on rock gabions either side of the stream to prevent erosion during periods of high flow. The pipe connections are either side of the Spruit with one span of pipe crossing the Spruit.

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.**

☒ **in full compliance with**

The operation is

☐ in substantial compliance with **Standard of Practice 4.8**

☐ not in compliance with

Summarise the basis for this Finding/Deficiencies Identified:
The operation is in full compliance with Standard of Practice 4.8; to implement quality control/quality assurance procedures to confirm that cyanide facilities are constructed according to accepted engineering standards and specifications.

Previous cyanide code audits have observed Murray and Roberts Structural equipment and civil handover certificates MM737. Observed Murray and Roberts vendor acceptance of installation certificates for civil, electrical, mechanical and instrumentation, cyanide tank mechanical drawing QAD2703466001-A, cyanide storage P&ID QAD27015001, civil drawing QAD 255010011 rev 5. Fit for purpose inspection conducted: Observed reports by Tony Smith Associates - observed CV of Tony Smith - registered civil and structural engineer Pr Eng 770048. Observed action plans for both reagent strength cyanide offloading and storing, prioritised and planned completion dates noted.

The auditors observed the current drawings including Murray and Roberts drawings for Off-loading (Drawing Number: QAD280010031), Reagent Storage (Drawing Number: QAD270346051 Rev 03 and QAD270346052 Rev3).

Fit for Purpose Inspection was undertaken on the Gold Plant (including Cyanide Storage) by Tony Smith (Pr Eng 770048) Associates Structural Engineers, 20 December 2013, Rev No: AMS/ams/1/2917/8678.

Fit for Purpose Inspection done for the Backfill Plant and Off-loading section by Willem van Schalkwyk (Pr Eng 810497) Structural Engineering Consultant, 5 June 2014, Report No. GF 2014/05. Some defects were noted but were not of a significant nature to prevent the on-going operation of the Plant. The Action Plan to rectify the defects was observed.

South Deep Gold Plant
Name of Facility

Signature of Lead Auditor

12 October 2014
Date

Fit for Purpose Inspections are conducted every three years by a Professional Engineer as per planned maintenance schedule.

Sasol Structural Inspections are undertaken annually. Reports for the inspections undertaken on 6 May 2014, 23 May 2013, 28 June 2012 were observed.

Quality control and quality assurance programs have been implemented during the construction of all new cyanide facilities and modifications to existing facilities. There was a Plant upgrade that was commissioned in November 2012. The upgrade included the construction of 4 new Leach Tanks, a second Elution Column, a second Ball Mill, a second Thickener, and a Recycled Crusher.

The following quality control and assurance plans were observed for this work.

Quality Control Plan for the New Leach Tanks Civils work done by WBHO, dated 25 January 2010. Prepared by Quality Management Officer, Reviewed by Site Engineer, signed off by Civil Structural Supervisor.

Quality Control Plan for structural engineering by Planet Projects dates 11 August 2011, signed by Planet Projects Operations Manager and Quality Inspector (J. Simmons) from IQS for new leach tanks.

Quality Control Plan for the structural engineering for the 2nd Elution Column dated 17 November 2011. Signed off by Emoclew (construction company) and IQS quality inspector.

Quality Control Plan for the second thickener dated 2 November 2011. Signed by Outotec (construction company) and TWP quality inspector.

These Plans and Inspections include the suitability of materials, demonstrate that appropriately qualified personnel have reviewed the cyanide facility construction and provided documentation that the facility has been built as proposed and approved, and this documentation has been retained.

Standard of Practice 4.9: Implement monitoring programs to evaluate the effects of cyanide use on wildlife, surface and groundwater quality.

☒ **in full compliance with**

The operation is

☐ in substantial compliance with **Standard of Practice 4.9**

☐ not in compliance with

Summarise the basis for this Finding/Deficiencies Identified:

The operation is in full compliance with Standard of Practice 4.9; to implement monitoring programs to evaluate the effects of cyanide use on wildlife, surface and groundwater quality.

The operation has developed written standard procedures for monitoring activities including the following: Procedure SWPP 100-07 WAD Sampling; and Procedure SDP-PO-001R07 Rev 07 31 March 2014 - Surface and groundwater monitoring procedures include sampling points, frequency, location and notes on the specific points. It further includes what needs to be analysed for with regards to sewage plants, surface water, bio-monitoring, microbiological sampling, mine boreholes and farm boreholes. It covers sampling techniques, sample labelling, measurement of physical properties of water, sampling techniques for chemical analysis. The procedure also covers the requirement for soil sampling.

South Deep Gold Plant
Name of Facility

Signature of Lead Auditor

12 October 2014
Date

Groundwater sampling is conducted by Rison Consulting and who use their own monitoring procedure signed off by Consulting Hydro-geologist.

DD Science conducts surface sampling and uses their own procedure, Procedure for Cyanide Samples for Surface Water Samples dated 1 Nov 2012 signed off by Quality Manager and Executive Manager.

These procedures stipulate how and where samples should be taken, sample preservation techniques, chain of custody (by means of sample log sheet), as well as what needs to be analysed for. The log sheets for these procedures have columns to record activities and weather.

There are no discharges of process water to surface water.

A groundwater monitoring report is prepared quarterly by a Rison Consulting. The monitoring results from the Rison Consulting (groundwater) and DD Science (surface water) reports are put on the REMIS (Resource Monitoring and Information System) program. The monitoring results for both groundwater and surface monitoring for 2012, 2013 and 2014 were observed.

Procedure SDP-PO-006 Rev 4 - Wildlife Monitoring Plan was developed to observe live animals and their behaviour to determine if cyanide is having an impact on their wellbeing. Monitoring is done on a monthly basis at various monitoring points.

5 wildlife/ livestock mortalities were recorded over the recertification period. The reports observed showed that none of the deaths were attributed to cyanide.

Wildlife mortality inspections are conducted daily, surface water is sampled weekly, underground water (boreholes) are sampled quarterly, emergency samples are taken when an overflow incident occurs, and biological monitoring of surface water is undertaken twice a year.

In the auditors opinion the monitoring is conducted at frequencies adequate to characterise the medium being monitored and to identify changes in a timely manner.

.

South Deep Gold Plant
Name of Facility

Signature of Lead Auditor

12 October 2014
Date

PRINCIPLE 5 – DECOMMISSIONING

Manage Cyanide Process Solutions and Waste Streams to Protect Human Health and the Environment

Standard of Practice 5.1: **Plan and implement procedures for effective decommissioning of cyanide facilities to protect human health, wildlife and livestock.**

☒ **in full compliance with**

The operation is

☐ in substantial compliance with **Emergency Response Practice 5.1**

☐ not in compliance with

Summarise the basis for this Finding/Deficiencies Identified:

The operation is in full compliance with Standard of Practice 5.1; to plan and implement procedures for effective decommissioning of cyanide facilities to protect human health, wildlife and livestock.

The operation has developed written procedures to decommission cyanide facilities at the cessation of operations including the following:

SWPP 100-28 Demolition of Cyanide Facilities Rev 0 10 July 2014, this describes the steps to follow during demolition of cyanide facilities. States that SASOL will assist with the risk assessment and determination of best practice. Decommissioning procedures for cyanide facilities will be reviewed every 3 years or when a major change occurs and it necessitates an update.

South Deep Gold Mine Interim Closure Plan 2012, Report Number: 11613340-11031-1, dated July 2012. The Interim Closure Plan is reviewed every 2 - 5 years. Section 11.2.1 Cyanide- related facilities - To effectively decommission and dismantle cyanide related facilities where WAD concentrations are in excess of 50 mg/l to ensure long-term protection of human health and the local environment.

The Cyanide Decommissioning Generic procedure observed by the auditors includes the steps and duration of cyanide decommissioning activities.

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

☒ **in full compliance with**

The operation is

☐ in substantial compliance with **Standard of Practice 5.2**

☐ not in compliance with

Summarise the basis for this Finding/Deficiencies Identified:

The operation is in full compliance with Standard of Practice 5.2; to establish an assurance mechanism capable of fully funding cyanide related decommissioning activities.

South Deep Gold Plant
Name of Facility

Signature of Lead Auditor

12 October 2014
Date

The operation has developed an estimate of the cost to fully fund third party implementation of the cyanide-related decommissioning measures as identified in its site decommissioning or closure plan. This is detailed in Gold Fields South Deep - Scheduled and Unscheduled Closure Costs - December 2013. This includes detailed costing to decommission the Cyanide Tanks/Reagent store, Reagent off-loading / storage / HCL mixing, Leach tanks, etc.

The closure costings are reviewed on an annual basis.

South Deep contributes to the Placer Dome Western Areas Joint Venture Trust. The shortfall between the money in this Trust and that required for cyanide related decommissioning activities is funded by four guarantees.

South Deep Gold Plant
Name of Facility

Signature of Lead Auditor

12 October 2014
Date

PRINCIPLE 6 – WORKER SAFETY

Protect Workers' Health and Safety from Exposure to Cyanide

Standard of Practice 6.1: **Identify potential cyanide exposure scenarios and take measure as necessary to eliminate, reduce and control them.**

☒ **in full compliance with**

The operation is

☐ in substantial compliance with **Standard of Practice 6.1**

☐ not in compliance with

Summarise the basis for this Finding/Deficiencies Identified:

The operation is in full compliance with Standard of Practice 6.1; to identify potential cyanide exposure scenarios and take measure as necessary to eliminate, reduce and control them.

The operation has developed procedures describing how cyanide-related tasks such as unloading, mixing plant, operations, entry into confined spaces, and equipment decontamination prior to maintenance should be conducted to minimise worker exposure. These include the following procedures:

Offloading Procedure: SWPP-275-01, Offload Bulk Cyanide, 28 July 2014; SWPP 270-03 Cyanide transfer to secondary storage tank between 06:00 and 07:00 Rev 5, 23 April 2014; SWPP 270-02 Inspect and Maintain Cyanide Storage area Rev 6, 29 April 2014; SWPP 270-01 Making safe cyanide bulk storage for maintenance and repairs, Rev 4, 28 March 2014; SWPP 250-12 Draining Secondary Sodium Cyanide Storage Tank, Rev 1, 25 June 2014; SWPP 100-09 Act as a Buddy, Rev 8, 10 April 2014; SWPP 100-12 Procedure for Cyanide Deliveries by Tanker Services to the Metallurgical Plant, Rev 3, 25 April 2014; SWPP 100-14 Clearance Certificate Risk, Rev 2, 29 April 2014; SWPP 200-05 Procedure for clearance certificates / Hot work permits / Confined Space Entry, Rev 2, 8 July 2014; SWPP 250-02 Inspect and Maintain Secondary Cyanide Storage Tank Leach Area, Rev 3, 23 July 2014; and SWPP 100-04 Decontaminate Equipment, Rev 7, 12 April 2014.

The procedures require, where necessary, the use of personal protective equipment and address pre-work inspections. The Offloading Procedure: SWPP-275-01, Offload Bulk Cyanide, 28 July 2014 - states the PPE required and that the pre-work checklist must be completed.

Change Management Procedure: SMS002/MET/PRO/01 Rev 04, 3 May 2014 was observed - Identifies changes to the facility or its operating practices that may increase the potential for workers to be exposed to chemicals and/or other hazards or increase the potential for chemical releases before such changes are implemented so that they can be evaluated and addressed as necessary. The procedure explicitly includes the assessment of worker health and safety.

The operation solicits and actively considers worker input in developing and evaluating health and safety procedures. An example of this is that during the Planned Task Observation (PTO) conducted on the Lime Off-loading conducted on 1 July 2014 on Sipho Mohlala it was suggested that the Off-loading area gate be kept open during off-loading. The Offloading procedure SWPP 275-01 was revised to include that off-loading gate must be kept open. Revision of procedure was revised on 28 July 2014.

Safety Rep Meetings are held monthly and are attended by daily and shift Safety Reps. It was observed in the minutes that Section 6 deals with Procedure changes and training requirements. Observed minutes for 18 Feb 2014, 16 July 2013 (request made to for change on delivery line and procedure must be changed accordingly), and 22 May 2012

South Deep Gold Plant
Name of Facility

Signature of Lead Auditor

12 October 2014
Date

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.**

☒ **in full compliance with**

The operation is ☐ in substantial compliance with **Standard of Practice 6.2**

☐ not in compliance with

Summarise the basis for this Finding/Deficiencies Identified:

The operation is in full compliance with Standard of Practice 6.2; to operate and monitor cyanide facilities to protect worker health and safety and periodically evaluate the effectiveness of health and safety measures.

The operation has determined the appropriate pH for limiting the evolution of HCN gas during mixing and production activities

Managerial Directive Optimization Plan Sodium Cyanide MAN_DIR001, 7 Oct 2011, Rev 0, states that pH must be kept above 10.5. pH can be changed by the instrumentation technician only upon instruction There is automatic lime addition at both the SAG mill and Leach Tank.

The operation uses ambient and personal monitoring devices to confirm that controls are adequate to limit worker exposure to HCN gas and dust.

Plant and outside sections use 22 personal monitors HCN monitors. The Plant and outside sections have the following fixed monitors: 3 at the Leach Tanks, 3 at the CIP, 1 at the Tailings penstock, 1 at the cyanide storage facility, 1 at the elution Column, 1 at the off-loading area, and 1 at backfill. The alarm level is set at 4.7 ppm instantaneous thereby ensuring the 4.7 ppm level continuously over an 8 hour period is not exceeded.

Cyanide hotspot surveys were done daily for 2012 and 2013 at the following areas: Cyanide Storage Area, Leach Bottom Area, Leach Top area, CIP Feed Launder, Tailing Screen area, Elution Bottom area, AA Sample Room, Evaluation Sample Room. The information gathered informed the decision on where the current fixed monitors were placed. After January 2013, the fixed monitors records the data directly on the SCADA and a daily email is sent out with the readings of the previous day. After the Plant expansion additional fixed monitors were placed at the top of the Leach Tanks 10, 9 and 8 based on previous experience with current leach circuit.

The hydrogen cyanide monitoring equipment is maintained, tested and calibrated every 3 months, as directed by the manufacturer.

Warning signs have been placed where cyanide is used advising workers that cyanide is present, and that smoking, open flames, eating and drinking are not allowed, and that suitable personal protective equipment must be worn

All safety showers have an integrated eye wash. Safety showers are located at appropriate locations including adjacent to the offloading area, cyanide storage areas and close to the dosing point at the pre-leach tanks. Safety shower inspections are undertaken weekly.

South Deep Gold Plant
Name of Facility

Signature of Lead Auditor

12 October 2014
Date

The fire extinguishers in the cyanide areas were all observed to be dry powder. Fire extinguishers are checked monthly and serviced annually. First aid rooms, antidote kits and oxygen packs, respirator canisters are all inspected monthly:

In addition the Safety Officers Inspection is conducted every 45 days and includes the inspection of first aid room, vehicles, fire extinguishers, pipes, pumps, safety showers, signs and pressurised cylinders. Inspection of First Aid Kits is undertaken at the TSF, the inspection only checks that the box is still sealed.

Unloading, storage, mixing and process tanks and piping containing cyanide are identified to alert workers of their contents, and the direction of cyanide flow in pipes designated.

The official language of Gold Fields is English with all documentation being in English including the induction, which has to be passed before employees are allowed to work. The Sodium Cyanide Solution MSDS, in English, was observed on the outside of the cyanide liquid storage tank area and at the offloading area. It includes the first aid procedures, safe handling and storage, personal protection, etc.

Procedures are in place and being implemented to investigate and evaluate cyanide exposure incidents to determine if the operation's programs and procedures, to protect worker health and safety and to respond to cyanide exposures, are adequate or need of revising. This includes the following: Incident Reporting and Investigation Procedure dated 13 May 2013, Rev 03.

No cyanide exposure incidents have been recorded in the last 3 years. All serious accidents / incidents must be reported to the responsible Mine Overseer and Safety Officer immediately when it occurs. Lost day injuries and serious incidents will be investigated by a team consisting of the responsible Mine Overseer, Production Supervisor, and Miner Full-Time Health and Safety Representative. The procedures include the actions taken by the relevant responsible people.

Standard of Practice 6.3: **Develop and implement emergency response plans and procedures to respond to worker exposure to cyanide.**

☒ **in full compliance with**

The operation is

☐ in substantial compliance with **Standard of Practice 6.3**

☐ not in compliance with

Summarise the basis for this Finding/Deficiencies Identified:

The operation is in full compliance with Standard of Practice 6.3; to develop and implement emergency response plans and procedures to respond to worker exposure to cyanide.

The operation has water, oxygen, a resuscitator, antidote kits and a radio, and alarm system readily available for use at cyanide unloading, storage and mixing locations.

First Aid rooms are located at the Off-loading Area in the plant and at the Backfill Area. These First Aid rooms contain water, oxygen, and antidote kits available for use. All foremen etc. have radios for communication. In the event of an emergency at the TSF the Shift Forman will be immediately inform the control room who will then call the Plant Foreman, the Safety Officer and ER24 (paramedic response).

Man down alarms are located around the Plant including at the cyanide unloading area, the cyanide storage tanks, the leach tanks and the backfill area.

South Deep Gold Plant
Name of Facility

Signature of Lead Auditor

12 October 2014
Date

ER24 (ambulance and paramedics) is part of the emergency response for Gold Fields. The ER24 ambulance is located at the Mine (24 hrs). ER 24 - 24 hr Emergency Response have oxygen, resuscitator, PPE, radio and qualified personnel available to assist with any cyanide exposure incident.

In addition there are trained first responders for each shift. With the training including; Sasol Cyanide Handling, Emergency Procedures, Respiratory Procedures, Cyanide Poisoning, and First Aid for Cyanide

The operation inspects its first aid equipment regularly to ensure that it is available when needed, and materials are stored as directed by their manufacturer and replaced on a schedule to ensure that they will be effective when needed.

The following inspections are undertaken on a daily basis: cyanide antidote kit, safety showers, first aid boxes, and medical oxygen cylinders.

The operation has developed specific written emergency response plans or procedures to respond to cyanide exposures including the following:

SDI-ER003R06 Procedure for Emergency Preparedness and Response, 24 July 2014 - covers Catastrophic Release of Cyanide Gas, spillage of cyanide, etc.

EMP-100-21, Person Contaminated with Cyanide - Rev 02, 8 May 2014 - steps to follow when a person is contaminated with / overcome with Cyanide including First Aid measures and steps to follow.

EMP 100-17, Person Overcome by Hazardous Gas / Fumes, Rev 05, 17 July 2014 - steps to follow including for HCN exposure. This procedure notes that the gates must be opened for the ambulance and that an operator must direct them to the patient.

The operation has developed procedures to transport workers exposed to cyanide to locally available qualified off-site medical facilities including ER24 Procedure: Call out procedure for Cyanide Poisoning - states that the patient will be taken to the receiving hospital.

A meeting was held between South Deep Gold Plant, ER24 and Krugersdorp Private Hospital on 27 June 2014 that Krugersdorp Private Hospital will be used in future for Cyanide Patients. Observed Letter of Intent to Krugersdorp Private Hospital (Mr. Motlalentoa Motsoane, Hospital General Manager of Netcare Krugersdorp) that South Deep Gold Plant will send Cyanide patients to the Hospital (dated 28 July 2014 and signed by Dr. M. Rababa, Senior Manager Health Care Services, Gold Fields).

There was a change from Gold Fields EMS to ER24 as well as to now send cyanide patients to Krugersdorp Private Hospital instead of Leslie Williams Hospital at the beginning of 2014 due to the sale of Leslie Williams Hospital.

South Deep Gold Plant has a Mock Drill Schedule for 2012, 2013, 2014. Cyanide mock drills are conducted at least once a year for each section. In 2012 a cyanide drill was only done for the Offloading section (HCN Gassing). In 2013 drills were done at Offloading (Sodium Cyanide Incident Training), Met Plant (Sodium Cyanide Incident Training), and TSF (HCN Gassing). In 2014 drills were done at Met Plant (Cyanide Gassing - Elution, Gassing in Cyanide Storage) and TSF (HCN Gassing).

South Deep Gold Plant
Name of Facility

Signature of Lead Auditor

12 October 2014
Date

PRINCIPLE 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.**

☒ **in full compliance with**

The operation is

☐ in substantial compliance with **Standard of Practice 7.1**

☐ not in compliance with

Summarise the basis for this Finding/Deficiencies Identified:

The operation is in full compliance with Standard of Practice 7.1; to prepare detailed emergency response plans for potential cyanide releases.

The operation has developed detailed emergency response plans for potential cyanide releases. - Procedure for Emergency Preparedness and Response SDI-ER003 Rev 06 dated 24 July 2014. Scope - this outlines the cyanide potential emergency situation and potential accidents that could have an impact on the environment and how the mine will respond to them in order to minimise impact to the environment. This included the following sections;

Section 7.4 Catastrophic Release of Cyanide Gas;

Section 7.2 Transportation Incidents, this only deal with transportation incidents while on the mine site. There is only a short section of road that the tanker travels while on site to the offloading area;

Section 7.3 Release During Unloading and Mixing of Cyanide;

Section 7.7 Release of Cyanide During Fires and Explosions;

Section 7.9 TSF Line Failure; 7.3 Release During Unloading and Mixing of Cyanide. Procedure EMP 100- 02 Structural Failure causing cyanide releases; Procedure EMP 100-24 Cyanide Equipment Rupture;

Section 7.5 Overtopping of Ponds and Impoundments;

Section 7.10 Power Outages and Pump Failures;

Section 7.6 Uncontrolled Seepages; and

Section 7.8 Failure of Tailings Dam.

Additional procedures include EMP 100 - 22 Cyanide Transport Tanker Road Incident, and EMP -100 -19 Cyanide Transport tanker on-site road incident.

The Plan describes specific response actions as appropriate e.g. evacuate all personnel up wind of the accident, cordon off the area and place guards in strategic points to ensure no unauthorised persons gain access, put on the appropriate PPE, contain the spill, actions for neutralisation and decontamination of the area.

South Deep Gold Plant
Name of Facility

Signature of Lead Auditor

12 October 2014
Date

First Aid is provided through Rescue and Cyanide First Aid Treatment procedure as shown on large notice boards at the TSF and the Plant. The prevention of future releases is undertaken through the incident investigation process.

Standard of Practice 7.2: Involve site personnel and stakeholders in the planning process.

The operation is

☒ **in full compliance with**

☐ in substantial compliance with **Standard of Practice 7.2**

☐ not in compliance with

Summarise the basis for this Finding/Deficiencies Identified:

The operation is in full compliance with Standard of Practice 7.2; to involve site personnel and stakeholders in the planning process.

The operation involves its workforce and stakeholders, including potentially affected communities, in the cyanide emergency response planning through the following. This make potentially affected communicates aware of the risks and keeps the Emergency Response Plan current.

The workforce has been involved through the H&S reps. Safety Rep Meetings are held monthly and are attended by daily and shift Safety Reps. Observed minutes for 18 Feb 2014, 16 July 2013, and 22 May 2012

The communities have been involved through the forums that are held with the local communities. Rietspruit Forum (Water related issues for the Rietspruit Catchment, attended by the public, DWS, mines - Quarterly). Cyanide related matters and incidents can be raised at the meeting. South Deep reported at the meeting that they are working on project to line the Old South Deep RWD. Presentation by South Deep for the meeting giving feedback on status of WUL, project etc. "Water Quality Report to Rietspruit Forum, Report.

Community Forum Meeting (established in 2014) for the farmers and Community workshop in the Leeuwspruit Area. Meeting is between South Deep and the local community held every 2 months.

ER24 have been copied in on the Emergency Preparedness and Response Plan. The Plan was provided to ER24 for their input. Pers comm - Sasol was informed of the EPRP and their role in a transportation incident outside the plant.

A meeting was held between South Deep Gold Plant, ER24 and Krugersdorp Private Hospital on 27 June 2014 that Krugersdorp Private Hospital will be used in future for Cyanide Patients. Observed Letter of Intent to Krugersdorp Private Hospital (Mr. Motlalentoa Motsoane, Hospital General Manager of Netcare Krugersdorp) that South Deep Gold Plant will send Cyanide patients to the Hospital (dated 28 July 2014 and signed by Dr. M. Rababa, Senior Manager Health Care Services, Gold Fields).

Standard of Practice 7.3: **Designate appropriate personnel and commit necessary equipment and resources for emergency response.**

☒ **in full compliance with**

The operation is ☐ in substantial compliance with **Standard of Practice 7.3**

☐ not in compliance with

Summarise the basis for this Finding/Deficiencies Identified:

The operation is in full compliance with Standard of Practice 7.3; to designate appropriate personnel and commit necessary equipment and resources for emergency response.

The emergency response teams are the primary responders with the names and contact details provided on notice boards. The EPRP details the Roles and Responsibilities in Section 4.0 of the EPRP. An Emergency Management Team is formed to manage response, logistics and communication during any emergency.

The 24 hour contact information is posted on boards located around the plant, backfill and off-loading including ER24, Fire Brigade and Sasol Polymers Hazmat Response details.

The duties and responsibilities of the Emergency Management Team are detailed in the EPRP.

The emergency response equipment is listed on the first aid room checklists and in Procedure SWPP 100-19 Monthly First Aid Room / Equipment Inspections.

Procedure SWPP 100-19 Monthly First Aid Room / Equipment Inspections detail the monthly inspection of the first aid room and emergency response equipment.

The role of outside responders is detailed in Section 5.3 EPRP including ambulance, fire brigade.

ER 24 is aware of their involvement (pers comm) and have been included in the mock drills in 2014. The EMS and hospital were seen to be part of the mock drill involving the Leslie Williams hospital in 2012.

A meeting was held between South Deep Gold Plant, ER24 and Krugersdorp Private Hospital on 27 June 2014 that Krugersdorp Private Hospital will be used in future for Cyanide patients. Observed Letter of Intent to Krugersdorp Private Hospital (Mr. Motlalentoa Motsoane, Hospital General Manager of Netcare Krugersdorp) that South Deep Gold Plant will send Cyanide patients to the Hospital (dated 28 July 2014 and signed by Dr. M. Rababa, Senior Manager Health Care Services, Gold Fields).

Standard of Practice 7.4: **Develop procedures for internal and external emergency notification and reporting.**

☒ **in full compliance with**

The operation is ☐ in substantial compliance with **Standard of Practice 7.4**

☐ not in compliance with

Summarise the basis for this Finding/Deficiencies Identified:

The operation is in full compliance with Standard of Practice 7.4; to develop procedures for internal and external emergency notification and reporting.

South Deep Gold Plant
Name of Facility

Signature of Lead Auditor

12 October 2014
Date

The Emergency Preparedness and Response Plan include procedures and contact information for notifying management, regulatory agencies, outside response providers and medical facilities of the cyanide emergency.

Section 8.0 of EPRP Communication details the internal and external communication process. The contact details are on the boards at the plant, backfill and offloading. The Environmental Emergency Response Team Call Out Procedure SDI-ER001- Rev03 for the mine includes details for a cyanide related emergency with the contact details of the Met Plant Manager and Environmental Department Manager. The contact details for the TSF staff (Stefanutti Stocks Mining Services) are included in procedure Emergency Response SSMSTO/WRTO0004/PLN/001.

The Plan also includes procedures and contact information for notifying potentially affected communities of the cyanide-related incident and any necessary response measures and for communications with the media, including the following:

Procedure SDI-ER-002 REv04 Communication with Communities and Authorities during cyanide Emergency Situations details how neighbouring communities are contacted in a correct manner to prevent possible disasters. This includes details of land owners to be contacted during a cyanide related incident, Local Town Council, Westonaria Fire Prevention Association, DWS, and Westonaria Disaster Management Unit.

Communications with the media is undertaken in accordance with the Gold Fields Crisis, Communications Policy, Guidelines and Procedures ver 4.0 3 March 2009.

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.**

☒ **in full compliance with**

The operation is

☐ in substantial compliance with **Standard of Practice 7.5**

☐ not in compliance with

Summarise the basis for this Finding/Deficiencies Identified:

The operation is in full compliance with Standard of Practice 7.5; to incorporate in response plans and remediation measures monitoring elements that account for the additional hazards of using cyanide treatment chemicals.

The Emergency Preparedness and Response Plan describes specific remediation measures as appropriate for the likely cyanide release scenarios, including the following:

Section 6.1 "Contain Cyanide Spillage" - spilled liquid cyanide should be pumped back into the containment area. Where it cannot be pumped back it must be contained by earthen berms etc. to prevent contamination of surface water.

Section 6.2 "Neutralisation" states the suitable neutralisation agents such as hydrated ferrous sulphate crystals or solution and sodium or calcium hypochlorite solution. The procedure for neutralisation is stated in this section.

South Deep Gold Plant
Name of Facility

Signature of Lead Auditor

12 October 2014
Date

Section 6.3 "Decontamination of Cyanide Spillages within bunded Areas" - rinse and dilute any remains of solid cyanide with process water, under controlled conditions pump the solution back to the process, ensure pH is above 10 before pumping.

Section 6.4 "Decontamination of Cyanide Spillages outside a bunded area" - contain spilled material with berms, bunds etc., neutralise /detoxify spillage, dispose of contaminated soil onto TSF.

SWPP 100-04, Rev 7, dated 12 April "Decontaminate Equipment" was observed. This details that equipment is to be decontaminated in the decontamination bay with potable water. Observed during site inspection that decontamination bay is located next to the Cyanide Storage area and the bund of the decontamination bay drains into the cyanide storage bund area.

Section 6 states the possible methods and approach for cyanide spillage including; contain cyanide spillage, neutralisation of cyanide within a contained area, decontamination of Cyanide spillages within bunded areas, decontamination of Cyanide spillages outside a bunded area.

"Environmental Spillage Response Procedure" SDI-PO-002 Rev 5, dated July 2014. The procedure states the process to stop the spill, contain the spill, neutralise the spill and clean-up of the spill and disposal of the contaminated materials.

Drinking water is obtained from Rand Water Board, municipal supplier therefor an alternative supply is not required.

The Plan prohibits the use of chemicals such as sodium hypochlorite, ferrous sulphate and hydrogen peroxide to treat cyanide that has been released into surface water.

Section 6.1 "Contain Cyanide Spillage" - prohibits the use hypochlorite, hydrogen peroxide and ferrous sulphate to treat cyanide spillage into streams or natural ponds.

The Plan addresses the potential need for environmental monitoring to identify the extent and effects of a cyanide release, and include sampling methodologies, parameters and, where practical, possible sampling locations

Water Monitoring Protocol SDI-PO-001 Rev 07 was observed. The protocol stipulated is also followed for emergency samples and includes sampling techniques, parameters to be analysed for, sample preservation, etc. Section 7.2 Records for Special / Emergency cyanide samples addresses the labelling of emergency / special samples and further states that the sample log sheet must be marked as Emergency / Special. The sample label can be marked as emergency/special.

Standard of Practice 7.6: **Periodically evaluate response procedures and capabilities and revise them as needed.**

☒ **in full compliance with**

The operation is ☐ in substantial compliance with **Standard of Practice 7.6**

☐ not in compliance with

Summarise the basis for this Finding/Deficiencies Identified:

The operation is in full compliance with Standard of Practice 7.6; to periodically evaluate response procedures and capabilities and revise them as needed.

South Deep Gold Plant
Name of Facility

Signature of Lead Auditor

12 October 2014
Date

The Emergency Preparedness and Response Plan (SDI-ER003 Rev 6, 24 July 2014) is reviewed annually or when an emergency / accident occurs that is sufficient to revise the Plan.

South Deep Gold Plant Mock Drill Schedule 2012, 2013, 2014 was observed. Cyanide mock drills are conducted at least once a year for each section. In 2012 a cyanide drill was only done for the Off-loading section (HCN Gassing). In 2013 drills were done at Offloading (Sodium Cyanide Incident Training), Met Plant (Sodium Cyanide Incident Training), and TSF (HCN Gassing). In 2014 drills were done at Met Plant (Cyanide Gassing - Elution, Gassing in Cyanide Storage) and TSF (HCN Gassing).

Emergency Response Drill / Test (SDI-I_PP018 Rev 04) was observed. Scenario: Tailings Pipe Failure into Kariegaspruit, 16 October 2013. Evidence observed contained substantial notes from the observer, detailing the requirements of SD-I-PP018 Rev 4 Procedure for Emergency Preparedness and Response as well as feedback regarding non-compliance after assessment of drill.

South Deep Gold Plant
Name of Facility

Signature of Lead Auditor

12 October 2014
Date

PRINCIPLE 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.

The operation is

☒ **in full compliance with**

☐ in substantial compliance with **Standard of Practice 8.1**

☐ not in compliance with

Summarise the basis for this Finding/Deficiencies Identified:

The operation is in full compliance with Standard of Practice 8.1; to train workers to understand the hazards associated with cyanide use.

The operation trains all personnel who may encounter cyanide in cyanide hazard recognition, which includes the following.

Annual induction for all new employees and ex-leave. Employees will attend the general mine induction including a module on cyanide awareness (e-learning). The plant employees will then report to the plant for plant specific induction. The auditors observed the Plant Cyanide Awareness Presentation (covers the cyanide requirements and management of cyanide extensively). The employee must complete the Cyanide Awareness Questionnaire (SAF-FRM-0028) after watching the Cyanide Awareness Presentation. The employees must complete all the required training before they are allowed to enter and work on the plant. All plant employees attend general first aid training every three years.

The First Line Responders attend Cyanide First Aid training every year conducted by Ambusave.

The need for First Line Responders was identified after the two Paramedics stationed on the plant were no longer part of the plant compliment. The one paramedic left in 2012 and the second in 2013.

SWPP-100-16 Induction Procedure for New and Ex-Leave Employees Rev 03, 16 March 2014 was observed.

Cyanide Off-loaders are required to undertake the following training annually: Annual Cyanide Critical Procedures, and Cyanide First Aid Training.

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.**

The operation is

☒ **in full compliance with**

☐ in substantial compliance with **Standard of Practice 8.2**

☐ not in compliance with

Summarise the basis for this Finding/Deficiencies Identified:

The operation is in full compliance with Standard of Practice 8.2; to train appropriate personnel to operate the facility according to systems and procedures that protect human health, the community and the environment.

The operation trains all personnel who may encounter cyanide in cyanide hazard recognition, which includes the following.

Annual induction for all new employees and ex-leave. Employees will attend the general mine induction including a module on cyanide awareness (e-learning). The plant employees will then report to the plant for plant specific induction. The auditors observed the Plant Cyanide Awareness Presentation (covers the cyanide requirements and management of cyanide extensively). The employee must complete the Cyanide Awareness Questionnaire (SAF-FRM-0028) after watching the Cyanide Awareness Presentation. The employees must complete all the required training before they are allowed to enter and work on the plant. All plant employees attend general first aid training every three years.

Cyanide Off-loaders are required to undertake the following training annually: Annual Cyanide Critical Procedures, and Cyanide First Aid Training.

The training elements necessary for each job involving cyanide management are identified in the Training Needs Analysis - TRNG 100-01 Rev 01. Training required for each job category is identified in the matrix.

The following Cyanide related training is shown in the Needs Analysis: General First Aid Training (done every 3 years), Cyanide First Aid Training (done annually), Cyanide Critical Procedures (annually), Emergency Procedures (annually)

In addition there is a General Training Matrix for 2014 for Stefanutti Stocks (TSF operators). The matrix shows each employee and the training required as well as when completed. Training consists of training done on Work Instructions & Procedures, SHE Training and Emergency Mock Drills conducted.

Refresher training on cyanide management is provided to ensure that employees continue to perform their jobs in a safe and environmentally protective manner. All employees receive refresher training on an annual basis after they return from annual leave (i.e. ex-leave). The Route form is provided to ex-leave employees to receive training as required.

Sasol Cyanide Procedure Training (all employees) is conducted annually.

Planned Task Observations (PTOs) are conducted on the Cyanide Procedures on the Cyanide Off-loaders annually. Cyanide First Aid Training (First Responders and Off-loaders) are conducted annually by Ambusave.

South Deep Gold Plant
Name of Facility

Signature of Lead Auditor

12 October 2014
Date

Andre Swartz (Area Superintendent) is one of the people qualified to conduct the PTO's having a certificate from the Gold Fields Academy to proof that he has successfully completed the "Area Superintendent Programme" 27 November 2007 (once off to be appointed in position).

Training records are kept for at least the duration of an individual's employment. Records are kept by the plant as well as the mine training centre.

The records include the names of the employee and the trainer, the date of training, the topics covered, and if the employee demonstrated an understanding of the training materials.

Standard of Practice 8.3: **Train appropriate workers and personnel to respond to worker exposures and environmental releases of cyanide.**

☒ **in full compliance with**

The operation is ☐ in substantial compliance with **Standard of Practice 8.3**

☐ not in compliance with

Summarise the basis for this Finding/Deficiencies Identified:

The operation is in full compliance with Standard of Practice 8.3; to train appropriate workers and personnel to respond to worker exposures and environmental releases of cyanide.

Emergency Response Co-ordinators and members of the Emergency Response Team are trained in the procedures included in the Emergency Response Plan regarding cyanide, including the use of necessary response equipment.

Cyanide First Aid Training (First Responders and Off-loaders) is conducted annually by Ambusave. This includes decontamination of the individual.

Mock drills are used to train and evaluate the personnel on emergency procedures and improve their response skills. Feedback is provided after the mock drill on deviations observed.

South Deep Gold Plant Mock Drill Schedule 2012, 2013, 2014 was observed. Cyanide mock drills are conducted at least once a year for each section. In 2012 a cyanide drill was only done for the Offloading section (HCN Gassing). In 2013 drills were done at Offloading (Sodium Cyanide Incident Training), Met Plant (Sodium Cyanide Incident Training), and TSF (HCN Gassing). In 2014 drills were done at Met Plant (Cyanide Gassing - Elution, Gassing in Cyanide Storage) and TSF (HCN Gassing).

The Mock drills are evaluated from a training perspective and feedback is provided afterwards to provide learning points and points for improvement. Mock drill conducted at offloading area resulted in the procedure being changed with regards to leaving the offloading gate open during offloading.

Records are retained documenting the cyanide training, including the names of the employee and the trainer, the date of training, the topics covered, and how the employee demonstrated an understanding of the training materials.

The operation has made off-site Emergency Responders, such as community members, local responders and medical providers, familiar with those elements of the Emergency Response Plan related to cyanide

South Deep Gold Plant
Name of Facility

Signature of Lead Auditor

12 October 2014
Date

The workforce has been involved through the H&S reps. Safety Rep Meetings are held monthly and are attended by daily and shift Safety Reps.

The communities have been involved through the forums that are held with the local communities. Rietspruit Forum (Water related issues for the Rietspruit Catchment, attended by the public, DWS, mines - Quarterly). Cyanide related matters and incidents can be raised at the meeting.

Community Forum Meeting (established in 2014) (The farmers and Community workshop in the Leeuwspruit Area) – held every 2 months. Meeting is between South Deep and the local community.

ER24 have been copied in on the Emergency Preparedness and Response Plan. The Plan was provided to ER24 for their input. Pers comm - Sasol was informed of the EPRP and their role in a transportation incident outside the plant.

PRINCIPLE 9 – DIALOGUE

Engage in Public Consultation and Disclosure

Standard of Practice 9.1: **Provide stakeholders with the opportunity to communicate issues of concern.**

☒ **in full compliance with**

The operation is

☐ in substantial compliance with **Standard of Practice 9.1**

☐ not in compliance with

Summarise the basis for this Finding/Deficiencies Identified:

The operation provides the opportunity for stakeholders to communicate issues of concern regarding the management of cyanide.

South Deep attends the following forums:

Rietspruit Forum (Water related issues for the Rietspruit Catchment, attended by the public, DWS, mines - Quarterly). Observed minutes of 11 Feb 2014. Cyanide related matters and incidents can be raised at the meeting. South Deep reported at the meeting that they are working on project to line the Old South Deep RWD. Observed presentation by South Deep for the meeting giving feedback on status of WUL, project etc. "Water Quality Report to Rietspruit Forum, Report Period: Feb 2014 - March 2014. 12 November 2013 - nothing Cyanide related. 14 August 2012 - nothing cyanide related.

Community Forum Meeting (established in 2014) (The farmers and Community workshop in the Leeuwspruit Area) – 2 monthly. Meeting is between South Deep and the local community. Observed minutes, 21 January 2014, 21 May 2014,

South Deep Gold Plant also participates at the West Rand District Municipality Environmental Mining Technical Working Group Meeting (20 June 2013, 19 June 2014, 17 September 2012). Environmental issues are discussed and meeting takes place quarterly.

The workforce is involved through the H&S reps. Safety Rep Meetings are held monthly and are attended by daily and shift Safety Reps.

Standard of Practice 9.2: **Initiate dialogue describing cyanide management procedures and responsively address identified concerns.**

☒ **in full compliance with**

The operation is

☐ in substantial compliance with **Standard of Practice 9.2**

☐ not in compliance with

Summarise the basis for this Finding/Deficiencies Identified:

The operation is in full compliance with Standard of Practice 9.2; to initiate dialogue describing cyanide management procedures and responsively address identified concerns.

There are opportunities for the operation to interact with stakeholders and provide them with information regarding cyanide management practices and procedures.

In addition to that undertaken in 9.1.1

Gold Fields disseminated information to the Black Emerging Farmers within the Leeuwspruit Water Management Area on 7 April 2014, minutes of the meeting were observed. Cyanide awareness pamphlets were handed out. The pamphlet covered the following: What is cyanide and what is it used in, What are the risks with cyanide and the gold, Which are hazardous area, How can workers / communities be exposed to cyanide, What to do in case of cyanide release incident area, What is Gold Fields doing to minimise risk associate with Cyanide and where. Observed attendance register.

The plant arranges a large number of visits every year. - Observed booklets showing photographs of the Plant visits including the following:

1. Overview of South Deep Project DMR Visit, 26 October 2013;

2. South Deep Project Visitor Presentation 5 June 2014;

3. Overview of the South Deep Project Metallurgical Plant Visit 4 December 2013.

Observed the Cyanide Management Presentation given to all visitors. It extensively covers the use, properties and dangers of cyanide used in the plant.

Standard of Practice 9.3: **Make appropriate operational and environmental information regarding cyanide available to stakeholders.**

☒ **in full compliance with**

The operation is ☐ in substantial compliance with **Standard of Practice 9.3**

☐ not in compliance with

Summarise the basis for this Finding/Deficiencies Identified:

The operation is in full compliance with Standard of Practice 9.3; to make appropriate operational and environmental information regarding cyanide available to stakeholders.

The operation has developed written descriptions of how their activities are conducted and how cyanide is managed. These descriptions are available to communities and other stakeholders

Gold Fields disseminated information to the Black Emerging Farmers within the Leeuwspruit Water Management Area on 7 April 2014, minutes of the meeting were observed. Cyanide awareness pamphlets were handed out. The pamphlet covered the following: What is cyanide and what is it used in, What are the risks with cyanide and the gold, Which are hazardous area, How can workers / community be exposed to cyanide, What to do in case of cyanide release incident area, What is Gold Fields doing to minimise risk associate with Cyanide and where. Observed attendance register.

This pamphlet has been made available to the workforce.

South Deep is in the process developing a comic type information pamphlet to both the employees and the community. The comic for the employees covers Cyanide Offloading and Usage. The employee and community comic will be distributed in English and SeSotho. The comic to the community will cover cyanide related issues relevant to the public. Drafts of these publications were observed.

South Deep Gold Plant
Name of Facility

Signature of Lead Auditor

12 October 2014
Date

Information is provided in a verbal format at all of the forums attended in addition to it being in a printed format. The pamphlet distributed at the Black Emerging Farmers meeting within the Leeuwspruit Water Management Area on 7 April 2014 was also verbally described to the audience.

All information during the site visits, which includes local schools, is provided in a verbal format.

The operation makes information publicly available on confirmed cyanide release or exposure incidents. This includes Gold Fields Annual Reviews.

These Annual Reviews of Gold Fields operations worldwide are posted on their website for stakeholders to inspect. In addition all incidents are report to the Department of Water Affairs (Public Regulator), which will provide the information to the public on request.

There have been no incidents of cyanide exposure that have resulted in hospitalisation or fatality.

There have been no cyanide releases off the mine site that required a response or remediation.

There have been no cyanide releases off the mine site resulting in significant adverse effects to health or the environment.

South Deep Gold Plant
Name of Facility

Signature of Lead Auditor

12 October 2014
Date

Report Signature Page

GOLDER ASSOCIATES AFRICA (PTY) LTD.

Ed Perry
Lead Auditor

Marie Schlechter
Project Manager

Date: 12 October 2014

MS/EP/ag

Reg. No. 2002/007104/07
Directors: SAP Brown, L Greyling, RGM Heath

At Golder Associates we strive to be the most respected global group of companies specialising in ground engineering and environmental services. Employee owned since our formation in 1960, we have created a unique culture with pride in ownership, resulting in long-term organisational stability. Golder professionals take the time to build an understanding of client needs and of the specific environments in which they operate. We continue to expand our technical capabilities and have experienced steady growth with employees now operating from offices located throughout Africa, Asia, Australasia, Europe, North America and South America.

Africa	+ 27 11 254 4800
Asia	+ 852 2562 3658
Australasia	+ 61 3 8862 3500
Europe	+ 356 21 42 30 20
North America	+ 1 800 275 3281
South America	+ 55 21 3095 9500

solutions@golder.com
www.golder.com

Golder Associates Africa (Pty) Ltd.
PO Box 6001
Halfway House, 1685
Thandanani Park
Matuka Close
Halfway Gardens
Midrand
South Africa
T: [+27] (11) 254 4800

Golder Associates