

***INTERNATIONAL CYANIDE
MANAGEMENT INSTITUTE***

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

Recertification Summary Audit Report

***Gold Fields
Agnew Gold Mine
Australia***

30th April – 4th May 2012



Name of Operation: Agnew Gold Mining Company Pty Ltd

Name of Operation Owner: Gold Fields Australia

Name of Operation Operator: Gold Fields Australia

Name of Responsible Manager: Garry Mills (General Manager)

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Location detail and description of operation:

Agnew Gold Mining Company Pty Ltd (AGMC), a wholly owned subsidiary of Gold Fields Australia, is located adjacent to the historical mining township of Agnew, 630km north-east of Perth and 26km southwest of Leinster.

AGMC's Emu Processing Plant uses a carbon in pulp (CIP) process to extract gold from processed ore. The two stage Grinding Circuit has a Gravity Circuit which treats a stream of slurry fed from 2 Knelson Concentrators. The main component of this Gravity Circuit is an Inline Leach Reactor which is designed to accept high-grade gold concentrates and uses cyanide to leach the gold into solution.

The CIP process involves mixing milled ore with lime and water to form a 45% solids slurry with a pH of approximately 10. A cyanide solution is used to extract gold (Au) from the slurry. Carbon is added to the solution to capture gold via adsorption. The gold is then recovered from the carbon under high temperature and pressure using sodium hydroxide and sodium cyanide. Gold is plated onto stainless steel mesh via a process of electrowinning.

The primary waste product from the process is a slurry (tailings) containing reject fines, process chemicals and cyanide residues with an elevated pH. This tailings slurry is deposited into TSF3 (Redeemer In-pit Tailings Facility) which has been active since May 2004.



Auditor's Finding

This operation is

☐ in full compliance

X in substantial compliance

☐ not in compliance

with the International Cyanide Management Code.

This operation has experienced compliance problems during the previous three year audit cycle. Information on this can be found in 4.4. and a corrective action plan has been agreed to mitigate the matters.

The Corrective Actions emanating from the first certification audit were satisfactorily completed and evidence thereof, detailed in the Final Completion Report dated 7th January 2010 and displayed on the ICMI website.

Audit Company: Eagle Environmental

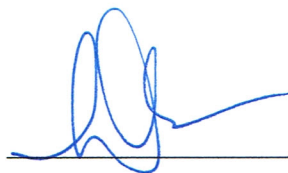
Audit Team Leader: Arend Hoogervorst

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Names and Signatures of Other Auditors:

Name : Dawid M. L Viljoen

Signature



Date: 27/2/2013

Dates of Audit: 30th April – 4th May 2012

I attest that I meet the criteria for knowledge, experience and conflict of interest for Code Verification Audit Team Leader, established by the International Cyanide Management Institute and that all members of the audit team meet the applicable criteria established by the International Cyanide Management Institute for Code Verification Auditors.

I attest that this Summary Audit Report accurately describes the findings of the verification audit. I further attest that the verification audit was conducted in a professional manner in accordance with the International Cyanide Management Code Verification Protocol for Gold Mine Operations and using standard and accepted practices for health, safety and environmental audits.

Agnew Gold Mine

Facility

Signature of Lead Auditor

Date



4/3/2013



Agnew Gold Mine

Signature of Lead Auditor

26th February 2013

Auditor's Findings

1. PRODUCTION: Encourage responsible cyanide manufacturing by purchasing from manufacturers who operate in a safe and environmentally protective manner.

Standard of Practice 1.1: Purchase cyanide from manufacturers employing appropriate practices and procedures to limit exposure of their workforce to cyanide, and to prevent releases of cyanide to the environment.

X in full compliance with

The operation is ☐ in substantial compliance with **Standard of Practice 1.1**
☐ not in compliance with

Basis for this Finding/Deficiencies Identified:

There is a Gold Fields Australia cyanide supply contract, covering Gold Fields St Ives Gold Mine and Gold Fields Agnew Gold Mine, in place with Australian Gold Reagents (AGR). The contract requires that the supplier of cyanide must be a signatory to, and certified by, the ICMC for production and transportation of cyanide. The Supplier is further required to provide necessary documentation to conform to the contract requirements. AGR is a signatory to the Cyanide Code and was re-certified as a fully compliant Production Facility with the ICMI Cyanide Code on 24 November 2010. AGR's sodium cyanide plant is located at the CSBP chemical complex in Kwinana, Australia and is a joint venture between Coogee Chemicals (25%) and CSBP, a subsidiary of Wesfarmers Chemicals Energy & Fertilisers (75% shareholdings).

2. TRANSPORTATION: Protect communities and the environment during cyanide transport.

Standard of Practice 2.1: Establish clear lines of responsibility for safety, security, release prevention, training and emergency response in written agreements with producers, distributors and transporters.

X in full compliance with

The operation is ☐ in substantial compliance with **Standard of Practice 2.1**
☐ not in compliance with



Basis for this Finding/Deficiencies Identified:

There is a Gold Fields Australia cyanide supply contract, covering Gold Fields St Ives Gold Mine and Gold Fields Agnew Gold Mine, in place with Australian Gold Reagents (AGR). The contract covers both production and transport to the mine sites. AGR produce the cyanide and transport the liquid cyanide from their production site at Kwinana to Kalgoorlie station via rail, and from Kalgoorlie station to site at Agnew using road transport. It also specifically covers the responsibilities and requirements for transport, safety, security, unloading, emergency response (spills prevention and clean-up), route planning and risk assessments, community liaison, emergency response resource access and availability, training, and communication.

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

X in full compliance with

The operation is ☐ in substantial compliance with **Standard of Practice 2.2**

☐ not in compliance with

Basis for this Finding/Deficiencies Identified:

The Gold Fields Australia cyanide supply contract, covering Gold Fields St Ives Gold Mine and Gold Fields Agnew Gold Mine, in place with Australian Gold Reagents (AGR) is valid to 30 July 2012. AGR Western Australian transport chain was re-certified as fully compliant 20 April 2010. The operation has chain of custody records identifying all elements of the supply chain.

3. HANDLING AND STORAGE: Protect workers and the environment during cyanide handling and storage.

Standard of Practice 3.1: Design and construct unloading, storage and mixing facilities consistent with sound, accepted engineering practices, quality control/quality assurance procedures, spill prevention and spill containment measures.

X in full compliance with

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

☐ not in compliance with

Basis for this Finding/Deficiencies Identified:

The operation uses only liquid cyanide, delivered by bulk tanker, and no mixing or storage of solid cyanide takes place on site. AGR-CSBP is the cyanide supplier and the owner of the cyanide storage and off-loading facility. The offloading and storage facility was designed and built, in accordance with sound and accepted engineering practices, with materials appropriate for use with cyanide. The cyanide storage tank (belonging to AGR-CSBP) is situated within a steel secondary container and CSBP is also responsible for maintenance of the tank and the secondary containment. The facility is located approximately 35m away from the stores office and away from surface water. The adjoining road is closed during cyanide unloading and stores staff supervise and act as sentries during the off-loading. The Cyanide tanker unloads on a concrete pad which drains into the storage bund area.

The cyanide level in the tank is measured manually and ultrasonically. Ordering is done automatically using telemetry, which is cross-checked by plant staff. There is a procedure in place to prevent overfilling of the tank and both driver and observer observe the capacity of the tank. The procedure covering cyanide unloading was reviewed and found to be effective. The storage and off-loading facility is in a locked, fenced area, within the access controlled, plant security area and the cyanide is also stored away from incompatible materials.

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

X in full compliance with

The operation is ☐ in substantial compliance with **Standard of Practice 3.2**

☐ not in compliance with

Basis for this Finding/Deficiencies Identified:

Only liquid cyanide is used and is delivered via bulk tanker to the storage tank and no mixing or storage of solid cyanide takes place on site. The site and supplier cyanide offloading procedures are detailed, spelling out PPE (Personal Protective Equipment) requirements, use of a sentry/observer in the process, and are clearly sequenced to prevent spillages and accidental releases during off-loading.

4. OPERATIONS: Manage cyanide process solutions and waste streams to protect human health and the environment.

Standard of Practice 4.1: Implement management and operating systems designed to protect human health and the environment utilizing

contingency planning and inspection and preventive maintenance procedures.

X in full compliance with

The operation is ☐ in substantial compliance with **Standard of Practice 4.1**

☐ not in compliance with

Basis for this Finding/Deficiencies Identified:

All plant procedures form part of the electronic document control, SharePoint software system. The site uses work instructions and procedures for both process and engineering tasks. The TSF (Tailings Storage Facility) consists of a pit fill operation, utilising a redundant open pit/underground mine for tailings deposition. The old paddock TSF dams are decommissioned and dry, and used for providing paste fill for underground backfill. There is a plant procedure entitled Tailings Management and the Geotechnical Engineers operating guidelines are used to support operating procedures. SAP planned maintenance and operational inspections range in frequency from daily, two weekly, monthly, 5 weekly, six monthly, to yearly. These inspections cover tanks, pipes, pumps, valves, secondary containments, ponds located in the plant and the TSFs. Return water pond and process water levels are measured by level indicators and automatically controlled in the CITECT system. On-going engineering reviews are conducted and frequency changes are included in the SAP planned maintenance system, as required. AGA-CSBP (Australian Gold Reagents – the ICMI certified cyanide producer) inspects the cyanide storage tank annually. Other tank inspections include infrared testing of the cones and, because of the presence of pitting, the inspections include physical inspections. Internal inspection of leach tanks that require the removal of the cone are done on a rotational basis during shutdowns. A SAP electronic, planned maintenance system is in place. The system's inventory includes all equipment on the process plant and the TSF, which includes all critical cyanide equipment. The SAP system was implemented in 2009. The Pronto system was used from certification up to the implementation of SAP. Inspections are scheduled and maintenance is done on a planned basis, with histories kept. Breakdown maintenance is also recorded and included in the database. A fully electronic, web-based, change management system is used on the site's intranet, which covers projects and processes and includes both safety and environmental aspects. The site continues to apply its wildlife control measures to minimise wildlife access through hazing and habitat control. Good faith has been shown through the instigation of a full investigation after the elevated cyanide levels and implementation of control measures to reduce the causes of the cyanide increase (toll treatment) and the modification of procedures. Procedures have been modified to ensure that future issues relating to use of old stockpile material and toll treatment are adequately addressed in terms of material characterisation.

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

X in full compliance with

- The operation is** ☐ in substantial compliance **with Standard of Practice 4.2**
- ☐ not in compliance with
- ☐ not subject to

Basis for this Finding/Deficiencies Identified:

A metallurgical test work procedure for ores details and defines ore characterisation requirements, and procedures to follow, for new ores. Characterisation includes cyanide consumption and cyanide speciation assisting with prediction of the cyanide consumption of the resource. Routine bottle rolls are also conducted. Process scale cyanide optimisation commenced following the commissioning of the automatic cyanide dosing using the on-line free cyanide analyser. WAD cyanide is measured at adsorption tank no 6. Further step wise cyanide addition optimisation is in progress using the modern measurement and control instrumentation and PLC's. Set points are periodically reviewed.

Manual control was practised at the date of certification, and since then, the use of automatic control was evaluated, backed up by an on-line WAD analyser on the tails stream. The current system includes automatic cyanide control, newly installed and currently being optimised. Control strategies of cyanide control to the elution circuit were also considered for the new Free cyanide analyser and the WAD analyser. The units are being optimised in terms of calibration and control logic. Elution cyanide make-up control is done in a batch for a day's operation, using a flow meter, dosing a specified volume before automatic shut off occurs. The new Gekko Intensive Leach Reactor uses the same cyanide control logic as the elution. A new PLC was installed in the Mill, assisting with automated control, including cyanide addition control.

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

X in full compliance with

- The operation is** ☐ in substantial compliance with **Standard of Practice 4.3**
- ☐ not in compliance with

Basis for this Finding/Deficiencies Identified:

A probabilistic water balance is in place, covering the TSF and plant and is updated monthly. Water inputs are based on flow measurement and actual weather station data, including rainfall and evaporation. The new weather station at the top of the leach was commissioned in 2008 and measurements from the leach and the Leinster airport weather stations are compared in the model and differentials reviewed. An Evaporation analyses

table covering all seasons is used in the model. No discharge to surface water occurs and all water ponds are lined preventing seepage to subsurface. In the pit, used as a TSF, the geology is not significantly permeable and seepage to subsurface is insignificant. Scenarios developed in the water balance, show sensitivities when return water dams are at 80% level during the 1:100 year storm event. Back-up power to run the pumps is available to transfer the water between the various ponds, if required. The system controls pond levels between 80 and 85% with a freeboard in no 3 TSF of 27m, thus the overall pond system could tolerate the maximum rain event without risk of overtopping.

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 X in substantial compliance with Standard of Practice 4.4

☐ not in compliance with

Basis for this Finding/Deficiencies Identified:

The compliance point for open waters for the mine is the No 3 TSF pool. The tailings are deposited into a redundant pit and cascades over the pit benches with significant surface area created in the flow to the bottom of the wall entering the beach area where the WAD levels are normally below 50ppm WAD Cyanide. During the period February 2009 to May 2009, the Cyanide WAD values went up to a maximum of approximately 80 ppm, indicating exceedance of the permitted WAD values. During this period there were no bird mortalities. A report on the investigation of the exceedances indicated that an old stockpile was treated as a mill gap filler. The source was not subjected to a detailed ore characterisation test procedure. It was noticed that the ore consumed more cyanide because of pH buffering at 10.3. The chemical analyses indicated that the Nickel contents in the ore more than doubled from 10 to 24ppm. The Nickel WAD complex concentration was identified as the probable cause pushing the WAD CN in the no 3 TSF pool to over 50 ppm. Corrective action included reduction of cyanide addition from 280 to 260 ppm, and 260 ppm to 240 ppm as free NaCN. Duplicate samples were sent to different laboratories to confirm cyanide speciation results and Redeemer green ore was removed from the feed blend. The need for on line WAD CN measurement was highlighted as WAD CN sample turnaround was 2 to 3 weeks. It was concluded that insufficient ore characterisation was done before the ore was fed to the mill.

Similarly, from 10 August to the end November 2011, WAD Cyanide values with an average of approximately 100 ppm were noted in the pool of the TSF. During that period, a number of bird mortalities were noted, some of which could be attributed to cyanide poisoning and some to suspected elevated Arsenic levels in the fresh water. An investigation report on the exceedances indicated the main cause of the increase was due to a batch of Toll treated ore with excessive copper content. The prior ore characterisation test work done on samples from the toll treatment did not indicate any copper issues, but some of the actual ore received included excessive copper. The toll

treatment agreement was subsequently terminated and site ore was resumed and WAD cyanide levels returned to normal below 50 ppm.

WAD cyanide levels are still varying, at times above 50 ppm, and it cannot yet be confirmed that levels of 50 ppm WAD Cyanide or below can be sustained using the current corrective actions. Thus a Corrective Action Plan has been agreed upon to generate 6 months of WAD cyanide data to confirm that the control measures are keeping WAD cyanide levels below 50ppm and including confirmation of the various other mitigating and corrective actions being implemented. This is based upon good faith shown by the site to eliminate problems as quickly as possible.

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

X in full compliance with

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

☐ not in compliance with

Basis for this Finding/Deficiencies Identified:

No direct discharge to surface water takes place. All return water from the TSF is piped to return water ponds and, in turn, pumped back to the Agnew Gold Plant process. No indirect discharge to surface water takes place as there is no surface water in the form of rivers close to the operations. Special protection measures include concrete and rock protection of TSF pipes to prevent damage during any flooding of the creeks.

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

X in full compliance with

The operation is ☐ in substantial compliance with **Standard of Practice 4.6**

☐ not in compliance with

Basis for this Finding/Deficiencies Identified

The Mine's water licence does not identify beneficial uses, but it does specify standards of <0.5 ppm WAD cyanide. Downstream monitoring boreholes are in place to protect any possible down gradient users. The licence requires on-going groundwater surveillance and should any movement be detected, a management plan must be developed to remediate any water quality problems. Borehole quarterly data sampled from 2010 and 2012 : all indicate less than 0.004 ppm WAD cyanide with isolated single outliers.

No 1 and 2 TSF were decommissioned and material from the top of the dam is used as

cemented paste fill for underground. Tests were conducted on surface material to be used for paste fill, and results indicate 1.3ppm WAD CN contained in sample. Cemented paste fill does not release significant amounts of water and the pH is high, above 10.5.

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

X in full compliance with

The operation is ☐ in substantial compliance with **Standard of Practice 4.7**

☐ not in compliance with

Basis for this Finding/Deficiencies Identified:

The leach, CIP, Elution, and ILR tanks are placed on plinths inside a concreted bund area providing effective containment. The reagent strength cyanide tank is placed inside a steel unit providing containment.

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

X in full compliance with

The operation is ☐ in substantial compliance with **Standard of Practice 4.8**

☐ not in compliance with

Basis for this Finding/Deficiencies Identified:

No new facilities have been constructed on site since the certification audit. The Reagent strength cyanide tanks are inspected routinely by AGR-CSBP. Inspection of the leach and CIP civil structures was carried out by external engineers in 2008, identifying issues affecting a fit for purpose declaration. This work was completed and the civil repairs to the plinths and addition of the extended bund were signed off by the respective project managers and appropriately qualified persons, as per the recommendations made by independent qualified persons to make the operation, fit for purpose. A SAP Planned Maintenance program is also in place.

An annual independent TSF inspection report, Tailings Storage audit and management review TSF 2 and 3, Agnew Gold Mine, signed by competent persons, concluded that TSF 3 could be operated as designed in a safe manner using the standard operating procedures.

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



X in full compliance with

The operation is ☐ in substantial compliance with **Standard of Practice 4.9**

☐ not in compliance with

Basis for this Finding/Deficiencies Identified:

Procedures for environmental monitoring (including sample preservation and chain of custody procedures) of surface water and borehole water, developed by competent persons, were sighted and checked. Boreholes are placed and sampled upstream and downstream of the plant. Underground water (boreholes) is sampled quarterly. Wildlife inspections are conducted daily.

5. DECOMMISSIONING: Protect communities and the environment from cyanide through development and implementation of decommissioning plans for cyanide facilities

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

X in full compliance with

The operation is ☐ in substantial compliance with **Standard of Practice 5.1**

☐ not in compliance with

Basis for this Finding/Deficiencies Identified:

The AGR-CSBP-owned Sodium cyanide solution storage facility decontamination is covered by a AGR-CSBP procedure and the AGR-CSBP cyanide supply contract covers the responsibility for the costs of decommissioning as being for AGR-CSBP's account. Decontamination of other cyanide plant equipment is covered in two procedures and in the Mine Closure Master Plan. There is a broad implementation schedule included in the Mine Closure Master Plan. A Procedure requires annual review of the Closure Master Plan, or earlier, if an event of significant importance occurs. External reviews are required every 3 years.

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

X in full compliance with

The operation is ☐ in substantial compliance with **Standard of Practice 5.2**



☐ not in compliance with

Basis for this Finding/Deficiencies Identified:

A current closure cost estimate for Agnew Gold Plant remediation of contamination for A\$53 000 was sighted. The AGR-CSBP cyanide supply contract covers the responsibility for the costs of decommissioning as being for AGR-CSBP's account. The latest review of closure provision for Agnew Gold Mining Company Pty Ltd by Umwelt Australia of March 2011 was sighted.

6. WORKER SAFETY: Protect workers' health and safety from exposure to cyanide.

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

X in full compliance with

The operation is ☐ in substantial compliance with **Standard of Practice 6.1**

☐ not in compliance with

Basis for this Finding/Deficiencies Identified:

All plant procedures form part of the electronic document control, SharePoint software system. The site uses work instructions and procedures for both process and engineering tasks. Key cyanide procedures were sampled and reviewed and included the confined space entry procedure, engineering permit to work, and equipment decontamination. The TSF consists of a pit fill operation, utilising a redundant open pit/underground mine for tailings deposition. The old paddock TSF dams are decommissioned and dry, and used for providing paste fill for underground backfill. There is a plant procedure entitled Tailings Management and the Geotechnical Engineers operating guidelines are used to support operating procedures. SAP planned maintenance and operational inspections range in frequency from daily, two weekly, monthly, 5 weekly, six monthly, to yearly. These inspections cover tanks, pipes, pumps, valves, secondary containments, ponds located in the plant and the TSFs. Return water pond and process water levels are measured by level indicators and automatically controlled in the CITECT system. On-going engineering reviews are conducted and frequency changes are included in the SAP system, as required. AGA-CSBP inspects the cyanide storage tank annually. Other tank inspections include infrared testing of the cones and, because of the presence of pitting, the inspections include physical inspections. Internal inspection of leach tanks that require the removal of the cone are done on a rotational basis during shutdowns. A SAP electronic, planned maintenance system is in place. The system's inventory includes all equipment on the process plant and the TSF, which includes all critical cyanide equipment. The SAP system was implemented in 2009. The Pronto system was used from certification up to the implementation of SAP. Inspections are scheduled and

maintenance is done on a planned basis, with histories kept. Breakdown maintenance is also recorded and included in the database.

Procedures were checked and it was confirmed that they included PPE requirements and appropriate pre-work inspections. A fully electronic, web-based, change management system is used on the site's intranet, which covers projects and processes and includes both safety and environmental aspects.

Worker input is gained from participation in HAZOP'S, risk assessments and Change Management exercises. The Process Superintendent and Senior Metallurgist approve all changes and approval includes communication with operators and requires their input.

Standard of Practice 6.2: Operate and monitor cyanide facilities to protect worker health and safety and periodically evaluate the effectiveness of health and safety measures.

X in full compliance with

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

☐ not in compliance with

Basis for this Finding/Deficiencies Identified:

Water quality is suitable to run the plant at a pH of above 10 with the current pH control set point at 10.0. The Plant uses slaked lime fed to ball mill 1, coupled with a pH probe at leach tank 1 to control pH. Low and high level alarms on CITECT SCADA (Proprietary process control software) are set at pH 9.5 and 10.5. All personnel working on the Plant are required to use personal HCN gas monitors. Calibrations include bump tests done fortnightly and the monitoring data is downloaded for analysis. The plant has approximately 81 active monitors which are bump tested 2 weekly. The Monitors have a self-diagnostic function which triggers a notification when there are errors, faults or failures. The docking station will also calibrate the machine appropriately. The monitors are recorded in two registers, one for permanent and one for short term users, all of them who are required to sign units in and out.

Eating and drinking is only allowed in designated areas of the plant. The Plant entrance sign spells out general PPE requirements for the plant. Induction covers eating and drinking not being allowed outside designated areas, the presence of cyanide in the plant and general PPE requirements. Condition of signs is monitored during 5 weekly inspections.

On-going inspections and checks are also used to monitor and check facilities and emergency response equipment functioning and checklists covering three years since certification were sampled. Safety equipment such as safety showers, low pressure eye wash stations, and fire extinguishers are numerous and adequately signposted. MSDS and first aid information is available in English.

Cyanide pipelines are labelled with an appropriate description and directional flow. Formal employee interviews were used to check awareness and sensitivity to health and safety measures and the response from employees and contractors alike, was found to be

appropriate and acceptable. Accident and incident reporting and investigation procedures, based upon the site safety reporting requirements, were found to be in place and effective.

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

X in full compliance with

The operation is ☐ in substantial compliance with **Standard of Practice 6.3**

☐ not in compliance with

Basis for this Finding/Deficiencies Identified:

Oxy Viva Oxygen Resuscitators are available in the observer room and the elution emergency box. The Emergency Response Station, manned by Emergency Services Officers (ESOs), outside at the plant gate, is equipped with oxygen and amyl nitrate antidote kits. ESO station 1, and Leinster Medical Centre have the antidote, HydroxyCobalamin (Vitamin B12), available. The Ambulance is equipped with oxygen. Water is available at the cyanide storage and on the plant. All personnel carry radios and an emergency channel is used on them (links into VHF and UHF). Radio channel 15 used by the cyanide delivery trucks. Man down (distress) alarms are placed on top of the leach, CIP and cyanide unloading. On the Plant, 1st responders do not use cyanide antidote, only oxygen.

First aid equipment is inspected weekly by ESOs using check sheets sourced from an annual inspection schedule. Amyl nitrate is checked weekly, and expiry dates are included in checks. Sighted and sampled inspection report sheets of 2010 and 2012. All Antidote kits are stored in fridges as specified by the manufacturer.

The emergency response consists of two stages: 1. The shift personnel will report emergency, put on PPE, decontaminate person and administer oxygen and 2. The ESO will respond and provide advanced emergency services including final decontamination, evacuation by ambulance, apply oxygen and amyl nitrate and transport the patient to Leinster medical centre where a medical doctor will supply professional medical services and decide on further action e.g. evacuation to other hospitals.

Cyanide equipment is regularly checked and tested and mock drills are held regularly on site. Man down drills are used to assure that the medical facility is competent and equipped to handle emergencies.

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

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



X in full compliance with

The operation is ☐ in substantial compliance with **Standard of Practice 7.1**

☐ not in compliance with

Basis for this Finding/Deficiencies Identified:

The Agnew Gold Mine Emergency Management Guidelines and the Cyanide Release procedure are in place. A risk assessment has been prepared which covers the identified site cyanide failure scenarios and the appropriate actions to be taken for each scenario. In the case of a transportation cyanide incident, the AGR Transport Management Plan's emergency procedures would be applied. The guidelines include clearing site personnel, affected communities, use of cyanide antidotes, first aid measures, control of releases at their source, mitigation and future prevention of releases.

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

X in full compliance with

The operation is ☐ in substantial compliance with **Standard of Practice 7.2**

☐ not in compliance with

Basis for this Finding/Deficiencies Identified:

The site cyanide failure Scenario Risk assessments involved the workforce appropriately. - sighted RWP overflow and abnormal plant operation involving ESO, Metallurgist, and Plant Operator. No communities are involved in the emergency planning process. The nearest community was the nearby Agnew Hotel, some 1.2 kms from the Plant. A meeting was held at which the issues were explained and a poster with cyanide awareness information was handed over. The only involved outside responders are the Leinster Medical Centre and the royal flying doctor services and they were briefed. The Leinster Clinic is involved in mock drills. Communication is on-going through mock drills, e-mails and telephonic contact.

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

X in full compliance with

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

☐ not in compliance with



Basis for this Finding/Deficiencies Identified:

The Emergency Management Guidelines and the emergency management duty cards detail clear duties, roles and responsibilities for the various emergency scenarios. The Cyanide release procedure designates the on shift ESO to take charge of the forward control point until relieved by senior personnel. The Emergency Services Superintendent's job description also details training requirements and there is a training schedule and skills matrix for the ESOs in place.

The Guidelines include contact references (telephone, cell phone, etc) of internal and external resources for the various scenarios, particularly with detail where external resources and skills might be needed. Periodic drills involving internal and external stakeholders ensure that roles and responsibilities are understood and clearly implemented.

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

X in full compliance with

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

☐ not in compliance with

Basis for this Finding/Deficiencies Identified:

Separate procedures include details for appropriate emergency notification and reporting (internal and external and the media) and the call-out procedure and contact information lists which are updated regularly.

Standard of Practice 7.5: Incorporate into response plans and remediation measures monitoring elements that account for the additional hazards of using cyanide treatment chemicals.

X in full compliance with

The operation is ☐ in substantial compliance with **Standard of Practice 7.5**

☐ not in compliance with

Basis for this Finding/Deficiencies Identified:

The cyanide release procedure covers actions for clean-up and remediation relating to releases, pipeline failures and spills, as appropriate to the site-specific identified scenarios.

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



X in full compliance with

The operation is ☐ in substantial compliance with **Standard of Practice 7.6**
☐ not in compliance with

Basis for this Finding/Deficiencies Identified:

The document control system specifies the date of the annual review. Reviews are required following mock drills or any activation of the Emergency Management Guidelines.

8. TRAINING: Train workers and emergency response personnel to manage cyanide in a safe and environmentally protective manner.

Standard of Practice 8.1: Train workers to understand the hazards associated with cyanide use.

X in full compliance with

The operation is ☐ in substantial compliance with **Standard of Practice 8.1**
☐ not in compliance with

Basis for this Finding/Deficiencies Identified:

Every employee on site for more than 5 days receives general induction (including a slide mentioning cyanide and where more cyanide information could be obtained). All employees, visitors and contractors entering the Mill receives AGR-CSBP cyanide induction training by Mill Personnel. The presentation includes cyanide recognition, cyanide symptoms and its effects, in addition to cyanide first aid, spills and decontamination. Cyanide refresher training is conducted annually. All training records are retained for 75 years from the date of birth as per the legal requirement. All current and obsolete records are filed centrally with Company Payroll records in Perth. Cyanide induction and first aid training records are filed on site.

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

X in full compliance with

The operation is ☐ in substantial compliance with **Standard of Practice 8.2**
☐ not in compliance with

Basis for this Finding/Deficiencies Identified:

Each employee is trained in the required modules for the position he is in. Training modules (theoretical) are in place for all tasks within all production areas and are documented in a training matrix covering the different positions. On-the-job training is conducted using task procedures and instructions, under the supervision of an experienced buddy (2 weeks), followed by an observation stage where advanced operational training takes place. Declaring the employee is safe is done through the recognition and development review process. Sign-off is also through a recognition and development review process. For non-routine tasks a JSA (Job Safety Analyses) must be undertaken first. Records for training contains detail of training and modules completed as well as a competency statement. Due to the high turnover of staff the training is a continuous on-going process to cover all modules and gain practical experience.

General induction training is given by EHS staff. Site specific task training is given by Mill personnel. Supervisors (who conduct the on-the-job training of operators) receive frontline management training. Training feedback on external courses is given via trainees to the HR Department. Four supervisors have completed a "train the trainer" diploma. Specialised training e.g. environmental, forklift and First Aid training, is conducted by external qualified trainers.

AGR-CSBP cyanide awareness training is followed by a written test. A Record for training contains details of the training and modules completed as well as a competency statement. Three monthly recognition and development review process monitors competency. Task observations are conducted regularly by supervisors. OHS training records are retained at the OHS department. Record keeping is done centrally at the HR department. Records include the training application and approval form, the training evaluation form completed by a discipline assessment system, and a training feedback form, completed by the employee to evaluate training effectiveness feedback.

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

X in full compliance with

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

☐ not in compliance with

Basis for this Finding/Deficiencies Identified:

The mine's designated emergency response team consists of Emergency Services Officers on 24 hour duty, trained in HAZMET and industrial First Aid. The mill personnel, are trained in cyanide First Aid, and cyanide release and HCN gas poisoning training, as part of induction. Stores personnel, involved in cyanide offloading, receive appropriate training.

All employees and contractors entering the Mill receives AGR-CSBP cyanide induction training given by Mill Personnel. The training includes cyanide recognition, symptoms

and its effects, cyanide first aid, cyanide spills and decontamination. Administering medical oxygen training is included in the training of all Mill personnel. Emergency response team volunteers are trained in HAZMAT and occupational first aid. The skills training matrix for the Emergency Services Officers includes training requirements for cyanide emergency responses. Refresher training is done annually for the emergency response team (HAZMAT). The new team is retrained and annual maintenance of competency is being done. Annual refreshers are done for stage 1 responders. Training requirements forms part of the cyanide response procedure.

The local Leinster clinic is included in the emergency mock drills. The royal flying doctor services have confirmed that they can transport cyanide patients from appropriate sites. The site has contacted the Local Emergency Management Advisory Committee (LEMAC) for support and assistance, when appropriate. Mock Drills are reviewed by the Emergency Services Superintendent for improvements. All cyanide emergency training records are retained at the Emergency Services department. Skills training records are retained at the Human Resources department and Metallurgy Department.

9. DIALOGUE: Engage in public consultation and disclosure.

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

X in full compliance with

The operation is ☐ in substantial compliance with **Standard of Practice 9.1**

☐ not in compliance with

Basis for this Finding/Deficiencies Identified:

Dialogue meetings are two-way dialogue sessions involving both dissemination of information and the answering of questions on cyanide. The Mine is situated 22 km away from the town of Leinster where the closest community is located. Agnew provides opportunities for stakeholders to communicate issues of concern with regard to cyanide. Brochures are placed at the Agnew hotel (the closest facility to the mine), and on Leinster Community notice boards. Brochures are updated periodically and co-ordinated by the Metallurgy and Engineering administrator. The brochure contains site contact details including a telephone number for further information. Family visits and site tours are arranged on request, the most recent being a Senior High School mine visit on 8 November 2011.

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

X in full compliance with



The operation is ☐ in substantial compliance with **Standard of Practice 9.2**

☐ not in compliance with

Basis for this Finding/Deficiencies Identified:

Dialogue meetings are two-way dialogue sessions involving both dissemination of information and the answering of questions on cyanide. The Mine is situated 22 km away from the town of Leinster where the closest community is located. Agnew provides opportunities for stakeholders to communicate issues of concern with regard to cyanide. Brochures are placed at the Agnew hotel (the closest facility to the mine), and on Leinster Community notice boards. Brochures are updated periodically and co-ordinated by the Metallurgy and Engineering administrator. The brochure contains site contact details including a telephone number for further information. Family visits and site tours are arranged on request, the most recent being a Senior High School mine visit on 8 November 2011.

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

X in full compliance with

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

☐ not in compliance with

Basis for this Finding/Deficiencies Identified:

Brochures containing descriptions of the operations and cyanide management are placed at the Agnew hotel, and on Leinster Community notice boards. The brochure contains site contact details, including a telephone number for further information, and are updated periodically by the Agnew Metallurgy and Engineering administrator. Agnew Gold Mine stakeholders are overwhelmingly literate. Some indigenous stakeholders have limited literacy skills and interaction is typically verbal and often not recorded, out of respect for cultural beliefs.

All significant environmental and community incidents are contained within the Gold Fields annual report. The current version contains information on cyanide in the Materials Stewardship section. Future reports will contain updates as to the status of ICMC certification and anything of material significance in this regard. In addition there are statutory reporting requirements with regard to other specific incidents.

All lost time injuries are reported to the resource safety section of the Department of Consumer and Employment Protection (DEC) of the Government of Western Australia in terms of section 76, 78, 79 of the Mines Safety Inspection Act of 94. All serious incidents are reported publicly by the DEC through information briefs and in its quarterly Mine Safe magazine. No cyanide incidents have occurred since the signing on of the site to the ICMI. All releases are required to be reported to the DEC in writing within 24 hours. This

information is made publicly available via the DEC web site upon release of the annual Audit Compliance report, typically in July of each year commencing 2009.

