SUSTAINABILITY
FUTURE GROWTH

INTERNATIONAL CYANIDE MANAGEMENT CODE
GOLD MINING OPERATIONS

GOLD FIELDS LIMITED: GRANNY SMITH GOLD MINE

Granny Smith Gold Mine Recertification Audit
Summary Audit Report

August 2019

SUSTAINABILITY
FUTURE GROWTH

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SUSTAINABILITY
FUTURE GROWTH

SUMMARY AUDIT REPORT

Name of Mine

Granny Smith Gold Mine (GSGM)

Name of Mine Owner

Gold Fields Australia Pty Ltd

Name of Mine Operator

Gold Fields Australia Pty Ltd

Name of Responsible Manager

Neil Lester – Processing Manager

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Location Detail and Description of Operation

Granny Smith Gold mine is located 720 km east – north-east of Perth in Western Australia and 23 km south-west of Laverton, Western Australia, within the Shire of Laverton. Tenure associated with the Project is contained within the Mt Margaret Mineral Field districts of Mt Margaret and Mt Morgan's.

The operation is part of the Gold Fields Australia group of companies, the ultimate parent company of which is Gold Fields Limited.

The development of the Granny Smith Mine (GSM) was commenced by Placer Gold Operations via approval of three Open Pits in the Granny Smith Project Area: the Granny Smith Open Pit, the Goanna Open Pit and the Windich Open Pit.

Mining of the Goanna Open Pit commenced in 1989 and was completed at the end of 1992, whilst mining of the Windich Open Pit ceased in April 1997. Rehabilitation of the major Waste Rock Landforms associated with the Open Pits was undertaken progressively from 1992 to 1997.

In 1989 processing and supporting infrastructure, and the Granny Smith Tailings Storage Facility (TSF) was additionally established within the Granny Smith Project Area.

The Childe Harold Open Pit is located 1.5 km to the west of the Granny Smith Processing Plant. The Childe Harold Open Pit was mined as a satellite deposit in 1992, then was directly backfilled during the mining of the adjacent Phoenix Open Pit in 1993 and is no longer active. Rehabilitation of the Childe Harold Waste Rock Landforms was undertaken in 1994.

The Keringal Project area is located approximately 16 km southeast of the GSM Processing Plant. The Keringal Open Pit was mined as a satellite deposit in the mid-1990s, with initial mining commencing in January 1994. Rehabilitation of the Keringal Waste Rock Landforms was undertaken in 1996 and 1997.

The Jubilee satellite deposit is located approximately 26 km south of the GSM Processing Plant. Pre-stripping and production commenced in 2000, mining ceased at the end of 2001 and the Waste Rock Landforms were rehabilitated in 2001 and 2002.

The Wallaby Project area is located west of Granny Smith Gold mine on the edge of Lake Carey. Open pit production commenced in 2001 and ended in 2006. The underground mining operation commenced in 2004 and is currently the only active mining at Granny Smith Gold mine. The mine was acquired from Placer Gold Operations by Barrick Gold in March 2006 and ownership of the Project transferred to Gold Fields from Barrick Gold in October 2013.

Granny Smith Gold mine has been in continual operation since commissioning in 1989.

The Granny Smith Gold mine Processing Plant was originally designed and commissioned to treat oxide gold ores mined from the Goanna, Granny and Windich pits. The plant has been periodically upgraded, based upon production requirements and ore types. The processing plant currently implements a campaign milling schedule, processing the sulphide ore mined from the Wallaby underground deposit.

The plant consists of a two-stage fresh ore crushing circuit with closed circuit screening, a standard SAG and Ball mill (SABC) grinding circuit, a gravity recovery circuit, a mechanically agitated Leach/Carbon in Pulp (CIP) circuit, a pressure Zadra elution circuit, a tailings gravity recovery circuit with regrind, a doré gold production facility, a carbon reactivation circuit, and a thickened tailings storage facility (TSF).

Australian Gold Reagents (AGR) supplies and delivers liquid sodium cyanide to Granny Smith Gold mine.

Audit Company

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Date(s) of Audit

Inclusive of the period from 15-17th April 2019

Auditor's Finding

This operation is:

☑ in full compliance

☐ in substantial compliance

☐ not in compliance

with the International Cyanide Management Code.

This operation has maintained full compliance with the International Cyanide Management Code throughout the previous three-year audit cycle.

Auditor and Technical Specialist

Tom Gibbons (Auditor)

Audit Team Leader

Chris Coutinho (Lead Auditor)

30th August 2019

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 Mining Operations Verification Protocol and using standard and accepted practices for health, safety and environmental audits.

PRINCIPLE 1 – PRODUCTION

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

Standard of Practice 1.1

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

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

Basis for this Finding/Deficiencies Identified:

GSGM is in full compliance with Standard of Practice 1.1.

The Operation has purchased cyanide solely from Australian Gold Reagents Ltd (AGR) during the certification period. The current supply contract with AGR requires that the Production Facility be certified as compliant with the Code.

The cyanide supplied by AGR was solely in the form of 30%w/v liquid sodium cyanide within isotainers and has been produced at AGR's Production Facility in Kwinana, Western Australia.

Australian Gold Reagents Pty Ltd.'s sodium cyanide production plant in Kwinana, Australia was recertified in full compliance with the International Cyanide Management Code (Code) on 23 July 2014, and again on 03 August 2017

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.

The operation is
- ☑ in full compliance with
- ☐ in substantial compliance with Standard of Practice 2.1
- ☐ not in compliance with

Basis for this Finding/Deficiencies Identified:

Granny Smith is in Full Compliance with Standard of Practice 2.1.

Agreement between the operation and the cyanide producer (and transporter) designating transportation-related responsibilities has been established through the recertification of AGR's West Australian Supply Chain and its Production Facility.

AGR's West Australian Supply Chain was recertified with the Code on 26 September 2016 as fully compliant. Previously to this most recent recertification, the supply chain was recertified on 13 June 2013, meaning that the supply chain was certified as fully compliant with the Code during the entire audit period.

Despite the contract not specifying all aspects of this question, they are addressed through AGR's supply chain being fully certified and as such Granny Smith Gold Mine (GSGM) is compliant with this Standard of Practice.

Standard of Practice 2.2

Require that cyanide transporters implement appropriate emergency response plans and capabilities and employ adequate measures for cyanide management.

The operation is
- ☑ in full compliance with
- ☐ in substantial compliance with Standard of Practice 2.2
- ☐ not in compliance with

Basis for this Finding/Deficiencies Identified:

Granny Smith is in Full Compliance with Standard of Practice 2.2.

The operation's contracts with the cyanide transporter(s) require that the transporter(s) be certified under the Code.

Gold Fields has an existing cyanide supply contract with Australian Gold Reagents Pty Ltd (AGR), which includes supply of cyanide to GSGM. The existing Liquid Sodium Cyanide Agreement has a Commencement Date of 01 April 2017, and a Completion Date of 31 March 2022.

Clause 17 of the contract refers specifically to Code compliance requirements and requires AGR to comply with the current version of the ICMI Code for production and transport of cyanide. It also requires AGR to provide a copy of their audit reports to GSGM Smith as well as advice of any change in certification status.

AGR's West Australian Supply Chain was recertified with the Code on 26th September 2016 as fully compliant. Previously to this most recent recertification, the supply chain was recertified as fully compliant on 13 June 2013, meaning that the supply chain was certified as fully compliant with the Code during the entire audit period.

The operation has chain of custody records identifying all elements of the supply chain (producer, transporter(s), interim storage facilities) that handle the cyanide brought to its site.

Within AGR's West Australian Supply Chain, cyanide is transported by rail from the CSBP's (AGR) loading station to the West Kalgoorlie Container Terminal by Aurizon. During the audit period, both Toll Mining Services and Qube Bulk were utilised to transport the isotainers from the container terminal to GSGM. The transition from one Transporter to another was done in consultation with the ICMI and noted in an addendum audit report posted on the ICMI website.

PRINCIPLE 3 – HANDLING AND STORAGE

Protect workers and the environment during cyanide handling and storage.

Standard of Practice 3.1

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

	☑ in full compliance with	
The operation is	☐ in substantial compliance with	Standard of Practice 3.1
	☐ not in compliance with	

Basis for this Finding/Deficiencies Identified:

Granny Smith is in Full Compliance with Standard of Practice 3.1.

The GSGM facility for unloading and storing cyanide has been designed and constructed in accordance with cyanide producers' guidelines, applicable jurisdictional rules and sound and accepted engineering practices. Engineering specifications and construction records for GSGM liquid unloading and storage facility were assessed and referenced during the previous Recertification Audit Report and certification audit report. There have been no fundamental changes to the infrastructure since then.

Unloading and storage areas for liquid cyanide are located away from people and surface waters. The nearest surface water is Windich Pit, and Goanna Pit, both former open pits. Windich now forms part of Granny Smith's raw water system and is approximately 2km from the reagent cyanide area to the south-east. The water in the goanna pit is hypersaline and the pit is approximately 1 km from the reagent cyanide area to the south-east. The nearest surface water body outside Granny Smith's control is Lake Carey located 13 km to the south-west. AGR has assessed that the distance between the reagent cyanide installation and office buildings, warehouses, processing area, workshops and amenities areas is greater than 15 m as required by Dangerous Goods regulations.

The unloading facility at Granny Smith is consists of a bunded impermeable concrete slab to prevent seepage of spilt liquid cyanide to the subsurface. The slab is slightly graded to drain into a sump that can be pumped into the process. The cyanide unloading area at Granny Smith is designed and constructed to contain, recover or allow remediation of any leakage from the tanker truck. The facility consists of an isotainer unloading bay sufficient for one isotainer at a time. During unloading, the isotainer is located on the graded slab of concrete that will catch any drips or spills of reagent cyanide that may be released during the operation, which will flow into the sump that can be pumped into the process. This prevents reagent cyanide form seeping into the subsurface.

Several methods exist to prevent overfilling of the cyanide storage tank at Granny Smith. Prior to unloading, the tank level is checked to ensure it has the required capacity to receive the cyanide delivery. Multiple level alarms have been established. The high-level alarm is triggered at 91% and initiates stopping the unloading process. In the event that the observer is not capable of manual shutoff, a further visual and audible alarm is triggered at a high-high level of 96% and a solenoid-activated valve isolates and vents the air line. Tank level sensors were found to be subject to 6 monthly inspections, scheduled within the SAP planned preventative maintenance system.

Cyanide tanks are located on a bunded concrete surface which acts as a competent barrier to leakage. The surface and the concrete bunds were found to provide a competent barrier to leakage.

Cyanide is stored:

- With adequate ventilation to prevent the build-up of HCN gas. AGR has assessed the unloading facility as configured in compliance with Dangerous Goods regulations to ensure that it is protective of personnel;
- Only as a liquid so there is no need for measures to minimise the potential for contact of solid cyanide with water
- In a secure area where public access is prohibited via a gated fence around the cyanide storage area
- Separately from incompatible materials. There is a facility for unloading and storage of hydrochloric acid adjacent to the cyanide reagent unloading and storage facility. This facility is separated from the cyanide reagent area by a bund wall.

Evidence indicates that AGR undertakes annual inspections of the facilities. All recommendations from the inspections were found to be entered into INX where they are tracked until completed. Evidence indicates that all findings have been addressed in a timely and effective manner. The key recent finding was the requirement to install a bleed valve in the filling line. Evidence of the installation of the bleed valve was sighted including physical observation and the close out of the INX action.

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.

The operation is	☑ in full compliance with ☐ in substantial compliance with ☐ not in compliance with	Standard of Practice 3.2

Basis for this Finding/Deficiencies Identified:

Granny Smith is in Full Compliance with Standard of Practice 3.2.

Only liquid reagent cyanide is used at Granny Smith, which is unloaded from truck-mounted isotainers into a Cyanide Storage Tank. The isotainers remain on the truck throughout delivery and remain under the control of the supplier at all times.

Standard operating procedures have been developed by both the supplier AGR and GSGM and are implemented to manage cyanide unloading and storage activities effectively and safely. Clear attention has been paid to the role of the Granny Smith representative whose role in unloading is complementary to the AGR truck driver. The Granny Smith representative observes the delivery Driver from a safe location throughout the unloading operation and ensures that appropriate personal protective equipment is used by the driver.

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 utilizing contingency planning and inspection and preventive maintenance procedures.

	☑ 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:

GSGM is in FULL COMPLIANCE with Standard of Practice 4.1

Written procedures, plans and manuals have been developed and implemented for the following areas and activities of operation that involve cyanide solutions greater than 0.5 mg/L WAD (Weak Acid Dissociable) cyanide.

- Bulk liquid sodium cyanide unloading and storage facilities
- Grinding and milling
- Leaching and carbon in pulp adsorption (CIP)
- In-Line Leach reactor
- WAD Cyanide Control for TSF Open Waters
- Tailings and reclaimed water management
- Elution
- Gold room

Important design assumptions and regulatory parameters are documented and explained in manuals, plans and key procedures.

GSGM utilises a Cyanide Management Plan (CMP) as a central source of information and implementation of all cyanide-related aspects of site cyanide management. The plan references a comprehensive range of operating plans, standard operating practices, work instructions, maintenance procedures, and inspection log sheets.

Key individual plans and procedures include:

- Cyanide Management Plan
- Decommissioning Plan
- Tailings Management Plan

- Cyanide Emergency Response Plan
- Management of Change Procedure
- TSF Operating Manual
- Wildlife Monitoring Procedure
- Carcass Detection Procedure
- Control of Cyanide at Tailings Facility Procedure
- Working in HCN Areas Procedure
- Minor Cyanide Spill Clean-up Procedure
- Equipment Cyanide Decontamination Procedure
- Leach HCN Gas Monitoring Procedure
- Liquid Cyanide Uploading Procedure
- Cyanide - Cleaning tools and PPE Procedure
- Leaching Training Manual

GSGM does not employ any cyanide treatment, regeneration and disposal systems.

The Cyanide Emergency Response Plan (GRA-ESS-PL001) is the primary document that manages contingencies with respect to an upset to the water balance, it includes scenarios. Tailings Management Plan (GRA-PRO-PL005) also has monitoring inspections in line with the water balance model and procedures to address upset to water balance.

GSGM maintains a range of plans, procedures and work instructions that define the operational parameters and assumptions from plant design and regulatory requirements. These include Processing Plant design technical parameters, measures to manage freeboard on the TSF and other surface water storage facilities, limit the WAD CN concentration in open waters, maintenance of TSF salinity, and management of seepage to groundwater.

Work instructions are in place for the addition of saline water when the cyanide concentration at the tailings thickener reaches 47 mg/L WAD. The addition of the hyper-saline water dilutes cyanide concentration and increases salinity in line with GSGM's operational strategy.

Control of freeboard availability for the TSF is managed through the TSF Operating Manual with daily inspections and regular surveys against the minimum regulated freeboard requirements and the monitoring of TSF surface pond size.

The Tailings Management Plan specifies a freeboard of 300 mm, 500 mm total freeboard when the facility contains runoff from the 72-hour, 100 year recurrence interval rainfall event superimposed on the operating pond volume and not to exceed more than 15% of cell size.

The Cyanide Management Plan describes climate conditions including rainfall and evaporation, the GSGM model was updated in 2016, new water use data and changes to TSF cell 2. The model uses SILO rainfall data from between 1889 and 2015 to ensure that the TSF will not overtop during a 1 in 100 year 72-hour event. Other parameters such as water holding capacities and tailing physical chemistry are described.

The operation maintains procedures for managing the process to ensure that salinity is maintained above 50,000 ppm Total Dissolved Solids (TDS) when cyanide concentration in the tailings discharge is in excess of 50 mg/L WAD CN, in accordance with the assumptions from the causational report.

Quarterly external monitoring plus daily monitoring is undertaken by the environment department.

The operation regularly reviews and adjusts process set-points to ensure effective cyanide management and production targets are achieved.

GSGM has plans or procedures that describe the standard practices necessary for the safe and environmentally sound operation of the facility including the specific measures needed for compliance with the Code, such as inspections and preventative maintenance activities.

Safe and environmentally responsible procedures are written into each work instruction.

Training manuals contain direction on specific task requirements and actions, including operational inspections in the reagent storage, leaching and tailings areas.

SAP, INX, AMT and Success factors software is used to administer routine (daily, weekly and monthly) inspections of operational areas and routine preventive maintenance activities.

Preventative maintenance planning schedule and implementation was demonstrated via SAP and AMT to the audit team. Planned General Inspections (PGI) records for the audit period were sighted during the audit. The PGI schedule is notified to specific staff via email, generated from spreadsheet.

The Preventative Maintenance system was reviewed with maintenance personnel, including interrogation of the system for randomly chosen cyanide equipment. The review confirmed that preventative maintenance tasks are occurring as stated in the preventative maintenance schedules.

Maintenance procedures and work instructions are tagged ICMC for easy retrieval from planned maintenance schedule and include, but are not limited to Process Area Pump Inspections, Pump inspections, Refining Area Pump Inspections, Reagent Area Inspections, and external and internal Process Tank inspections.

GSGM carry out monthly Operational PGIs at 20 designated areas, with the more significant to the Code being Leach-CIP, Gravity-Tails Retreat, Thickener and Water Systems, Reagents, Storm Water Diversion, and TSF (Tailings Storage Facility). Inspections records for the audit period were provided to the audit team.

An annual audit of the Sodium Cyanide Storage Facility is carried out by GSGM's cyanide supplier, AGR.

GSGM has a Management of Change (MOC) Procedure that describes the procedures the process for assessment and approvals operational changes and modifications and to identify the potential impacts on the environment, worker health and safety, and incorporate the necessary control measures.

The MOC Procedure is used to assess implications for change in infrastructure, management, personnel and processes. It is risk based and documented through INX.

GSGM personnel provided an INX Event list of changes evaluated via the MOC process. During the audit period, a total of 59 events were processed, with four events having cyanide-related content or consideration.

A completed and signed MOC form for one such event was provided to the audit team. The form was signed off as assessed for potential safety, health, environment and/or operability problems by a range of Technical and Supervisory Staff with appropriate knowledge and authority.

The operation has developed formal cyanide management documents that address contingency procedures for situations when inspections and monitoring identify a deviation from design or standard operating procedures.

Examples of documents that contain measures and procedures in the event that cyanide facilities are operating outside normal parameters are the Cyanide Management Plan, HCN Gas Leach Monitoring Procedure, TSF Operating Manual, Control of cyanide at Tailings Facility Procedure, and Liquid Cyanide Uploading Procedure.

Situations that the plans and procedures address include elevated HCN gas concentrations, tank overflows, low pH in Leach or CIP Tanks, detection of wildlife mortality, elevated WAD cyanide concentrations in tailings slurry, and pipeline leak detection.

In addition to operational contingency plans, GSGM has developed and implemented a Cyanide Emergency Response Plan to address potential accidental releases of cyanide. The Cyanide Emergency Response Plan considers a number of cyanide failure scenarios appropriate for its site-specific environmental and operating circumstances.

GSGM continues to carry out regular inspections of cyanide facilities on an established frequency sufficient to assure and document that they are functioning within design parameters.

Area checks of cyanide process areas are completed daily by Process Technicians and monthly through planned Plant General Inspections (PGIs) completed by Supervisors.

The inspections are recorded and signed off by Supervisors or
Managers and Work Orders are raised for corrective actions. PGI's are carried out by supervisors on an annual schedule (PGI Master Register) for 20 defined work areas. Each PGI has a specific Inspection work instruction including a check sheet.

Inspections conducted by maintenance personnel provide emphasis on the physical integrity of equipment.

A range of completed inspection forms and summary reports was sighted during the audit.

GSM continues to inspect the following at unloading, storage and process areas:

- Tanks holding cyanide solutions for structural integrity and signs of corrosion and leakage through a combination of daily and monthly inspections and a preventative maintenance schedule that conforms to a risk based inspection programme.

- Secondary containments for their integrity, the presence of fluids and their available capacity, and to ensure that any drains are closed and, if necessary, locked, to prevent accidental releases to the environment
- Leak detection beneath the Process Water Pond on a monthly basis
- Pipelines, pumps and valves for deterioration and leakage
- Ponds and impoundments for the parameters identified in their design documents as critical to their containment of cyanide and solutions and maintenance of the water balance

Inspection intervals are evaluated and set according to risk based assessment, and range from 2 hourly, 12 hourly and daily for critical high risk parameters to weekly, monthly, six monthly and annual for more detailed assessments/audits. Some inspections, such as detailed tank internal inspections, are carried out at longer intervals, such as 2 yearly.

Inspections are documented, including the date of the inspection, the name of the inspector and observed deficiencies. The nature and date of corrective actions are documented. Inspection records are retained.

Records provided of PGIs demonstrated that those inspections are documented including the date of inspection, the name of the inspector and the observed issues.

Preventative maintenance records also note date of the inspection, the name of the inspector, and any observed deficiencies. The use of work orders for observed deficiencies allows the nature and date of corrective actions documented to be documented.

Preventive maintenance programmes are implemented and activities documented to ensure that equipment and devices function as necessary for safe cyanide management.

The operation does not require emergency power resources to operate pumps and other equipment to prevent unintentional releases and exposures in the event its primary source of power is interrupted.
However, power generation redundancy exists, and is of sufficient capacity to allow significant equipment operation in the event of emergencies.

Standard of Practice 4.2

Introduce management and operating systems to minimize 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	

Basis for this Finding/Deficiencies Identified:

Granny Smith is in Full Compliance with Standard of Practice 4.2.

GSGM continues to conduct a program to determine the optimal cyanide addition rates in the mill and evaluate and adjust addition rates as necessary when ore types or processing practices change cyanide requirements.

Cyanide addition rates are adjusted as necessary when ore metallurgy changes or processing practices change cyanide requirements.

Daily mill assays and bottle roll test-work provide data on cyanide leach efficiency.

Future ore sources are subject to both site and external metallurgical laboratory test-work to optimise cyanide addition rates.

Process Control exists with the Plant SCADA system to monitor free cyanide concentrations, and a specific third-party process control module is used to optimise addition rates.

GSGM has evaluated various control strategies for cyanide additions.

GSGM control cyanide addition using a series of online analysers, supported by 4 hourly free cyanide manual titrations by Process Technicians to identify optimised cyanide addition rates. These analysers provide real time information to the two-stage cyanide dosing system.

Currently active MOC documents demonstrate that GSGM is evaluated alternate cyanide addition strategies.

GSGM has evaluated various control strategies for cyanide additions. The employment of a cyanide addition control strategy has been successful in continuing to reduce cyanide addition rates since the previous recertification audit.

Standard of Practice 4.3

Implement a comprehensive water management program 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	

Basis for this Finding/Deficiencies Identified:

Granny Smith is in Full Compliance with Standard of Practice 4.3.

GSGM has developed a comprehensive, probabilistic water balance.

GSGM continues to utilise a GoldSim probabilistic water balance model. The GoldSim model provides a probabilistic model for the following water features and parameters at GSGM:

- TSF storage capacity;
- Tailings density;
- TSF seepage losses;
- Seepage sumps and event pond capacity;
- Water storage capacity in disused mine pits used for dilution of tailings and increasing salinity during periods of high WAD CN; and
- Containment capacity within the process plant secondary containment structures.

The GSGM GoldSim probabilistic water balance model considers:

a) the rate of tailings deposition, including forecast rates and the density of the tailings;
b) The design storm event for a 1:100 year 24 hr event;
c) The climate data is derived from enhanced climate database hosted by Science Delivery Division of Department of Science, Technology, Innovation, and Arts (Qld Gov, 2013) which contains Australia climate data from 1889 to date and includes daily rainfall records;
d) TSF catchments and the Process Plant event pond catchment is calculated for the GoldSim model in addition to the catchments for surface water collection through disused open pits;
e) The effects of freezing and thawing are not applicable to GSGM due to its location/climate;
f) The model considers solution losses from seepage and evaporation;
g) Power outages are not considered (see 4.1.10); and
h) Discharge to surface water is not applicable as this does not occur at GSGM.

A range of other factors are considered in the GoldSim modelling, including the tailings characteristics, and additional water input volumes to the TSF during periods of high WAD CN in tailings necessitating hypersaline dilution of the final tailings stream.

GSGM operating procedures incorporate inspection and monitoring activities to implement the water balance and prevent overtopping of ponds and impoundments and unplanned discharge of cyanide solutions to the environment.

GSGM used a Water Management Plan, which is updated quarterly with information from the Probabilistic Water Balance outputs. The Plan considers Water resources in nearby pits (Windich, Jubilee, Phoenix, Goanna), and Mt Weld Borefield. It also considers TSF capacity, inflows and outflows, Process Water Make-up, 2 year supply vs demand, Life-of-Mine supply vs demand, Usage risks and plans, and Disposal & Recycle risks and plans.

Ponds and impoundments are designed and operated with adequate freeboard above the maximum design storage capacity determined to be necessary from water balance calculations.

The Tailings Management Plan accounts for the freeboard of the TSFs, and associated return water and sediment ponds. Daily inspections, quarter surveys and external annual surveys are conducted of the TSFs.

Quarterly surveys and annual TSF inspections, each undertaken by external providers, have indicated that the freeboard limits stipulated above have largely been maintained for during the audit period.

Standard of Practice 4.4

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

The operation is	☑ in full compliance with	Standard of Practice 4.4
	☐ in substantial compliance with	
	☐ not in compliance with	

Basis for this Finding/Deficiencies Identified:

GSGM is in FULL COMPLIANCE with Standard of Practice 4.4.
A peer reviewed protective mechanism via the injection of hypersaline water into the tailings stream has been established at Granny Smith and was in affect during the recertification period.

During the audit period, the WAD cyanide concentration in all open waters, including the tailings slurry spigot discharge into the TSF cells and the supernatant pond for each cell, was maintained below 50 mg/l.

Whilst below a cyanide concentration of 50 mg/l WAD CN, seepage open waters at the TSFs, including sumps and toe drains, have been covered with mill scats to restrict access by wildlife and livestock.

Whilst GSGM has managed WAD CN concentrations in open waters such that no exceedances of the 50 mg/l limit occurred during the audit period, GSGM have elected to maintain operating parameters consistent with those required to demonstrate maintenance of the hypersaline protective mechanism.

Maintaining a WAD cyanide of 50 mg/L or less in open water is effective in preventing significant wildlife mortality.
There were no confirmed instances of wildlife mortality as a result of cyanide ingestion during the audit period.

GSGM continues to employ an intensive monitoring programme for wildlife mortality.

No heap or dump leach facilities exist at GSGM.

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	

Basis for this Finding/Deficiencies Identified:

Granny Smith is in Full Compliance with Standard of Practice 4.5.

GSGM has no direct or indirect discharges to surface water from any defined cyanide facility.

Standard of Practice 4.6

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

	☑ 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:

Granny Smith is in Full Compliance with Standard of Practice 4.6.

Due to GSGM's remote location and arid climate, there are no identified beneficial uses of groundwater beneath or immediately down gradient of the operation.

GSGM implements seepage management strategies, as documented within the Cyanide Management Plan and TSF Groundwater Seepage Management Plan.

The TSF was constructed with no underdrainage or internal toe drains. A perimeter drain has been constructed around most of the TSF to collect seepage water issuing from the foundation sediments on which the TSF are constructed. The drain commences near the run-of-mine access ramp and continues right around the south-eastern side of Cells 2 and 1, until it reaches a the Runoff Collection Sump located at the intersection of Cells 1 and 3. Cell 3 has had seepage mitigation features included in its design.

A downstream seepage interception system has been constructed around the toe of the TSF to intercept near surface seepage from the facility, which is then directed to reclaim sumps.

GSGM's environmental licence includes a limit of 0.5 mg/L WAD cyanide concentration at 4 groundwater monitoring bores of surrounding the TSF.

GSGM utilises a total of 61 monitoring bores around and down gradient of the TSF and Processing Plant. The bores are sampled and assayed on a quarterly basis to monitor water quality, including WAD CN concentrations.

Groundwater monitoring results from all bores have been below a maximum value of 0.039 mg/L WAD cyanide for the audit period.

GSGM will utilise mill tailings from TSF 2 for back fill operations at the Wallaby Underground Mine. Laboratory testwork and associated risk assessment demonstrate that the back fill material will contain a cyanide concentration less than 0.5 mg/L WAD CN and therefore not considered a risk to workers or the environment, and the Backfill Plant is not considered a cyanide facility within the Code. Nevertheless, all infrastructure including containment ponds has been designed and built in a manner consistent with Code requirements. At the time of audit, the Backfill Plant construction was complete but the plant was not yet active.

Standard of Practice 4.7

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

The operation is ☑ in full compliance with ☐ in substantial compliance with ☐ not in compliance with Standard of Practice 4.7

Basis for this Finding/Deficiencies Identified:

GSGM is in FULL COMPLIANCE with Standard of Practice 4.7.

GSGM undertakes measures that effectively ensure adequate spill prevention and containment for unloading, storage and process solution tanks and process solution pipelines. These include concrete secondary containment with volumes sized to hold a volume greater than that of the largest tank within the containment and any piping draining back to the tank and with additional capacity for the design storm event. Other measures include inspections and preventative maintenance works for secondary containments, detailed written spill response procedures, use of sealed surfaces to contain pipeline spillage within the Process Plant, and an emergency event pond.

The CIP and leach tanks have been installed so that 0.5 to 1.0 m of side wall are below the ground surface. GSGM have implement the provision of the Code to manage the risk of loss of containment by a combination of Risk based Inspection (RBI) in accordance with a recognised standard together with a programme of groundwater monitoring targeted to detect any contamination that may result from such loss.

The event pond is lined and conveyance to it is via predominantly Vinidex co-extruded white polypropylene pipe.

GSGM carry out a series of internal and external RBI tank inspections at nominated intervals.

Preventative maintenance inspections and programs are carried out for existing bunds and all cyanide critical equipment. All reagent bunds are inspected monthly as part of workplace inspections, and the cyanide storage area is subject to an external annual audit by cyanide supplier (AGR).

Secondary containments for cyanide unloading, storage and process tanks are sized to hold a volume greater than that of the largest tank within the containment and any piping draining back to the tank, and with additional capacity for the design storm event.

Field inspections carried out during the audit confirmed that secondary containments for the cyanide storage tank, Leach tanks, CIP tanks and Event Pond were in good condition, and free from slurry, sediment or solutions.

No changes have occurred in the audit period to influence the existing volume calculations.

GSGM has undertaken groundwater monitoring of four monitoring bores installed up and down gradient from the mill to identify any seepage from cyanide bearing tanks and facilities (e.g. Process Water Pond). The monitoring has not shown any indication of seepage associated with loss of containment.

Procedures are in place and being implemented to prevent discharge to the environment of any cyanide solution or cyanide-contaminated water that is collected in the secondary containment area.

Procedures have been developed and implemented that cover the management of minor spills and spills outside of the bund. Spills outside the bund are considered significant and are subject to reporting to the regulator by the most senior person on site.

The process area at GSGM provides for containment of all cyanide pipelines associated with the ring main from the cyanide storage tank through concrete hardstand below pipelines and pipe trays to direct spillage to sealed ground. Similarly, process slurry and solution pipelines within the Leach and CIP area have hardstand below pipelines and pipe trays to direct spillage to sealed ground. The tailings pipeline and return water pipelines are placed within an earthen trench designed to contain any spills or leaks within the trench and allow removal of residual spilled material and any contaminated earth. The tailings pipeline and the tailings return water line include leak detection systems, based on differential flow and instruments that identify sudden loss in pressure, that alarm to the process control room.

GSGM has no direct or indirect discharges to surface water from any defined cyanide facility.

All surface water is a sufficient distance from cyanide pipelines to not warrant special protection needs. Cyanide tanks and pipelines are constructed of materials compatible with cyanide and high pH conditions.

During the audit period, the highest assay result for any Process Plant monitoring bore was 0.036 mg/L WAD CN.

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.

The operation is ☑ in full compliance with ☐ in substantial compliance with ☐ not in compliance with Standard of Practice 4.8

Basis for this Finding/Deficiencies Identified:

GSGM is in FULL COMPLIANCE with Standard of Practice 4.8.

With the exception of the TSF Cell 3 Wall Raise, there has been no new cyanide facilities constructed since the last Recertification Audit.

The newly constructed Paste Fill Plant has not been classified as a cyanide facility, as cyanide sampling, testwork and analysis indicates that process solutions in the plant will not exceed 0.5 mg/L WAD CN. Nevertheless, GSGM has elected to design and construct all infrastructure including containment ponds in a manner consistent with Code requirements.

The QA/QC programmes for the works conducted in the audit period have addressed the suitability of materials and adequacy of foundation materials.

The newly constructed Paste Fill Plant was inspected with the Mechanical Engineer who supervised construction and commissioning. Files containing QA/QC records for the construction of the plant were provided for review, and are detailed in the report Wallaby Paste Fill Project International Cyanide Management Code Compliance.

The Cell 3 Wall Raise was carried out under the supervision of third party engineer Knight Piesold. Construction drawings, data and details are contained with the report Granny Smith Gold Mine Tailings Storage Facility 2018 Technical Audit.

QA/QC records have been retained, and appropriately qualified personnel have reviewed cyanide facility construction and provided documentation that the facility has been built as proposed and approved records have been retained for cyanide facilities.

Standard of Practice 4.9

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

☑ 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:

GSGM is in FULL COMPLIANCE with Standard of Practice 4.9. GSGM has implemented a monitoring program whereby inspections are occurring at a suitable frequency to identify and evaluate the effects of cyanide use on wildlife, surface and ground water quality so as to allow timely action.

GSGM implements and reviews a range of written standard monitoring procedures as summarised in the Cyanide Management Plan. These include surface water (including process water ponds, TSF toe drains, Windich and Goanna pits and supernatant) and groundwater (via the use of downhill bores) monitoring, process pond and TSF monitoring, processing plant unit process area monitoring and a range of wildlife monitoring procedures and activities.

The monitoring and sampling procedures include details for sampling, handling and chain of custody for water and process solutions, including groundwater and tailings slurry.

Sampling and analytical protocols have been developed by appropriately qualified personnel in the Processing and Environment Departments.

GSGM monitoring procedures outline sampling techniques, preservation techniques and shipping and chain of custody requirements.

Where relevant, GSGM field monitoring sheets record sampling conditions in writing. Instructions for the collection of this data are present in the monitoring procedures and manuals.

A cross-section of completed field monitoring sheets over the audit period was sighted, and found to be consistent with procedures.

PRINCIPLE 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 the cyanide facilities to protect human health, wildlife and livestock.

	☑ 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:

GSGM is in FULL COMPLIANCE with Standard of Practice 5.1.

GSGM has a Mine Closure Plan and a cyanide–specific Cyanide Process Plant and Associated Infrastructure Decontamination and Decommissioning Plan.

Both the Mine Closure Plan and the Cyanide Process Plant and Associated Infrastructure Decontamination and Decommissioning Plan contain implementation schedules for decommissioning activities.

The Mine Closure Plan states that a review shall occur every 3 years in accordance with the Department of Mines, Industry Regulation and Safety (DMIRS) guidelines.

Both the Mine Closure Plan and the Cyanide Process Plant and Associated Infrastructure Decontamination and Decommissioning Plan were reviewed and revised in February 2019 in line with this requirement.

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	

Basis for this Finding/Deficiencies Identified:

GSGM is in FULL COMPLIANCE with Standard of Practice 5.2.

GSGM 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.

The most recent third party closure cost estimate was developed in October 2018. GSGM provided written records of management sign-off on this cost estimate.

GSGM continues to review and update the cost estimate at least every five years and when revisions to the plan are made that effect cyanide-related decommissioning activities.

The most recent cost estimate (Oct 2018) reflects recent changes to site infrastructure and updated cost information.

GSGM has established a financial mechanism approved by the applicable jurisdiction to cover the estimated costs for cyanide-related decommissioning activities as identified in its decommissioning and closure strategy.

A financial mechanism continues to be established for GSGM under the Government of Western Australia Mining Rehabilitation Fund Act 2012, commonly referred to as the MRF.

GSGM participates fully in the Government of Western Australia's Mine Rehabilitation Fund by paying annual levies that take into account the degree of disturbance on the GSGM leases.

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 measures as necessary to eliminate, reduce and control them.

The operation is	☑ in full compliance with ☐ in substantial compliance with ☐ not in compliance with	Standard of Practice 6.1

Basis for this Finding/Deficiencies Identified:

Granny Smith is in Full Compliance with Standard of Practice 6.1.

The operation has developed procedures describing how cyanide-related tasks such as unloading and plant operations, entry into confined spaces, and equipment decontamination prior to maintenance, to minimise worker exposure.

These procedures identify the hazards associated with the task and utilise the hierarchy of controls to ensure personal safety. The site also utilises Job Hazard Analysis (JHA) or a Field Level Risk Assessments (FLRAs) to identify risks associated with a task to reduce worker risk.

The procedures and work instruction, where necessary, define the requirements with respect to the use of personal protective equipment (PPE) and addresses pre-work inspections.

Inductions including a site-specific processing induction is provided which includes a discussion on specific PPE required on site.

The hazards associated with the task and the PPE required form an integral part of the procedures and work instructions and where necessary, individual procedures define additional PPE specific to the activity or task.

The operation has a Management of Change Procedure that describes the procedures the process for assessment and approvals operational changes and modifications and to identify the potential impacts on the environment and worker health and safety and incorporate the necessary control measures. Completed management of change assessments were reviewed and had been assessed by managers, supervisors, environment specialists and safety and health personnel. The level of approval was commensurate with the level of risk.

The operation solicits worker input into the development and evaluation of health and safety procedures through several means:

- PSI (Pre-Shift Information) Meetings
- Health and Safety Meetings
- Crew meetings
- Review process integrated into procedures
- Vital Behaviours program

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.

The operation is ☑ in full compliance with ☐ in substantial compliance with ☐ not in compliance with Standard of Practice 6.2

Basis for this Finding/Deficiencies Identified:

Granny Smith is in FULL COMPLIANCE with Standard of Practice 6.2.

The site currently aims to maintain pH in the range of 9.7-10.0; this value is reviewed weekly by the Metallurgist who then updates the levels on the Reagent Whiteboard in the CIP Hut. Mill Operators manually test and adjust the process input to maintain the pH within the set range.

Fixed alarms are in place at designated locations within the processing plant. The locations chosen have been based on risk assessment and include Final Tails Hopper, CN circulation pumps, CN transfer pump, CN storage tank, Strip Solution tank area, Elution Column, cyanide addition point, LTK6, Carbon safety screen and the Trash Screens. All workers are also required to wear personal HCN monitors in the locations outlined below:

- All areas of Leaching and CIP tanks;
- All areas of Tails Retreatment;
- All Areas of the Thickener;
- In Inline leach Reactor (ILR) area;
- Cyanide Reagent Area; and
- Elution and Gold-room Areas.

Signage indicated the need to utilise the personal monitors in these areas.

The procedure, Working in Areas Where HCN Gas may be Present (GRA-PRO-PRD009), outlines the actions required for cyanide levels at 4.7 ppm and 10 ppm. Specific requirements for entry into the cyanide storage area compound are described in this document, which includes additional PPE to be worn during cyanide unloading.

Calibration is completed as required by the manufacturer. The operation has an onsite calibration station that records the units and calibration results in a database.

Warning signs have been placed at specific areas around the Mill advising workers that cyanide is present, and that smoking, open flames and eating and drinking are not allowed.

Signage is posted when cyanide deliveries are in progress to keep non-essential persons away.

Showers, low-pressure eyewash stations and dry powder or non-acidic sodium bicarbonate fire extinguishers located at strategic locations throughout the operation and are maintained, inspected and tested on a regular basis.

The operation conducts regular inspections (planned general inspections (PGIs)). These inspections are done monthly and cover all safety equipment. A review of these records showed that each inspection was undertaken as programmed.

Eyewash stations and emergency showers checked during the site tour were all in working order.

Fire extinguishers are also covered through three monthly checks by the supplier. All extinguishers are dry powder and were inspected in on a regular basis and confirmed via the site inspection.

The unloading, storage and process tanks are identified at Granny Smith with appropriate signage. In addition, the content and direction of cyanide flow in pipes is identified via labels with arrows indicating the flow direction.

SDS' and first aid instructions were posted at the cyanide unloading area and in the CIP Control Hut. All workers also have access to SDSs and first aid instructions in the Processing Crib Room through computer access to the intranet and the CHEMWATCH system. SDS' are also available in the Health and Hygiene Centre, the Emergency Response area and the storage warehouse.

There is a system used for reporting and investigating incidents and an Incident Investigation Procedure. Once an incident has been observed, the incident report form is completed by the individual and their supervisor. This is then sent to the Occupational Health and Safety Department for review. There is a scaled investigation system where all high potential incidents are investigated using the ICAM investigation format and others investigated utilising the 5 Whys system.

The operation uses INX InControl database to develop, document and track corrective actions. This database was reviewed for all cyanide related incidents through the audit period. No major incidents involving cyanide occurred during the audit period. During the audit period, there were no environment related cyanide events, no events that resulted in injury or illness as a result of cyanide and 2 near misses.

Standard of Practice 6.3

Develop and implement emergency response plans and procedures to respond to worker exposure to cyanide.

The operation is	☑ in full compliance with ☐ in substantial compliance with ☐ not in compliance with	Standard of Practice 6.3

Basis for this Finding/Deficiencies Identified:

Based on the finding of the audit Granny Smith is in Full Compliance with Standard of Practice 6.3.

The operation has water, oxygen, a resuscitator, antidote kits (Cyanokit – Hydroxocobalamin) and a radio, telephone, alarm system or other means of communication or emergency notification readily available for use at cyanide unloading and storage locations and elsewhere in the processing area. There are safety showers with integrated eyewash stations located strategically throughout the plant supplied with fresh water. The showers were operational at the time of the site visit and are inspected on a regular basis through operator daily checks and monthly Planned General Inspections.

The cyanide antidote kits (Cyanokit – Hydroxocobalamin) are subject to weekly checks to ensure the kits are present at the clinic and are not past the expiry date. The antidote kits available had not expired and were stored securely in temperatures under 25 degrees as required.

Medical oxygen resuscitators are available as Oxy Sok units located in mill control rooms, in the cyanide unloading area, mill maintenance office, medical clinic, administration facilities and in the Emergency Response Team (ERT) area where a number of oxygen units are located in the hazmat response trailer and in the ERT store. The operation has two ambulances which both have portable oxygen and oxygen fitted in the vehicles.

The operation has an on-site medical clinic which is staffed during dayshift by an Occupational Health and Safety (OH & S) Advisor that is a trained paramedic. In addition to this there is a qualified nurse on call at all times.

The ERT and Medical clinic equipment, including an ambulance and response vehicles are checked weekly with records maintained by the ERT in hard copy and within the In Control

database. Weekly checklists for the medical clinic are maintained in the clinic. Past year's inspection records are archived. The inspection of first aid equipment stored in operational areas including oxygen resuscitation units and defibrillators are inspected weekly by the medical clinic staff/ERT.

The operation has written plans and procedures to respond to emergency situations has its own on-site capability to provide First Aid or medical assistance to workers exposed to cyanide. Procedures to transport workers exposed to cyanide to locally available qualified off-site medical facilities have also been developed. Agreements are in place with bodies that can provide medical assistance and transport to hospitals.

Mock emergency drills have been conducted periodically during the certification period to test response procedures for various cyanide exposure scenarios. Records were maintained in INX. Exercises are and were planned in accordance with the requirements of the Cyanide Emergency Response Plan.

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.

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

Basis for this Finding/Deficiencies Identified:

Based on the finding of the audit Granny Smith is in Full Compliance with Standard of Practice 7.1. requiring an operation prepare detailed emergency response plans for potential cyanide releases

GSGM has a Cyanide Emergency Response Plan (CERP). The CERP is implemented within the framework of the corporate Gold Fields Australia Crisis Management Plan GFA-SUS-PLN001 and the GSM Site Emergency Management Plan GRA-ESS-PL002. The CERP includes concise pre-incident plans for identified cyanide emergency scenarios: Cyanide exposure related injury, fire and explosion, transport incident, sodium cyanide liquid spills and HCN gas release. The Cyanide Emergency Response Plan describes specific response actions for each identified scenario.

The GSM CERP considers failure scenarios as appropriate for its site-specific environment and operating circumstances. The plan includes the following scenarios:

- Cyanide related injury including worker exposure to catastrophic release of HCN and /or liquid NaCN;
- Cyanide transport incident;
- Releases during unloading of liquid NaCN;
- Cyanide related fires and explosions
- Cyanide spills including pipes failures, tank ruptures, pumps and valve failures and overtopping of tanks

Emergencies involving potential release of cyanide from the GSM tailings storage facilities are contained in the TSF Training Manual. The manual includes response measures for emergencies at the TSF including:

- Earthquake;
- Evacuation;
- Embankment failure;
- Uncontrolled seepage;
- Extreme rainfall event/overtopping of TSF and associated ponds and sumps;
- Pipeline failure (tailings slurry and return water); and
- Power failure.

The CERP has addressed planning for the response to transport related emergencies on-site emergencies and transport incidents in close proximity to the mine site. Incidents away from the mine lease are determined to be the responsibility of the cyanide transporter AGR and managed under their transport management plan. the CERP details First Aid and use of antidotes. There are no communities within the vicinity of the site that would require response actions.

Standard of Practice 7.2

Involve site personnel and stakeholders in the planning process.

The operation is ☑ in full compliance with Standard of Practice 7.2
☐ in substantial compliance with
☐ not in compliance with

Basis for this Finding/Deficiencies Identified:

Based on the finding of the audit Granny Smith is in FULL COMPLIANCE with Standard of Practice 7.2, requiring an operation involve site personnel and stakeholders in the planning process. The operation has involved its workforce and stakeholders in the cyanide emergency response planning process. The Cyanide Emergency Response Plan (CERP) has been approved by the GSM Sustainability Unit Manager. The Plan describes that it was developed through evidence and collaboration from the following:

- Relevant state and national legislation, standards, codes of practice, and guidelines where applicable
- Orica Mining Chemicals
- CSBP Limited
- Australian Gold Reagents (AGR)
- GSM Safety Department
- GSM Environmental Department
- Gold Fields Employees (Granny Smith, St Ives, Agnew)

The operation has made potentially affected communities aware of nature of their risks associated with accidental cyanide releases. Although the nearest community is located 23 km away from the site in Laverton. The operation participates in regular meetings with the Laverton Local Emergency Management Committees (LEMC) and presents information on its emergency response plans, capabilities and emergency risks. The LEMC includes representatives of the Laverton Shite, Police, Laverton Hospital, The Department of Fire and Emergency Services, Volunteer Ambulance Service and other mines in the local area.
The operation has involved local response agencies such as outside responders and medical facilities in the cyanide emergency planning and response process.

The operation has engaged in consultation or communication with stakeholders to keep the Cyanide Emergency Response Plan current, through internal engagement with their employees and externally primarily through the LEMC process.

GSGM has a safety committee and safety representatives (As defined in legislation). These consultative mechanisms are utilised by GSGM to involve the workforce in the review of incidents, systems and cyanide emergency response planning process.

Mutual aid agreements are in place with 3 nearby mines and memorandums of understanding' (MOUs) is in place between GSGM and:

- The Laverton Hospital
- Royal flying doctor service (RFDS)
- Department of fire and emergency services (DFES)

In addition to this, there is a contract is in place with Health Watch Clinics to provide medical services including 7 day a week, 24 hour access to a doctor.

Standard of Practice 7.3

Designate appropriate personnel and commit necessary equipment and resources for emergency response.

The operation is	☑ in full compliance with ☐ in substantial compliance with ☐ not in compliance with	Standard of Practice 7.3

Basis for this Finding/Deficiencies Identified:

Based on the finding of the audit GSGM are in FULL COMPLIANCE with Standard of Practice 7.3. Designate appropriate personnel and commit necessary equipment and resources for emergency response.

Elements of the GSGM cyanide emergency response plan and procedures:

- Designate primary and alternate emergency response coordinators whom have explicit authority to commit the resources necessary to implement the Plan
- Identify Emergency Response Teams
- Require appropriate training for emergency responders
- Include call-out procedures and 24-hour contact information for the coordinators and response team members
- Specify the duties and responsibilities of the coordinators and team members
- List emergency response equipment, including personal protection gear, available along transportation routes and/or on-site
- Include procedures to inspect emergency response equipment to ensure its availability
- Describe the role of outside responders, medical facilities and communities in the emergency response procedures

GSGM has confirmed that outside entities included in the emergency response plan are aware of their involvement and are included as necessary in mock drills or implementation exercises

Through the memorandum of understanding, mutual aid agreements and contracts, outside entities are formally made aware of their involvement.

Outside entities included in the emergency response plan are included as necessary in mock drills or implementation exercises. This was evidenced in records of mock drills.

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	

Basis for this Finding/Deficiencies Identified:

Granny Smith is in FULL COMPLIANCE with Standard of Practice 7.4.

The CERP includes procedures and contact information for notifying management, regulatory agencies, outside response providers and medical facilities of the cyanide emergency. It also includes procedures and contact information for notifying potentially affected communities of the cyanide related incident and any necessary response measures, and for communication with the media.

Transportation Accidents is the only scenario detailed in the CERP that could potentially affect the community. Transport events are covered by AGRs code compliant system.

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	

Basis for this Finding/Deficiencies Identified:

Granny Smith is in FULL COMPLIANCE with Standard of Practice 7.5.

The CERP addresses post-incident neutralisation and decontamination. The section notes that for all events, there will be a requirement to clean up and decontaminate the equipment and personnel used in the response, as well as any affected soils. The CERP describes use of ferrous sulphate and Sodium hypochlorite including the quantities and or concentrations to be used, and the identification of the end point remediation including the "declared safe" level (below 10ppm) and the method for testing / establishing the level. Pictures in the plan clearly show where the ferrous sulphate is stored. Following neutralisation, all contaminated material is disposed of in the tailing's storage facility. A monitoring programme is to be completed in conjunction with the site Environmental Department.

It prohibits the use of chemicals such as sodium hypochlorite, ferrous sulphate and hydrogen peroxide to treat cyanide that has been or could be released into surface water. The training materials for emergency response reference the CERP and the Emergency Response Team are responsible for responding to and cleaning up spills.

It addresses the potential need for environmental monitoring to identify the extent and effects of a cyanide release, and include sampling methods, parameters and, where practical, possible sampling locations. It covers:

- Testing for cyanide in the atmosphere and on solid surfaces
- Testing for cyanide in water
- Sampling locations

There are no surface water features that could be impacted from a cyanide related incident so it is not possible that a cyanide incident at GSM would require alternative drinking water supplies for local communities or for the mine.

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

Basis for this Finding/Deficiencies Identified:

Granny Smith is in FULL COMPLIANCE with Standard of Practice 7.6 requiring an operation periodically evaluate response procedures and capabilities and revise them as needed.

The operation does review and evaluate the cyanide related elements of its Emergency Response Plan on a regular basis. The CERP requires review of the plans following mock drills or following a cyanide incident or at least annually if no reviews were otherwise required. The GSM CERP was last reviewed in March 2019.

Mock emergency drills are conducted periodically to test response procedures for various cyanide exposure scenarios as part of the Emergency Response Plan evaluation process. Exercises are planned in accordance with the requirements of the Cyanide Emergency Response Plan which include:

- Annual Cyanide Emergency Response with ERT Response
- Annual site evacuation exercise
- Annual Crisis exercise with shift and crisis team response

This schedule was being adhered to at the time of the audit. provisions are in place to evaluate and revise the emergency response plan after any cyanide related emergency. No cyanide emergencies involving the use of the CERP have been recorded to 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 ☐ not in compliance with	Standard of Practice 8.1

Basis for this Finding/Deficiencies Identified:

Granny Smith is in FULL COMPLIANCE with Standard of Practice 8.1.

The operation utilises the cyanide awareness training produced and provided by AGR, the sites cyanide producer and transporter. The Cyanide Awareness Course is a requirement for all personnel who have the potential to be exposed to cyanide in their role. This includes employees and contractors. The cyanide awareness course covers hazard recognition, cyanide use, response and personal protective equipment. The course includes a knowledge assessment that is completed by each participant and recorded on their training file. This training is only valid for two years and is a requirement for contractors and employees to complete the course within two years.

The INX database highlights when training is nearing its expiry date. It sends an automated email to the person requiring training as well as the process trainer that refresher training should be conducted. The process trainer reviews the database and training matrix on a weekly basis to ensure training requirements are captured. Records demonstrated currency of the inductions and cyanide awareness.
Electronic training records are maintained in the INX InTuition system. Hardcopies of training assessment (understanding and competence) and other training are also kept on an employee's personal training file in the Safety and training Advisors office.

A review of training records for workers confirmed that records are retained. All training records requested during the audit could be provided.

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 ☐ not in compliance with Standard of Practice 8.2

Basis for this Finding/Deficiencies Identified:

Granny Smith is in FULL COMPLIANCE with Standard of Practice 8.2.

The training received by new starters covers site inductions, cyanide awareness, training in operational training manuals and task specific procedures. The operational training manuals and procedures cover normal production and maintenance tasks. The manuals and procedures identify areas where cyanide specific training is required. Requirements for training is also included in the InTuition database. This identifies the cyanide related roles and the associated requirement for cyanide awareness, training in the Operations training manual and procedures.

The training and assessment system is mentoring based whereby a senior operator is appointed as a Buddy /Mentor. The Buddy demonstrates and trains personnel in all relevant tasks and then supervises the conduct of the tasks providing on the job direction. This is followed by a competency based practical assessment process which is completed by the Crew trainer or Safety and Training Advisor. During this audit period, reviews of assorted training records indicated this training process was occurring as described.

The team involved in training, ie the Safety & Training Advisor and the Crew Trainers and the Mentors / Buddy's have suitable mineral processing experience, have completed all the required training for the role and formal training qualifications including Certificate IV in Workplace Training and Assessment under the Australian Quality Training Framework.

The Cyanide Awareness course provides the knowledge for all personnel who will work in cyanide areas or on cyanide related tasks. This must be completed before gaining access unsupervised to areas where there are cyanide risks. This is renewed every two years.

Granny Smith records completion of employee training in their training database InTuition. Additionally, paper copies of training assessment sheets are kept in each employee's personal file in the Safety and Training Advisors Office. INX InTuition records are maintained indefinitely. Individuals hardcopy records are maintained for seven years after the completion of employment. Records include names of the employee and the trainer, the date of training, the topics covered, and evidence of attaining a level of understanding and competence.

Standard of Practice 8.3

Train appropriate workers and personnel to respond to worker exposures and environmental releases of cyanide.

The operation is ☑ in full compliance with ☐ in substantial compliance with ☐ not in compliance with Standard of Practice 8.3

Basis for this Finding/Deficiencies Identified:

Granny Smith is in FULL COMPLIANCE with Standard of Practice 8.3.

Cyanide unloading, production and maintenance personnel trained in the procedures to be followed if cyanide is released.

The required response for a cyanide release is detailed in the Cyanide Hazard Awareness training which is required to be completed every two years. Additionally, Appendix 7 of the CERP and the Mill Emergency Evacuation Plan –detail the evacuation process in case of an emergency.

Training records indicate that training is done in mill evacuation. This is supported by evacuation drills. In addition to the training via mock drills first aid training and training in Oxy-Sok use is mandatory for all Processing Staff.

Mill personnel are also trained in the clean-up of minor spills and the clean-up of tools and PPE. Interviews with process technicians confirmed they knew what to do in the event of a cyanide release.

Site cyanide emergency response personnel are required to complete the full cyanide awareness induction package (required to be complete every 2 years) and are trained in decontamination and first aid procedures. ERT team members are trained to the Australian Quality Training Framework certificate III level. The emergency response team are required to undertake a range of mock drill exercises, including Hazmat drills. Other training requirements of the Emergency Response team are defined within the cyanide Emergency Response Plan. The training requirements are included in the ERT Training Needs Matrix, and records demonstrate that training is conducted as planned

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. Memorandums of understanding, mutual aid agreements and contracts formalise this.

Refresher training for response to cyanide exposures and releases is conducted regularly. Simulated cyanide emergency drills are periodically conducted for training purposes. Drills have covered worker safety and environmental release. The operation has conducted a number of cyanide specific mock exercises in addition to practical exercises as part of routine training. The mock drills have addressed worker exposure and spill response. The operation has also conducted a mill evacuation exercise and provided training to personnel on how to evacuate and wardens on how to check and clear areas of the facility.

Cyanide emergency drills are periodically conducted for training purposes. The exercises are evaluated from a training perspective to assess in personnel have the knowledge and skills required.

Records are retained throughout an individual's employment documenting the training they receive. 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.

PRINCIPLE 9 – DIALOGUE

Engage in public consultation and disclosure.

Standard of Practice 9.1

Provide stakeholders 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	

Basis for this Finding/Deficiencies Identified:

GSGM is in FULL COMPLIANCE with Standard of Practice 9.1 requiring an operation provide stakeholders the opportunity to communicate issues of concern.

GSGM has developed a Stakeholder Engagement Strategy and Management Plan, and implements a broad range of stakeholder engagement activities. A stakeholder engagement register is maintained.

GSGM implements a Community Grievance Procedure. The purpose of this procedure is to define the process used by GSGM to manage complaints / grievances from communities and local stakeholders in a systematic and transparent manner.

Information on the use of cyanide at GSGM, and GSGM's participation in the International Cyanide Management Code, is summarised on an Information Poster, which is located on notice boards at the mine site administration and Shire of Laverton community notice board.

GSGM encourages engagement with local communities via such activities and information dinners with Teachers from local schools.

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	

Basis for this Finding/Deficiencies Identified:

GSGM is in FULL COMPLIANCE with Standard of Practice 9.2 requiring an operation initiate dialogue describing cyanide management procedures and responsively address identified concerns.

At an operational level, GSGM utilises site inductions, cyanide awareness training, and toolbox and safety meetings to create opportunities for the operation to communicate with the workforce and provide them with information regarding cyanide management practices and procedures. Records on interaction are available.

GSGM participates in local stakeholder meetings such as Leonora Shire, Leonora Laverton Cultural Awareness Group and Local Emergency Management Committee meetings, where cyanide management at GSGM has been discussed.

GSGM has developed a Stakeholder Engagement Strategy and Management Plan, and implements a broad range of stakeholder engagement activities. A stakeholder engagement register is maintained.

Information on the use of cyanide at GSGM, and GSGM's participation in the International Cyanide Management Code, is summarised on an Information Poster, which is located on notice boards at the mine site and Shire of Laverton community notice board.

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	

Basis for this Finding/Deficiencies Identified:

GSGM is in FULL COMPLIANCE with Standard of Practice 9.3 requiring an operation make appropriate operational and environmental information regarding cyanide available to stakeholders.

GSGM has developed written descriptions of how their activities are conducted and how cyanide is managed at the site.

Written description of cyanide management at GSGM exist within site inductions, training manuals, and cyanide awareness training materials, and are made available to relevant employees and contractors.

Information on the use of cyanide at GSGM, and GSGM's participation in the International Cyanide Management Code, is summarised on an Information Poster, which is located on notice boards at the mine site and Shire of Laverton community notice board.

It is considered that the illiterate proportion of the local population does not constitute a significant percentage, and consequently verbal dissemination of material is not considered warranted.

GSGM has mechanisms to make information publicly available on the defined confirmed releases or exposures, including publicly available Annual Environment Reports and regulatory reporting to Government departments.

GSGM management confirmed by interview that the existing GSGM internal and external reporting system complies with the reporting requirements as noted in 9.3.3a – 9.3.3e.

No such cyanide incidents were reported during the audit period.