International Cyanide Management Code
Mining Operations Initial Verification Audit
Gold Fields Limited
Gruyere Gold Mine

Summary Audit Report

October 2020
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Summary Audit Report for Mining Operations

Name of Mine: Gruyere Gold Mine
Name of Mine Owner: Gold Fields Limited/Gold Road Resources
Name of Mine Operator: Gruyere Management Pty Ltd
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Location Detail and Description of Operation

The Gruyere Gold Mine (GGM) is a joint venture between Gold Fields Ltd (GFL) and Gold Road, with Gold Fields Ltd the mine operator and manager. The Operation is located in the eastern Yilgarn region of Western Australia, approximately 200 kilometres north-east of Laverton and 1,100km north-east of Perth. The site is close to the western border of the Great Victorian Desert and is approximately 12kms from the Yeo Lake Nature Reserve. Cosmo Newbery is the nearest community.

The general climate of the GGM region is described as arid, receiving erratic rainfall. Long-term climate data has been collected from the Australian Bureau of Meteorology weather station located at Laverton. The average annual rainfall is 301 mm, most of which falls during the period January to June. Temperatures range from a mean daily maximum of 35.5°C in January to 18.4°C in July.

The Operation is an open-cut gold mine with a planned life of approximately 13 years. Construction of the Processing Plant commenced in March 2017, with commissioning and processing operations commencing in May 2019.
Operations at GGM consist of free milling ore types that are mined in the open pit and processed at the on-site Processing Plant, which has an annual throughput capacity of 8.8 Mtpa (when treating oxide ore).

The GGM Processing Plant consists of:

- Single stage gyratory crushing with product discharging to the coarse ore stockpile (COS);
- A semi-autonomous grinding (SAG) mill with pebble crusher and secondary ball mill in closed circuit with cyclone classifiers;
- A gravity concentration circuit and inline leach reactor (ILR);
- Pre-leach thickener;
- A carbon-in-leach (CIL) circuit;
- Acid wash and elution columns, carbon regeneration kiln;
- Electrowinning cells;
- Gold room with smelting furnace;
- Tailings thickener;
- On-site oxygen generation via a pressure swing adsorption (PSA) plant;
- Mine and process water holding ponds;
- Laboratory;
- Bulk reagent storage; and
- Tailings storage facility (TSF).

The GGM Processing Plant flowsheet is illustrated below in Figure 1.

Consistent with many gold-containing ore processing plants, cyanide remains the preferred lixiviant for extracting gold via leaching processes at GGM. Cyanide is used as a gold leaching reagent in both the inline leach reactor (ILR) and the carbon in leach (CIL) circuit. Cyanide is also used in the elution circuit to remove gold adsorbed onto carbon. Minor quantities of cyanide are also used or present in the on-site laboratory and in the Goldroom, noting that these areas are specifically excluded from the International Cyanide Management Code.

The TSF is a circular storage facility in an integrated waste landform (IWL) to the east of the open pit. The TSF covers a footprint of approximately 337 ha and will eventually be at a height of 41m above the natural terrain over six staged lifts. The deposition of tailings is sub-aerial via a series of spigots located on the perimeter embankment.
A central decant is utilized to collect and remove supernatant water for re-use in the processing plant.

The operation receives sodium cyanide solution at a nominal concentration of 30% w/w, although the concentration is modified slightly upwards in summer and downwards in winter, to account for the freezing point of the solution. The sodium cyanide solution is transported in isolatners by rail from the Producer’s production facility (located at Kwinana some 40 km south of Perth within the state of Western Australia) to a trans-shiping facility at Kalgoorlie, from where it is then transported by road to the operation. Solid cyanide reagent is not transported to, stored, mixed or used at the operation.

![GGM Simplified Processing Flowsheet](image)

Figure 1 GGM Simplified Processing Flowsheet
SUMMARY AUDIT REPORT

Auditor’s Finding

This Operation is

☑️ in full compliance
☐ in substantial compliance
☐ not in compliance

with the International Cyanide Management Code.

Audit Company: Veritas Metallica Pty Ltd
Audit Team Leader: Tom Gibbons
Email: Tom_G@westnet.com.au
Names and Signatures of Other Auditors:

__________________________
Celeste Ellice 12 October 2020

Date(s) of Audit: 18 – 24 May 2020 Inclusive.

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.

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

Gruyere Gold Mine
Name of Mine

__________________________
Signature of Lead Auditor

12 October 2020
Date

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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

☐ in substantial compliance with ☐ not in compliance with

The Operation is Standard of Practice 1.1

Summarize the basis for this Finding/Deficiencies Identified:

GGM’s supply contract with its sole cyanide Producer requires that the cyanide be produced at a facility that has been certified as being in compliance with the Code.

GGM has purchased cyanide solely from CSBP/Australian Gold Reagents Ltd (AGR) since commencement of operations, with the first receipt of cyanide on 24 May 2019. The active sodium cyanide solution supply agreement contract with AGR requires that the Cyanide Production Facility be certified as compliant with the Code.

The cyanide purchased by GGM was manufactured at a facility certified as being in compliance with the Code. AGR has been the sole supplier of cyanide to GGM since commencement of Operations. The cyanide supplied by AGR was solely in the form of sodium cyanide solution within 22 cubic metre isotainers. The supplied cyanide solution strength is nominally 28.0% w/w +/- 1.5% in Winter, and 31.5% +/- 1.5% w/w in Summer. The cyanide purchased from AGR was produced at AGR’s Production Facility in Kwinana, Western Australia. This Production Facility is certified in full compliance with the Code, the most recent certification date being 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.

☐ in full compliance with

The Operation is ☐ in substantial compliance with Standard of Practice 2.1

☐ not in compliance with

Summarize the basis for this Finding/Deficiencies Identified:

GGM’s current sodium cyanide solution supply agreement contract with AGR states that AGR is responsible for the transportation of Sodium Cyanide Solution purchased under the agreement to the Site and the unloading of the Sodium Cyanide Solution at each Delivery Point.

AGR has been certified as a Transporter since September 2006. GGM forms part of AGR’s West Australian Supply Chain, of which the most recent date of recertification is 15 November 2019. This supply chain has been the sole means of cyanide transportation to GGM since Operations commenced.

AGR’s road transportation subcontractor, Qube Bulk, is certified in full compliance with the Code, with the most recent certification date being 29 November 2018.

Despite the contract not specifying all required responsibility designations for cyanide transportation, they are addressed through AGR’s West Australian Supply Chain being fully certified and as such GGM 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.

☐ in full compliance with

The Operation is ☐ in substantial compliance with Standard of Practice 2.2

☐ not in compliance with

Summarize the basis for this Finding/Deficiencies Identified:

GGM’s contract with the cyanide transporter requires that the transporter be certified under the Code. GGM has utilised AGR as sole Producer and Transporter of cyanide since commencement of Operations and contractually requires that AGR be certified under the Code.

The cyanide transporter is certified under the Code. The most recent recertification date of AGR’s West Australian Supply Chain, which includes all aspects of transportation of cyanide from their Kwinana Production Facility to GGM, is 15 November 2019. AGR’s road transportation subcontractor, Qube Bulk, is certified in full compliance with the Code, with the most recent certification date being 29 November 2018.

GGM has maintained chain of custody records for cyanide supply/transportation since first receipt of cyanide on 24 May 2019. The identified transporters, AGR and Qube Bulk, are certified in full compliance with the Code. The AGR Supply Chain, which identifies all elements of the supply chain that handle the cyanide brought to its site, is certified in full compliance with the Code.
**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

**Summarize the basis for this Finding/Deficiencies Identified:**

GGM only receives sodium cyanide solution; no mixing facilities exist on site, nor does any solid cyanide reagent.

Detailed design and construction QA/QC reports, drawings, and other documentation has been produced by the Design and Construction Engineer, and integrated into GGM document management systems.

Collated QA/QC reports, documents, signed drawings and designs, data and data packs are maintained within the Quality Document Management System (QDMS) Document and Correspondence Management System.

The Processing Facility Design and Construction Engineer has provided a comprehensive range of design and construction documentation and drawings, with appropriate signoffs, confirming sound accepted engineering practices were used for the design and construction of cyanide unloading and storage facilities, including consideration of applicable jurisdictional rules.

GGM unloading and storage areas for liquid cyanide are located away from people and surface waters.

Liquid cyanide is unloaded on a concrete surface that can minimize seepage to the subsurface, as verified by field inspections and engineering drawings.
The cyanide unloading area is designed and constructed to contain, recover or allow remediation of any leakage from liquid sodium cyanide contained within isotainers. The unloading pad is designed to drain to the Cyanide Storage Area secondary containment, which has volume sufficient to contain two full isotainers.

Several layers of protection exist to prevent overfilling of cyanide storage tanks, including multiple level indicators, high-level switches and alarms, and inspection/observation procedures. GGM implements a Cyanide Delivery and Unloading Procedure, which includes multiple checks to prevent overfilling of cyanide storage tanks.

GGM cyanide storage tanks are located on solid concrete surfaces that can prevent seepage to the subsurface, as verified via field inspections and engineering drawings.

Secondary containments for GGM cyanide tanks constructed of concrete that provide a competent barrier to leakage, as verified via field inspections and engineering drawings.

Cyanide is stored with adequate ventilation to prevent the build-up of hydrogen cyanide gas. The storage tanks are located externally, and have purpose-designed vents approved by the Cyanide Producer to prevent the build-up of hydrogen cyanide gas.

Cyanide is stored in a secure area where public access is prohibited. The Cyanide Storage Area is located within a fenced and locked compound, with multiple posted signs indicating the presence of cyanide, danger, and prohibiting access. Access to the compound is tightly controlled via a Cyanide Storage Compound Access Procedure.

There is separation bunding between the cyanide storage facility area and nearby reagent storage. No other chemicals or other materials are stored within the cyanide storage area.
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.

☑ in full compliance with

☐ in substantial compliance with Standard of Practice 3.2

☐ not in compliance with

Summarize the basis for this Finding/Deficiencies Identified:

GGM only receives sodium cyanide solution; no mixing facilities exist on site, nor does any solid cyanide reagent.

GGM only receives sodium cyanide solution in isotainers which are cleaned after unloading as part of the standard unloading procedure, and depart site immediately thereafter. There are no remnant empty cyanide containers on site.

GGM has developed and implemented multiple plans or procedures to prevent exposures and releases during cyanide unloading activities, the most salient of which are the Cyanide Storage Compound Access Procedure, the Cyanide Delivery and Unloading Procedure, and the Cyanide Unloading Form.

The procedures address operation of all valves and couplings for unloading liquid cyanide, timely clean-up of any spills during unloading, and provision for safe unloading of liquid cyanide by requiring appropriate personal protective equipment and having a second individual observe from a safe area. GGM designate this person as the Unloading Sentry or Spotter. The Spotter must be adequately trained in all responsibilities and actions for safe unloading activities. In addition to the Spotter, cyanide unloading is indirectly monitored by the Control Room Process Technician, who is notified by the Spotter prior to and at completion of unloading activities.

The Spotter conducts a detailed pre-unloading inspection of the Cyanide Unloading and Storage area, which includes elements related to: cyanide storage tank levels; communication device checks; Hydrogen cyanide (HCN) gas personal monitor status; personal protective equipment; locally stored Emergency Response and spill response equipment; notification of Central Control Room; operability of sump pump; fire extinguishers and safety showers; designated signage and locks are in place; valves
are in correct position; emergency shutoff valve is unlocked and operable; and fresh water is available and connected. The Spotter also confirms that the Truck Driver is wearing appropriate personal protective equipment, is issued with a correctly operating hydrogen cyanide gas personal monitor, and conducts unloading activities in accordance with the Unloading Procedure. The Spotter records all details of the inspection on the Cyanide Unloading Form, and signs the document upon unloading completion.

Colorant dye is adding to the sodium cyanide solution by the Cyanide Producer prior to transportation to site – refer to 2.1.1 above.

One incident has occurred involving a minor leak (3-5 litre) from a delivery hose during liquid cyanide unloading. The leak was contained within competent secondary containment and effectively cleaned up. No cyanide exposure occurred or elevated hydrogen cyanide gas levels detected. GGM followed defined procedures to address the incident, first response, clean-up, and investigation. A formal investigation was completed, resulting in four actions to correct deficiencies; all four actions were completed within 5 weeks of the occurrence of the incident.
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

Summarize the basis for this Finding/Deficiencies Identified:

GGM has developed a comprehensive range of written management and operating plans or procedures for cyanide facilities including unloading and storage facilities, leach plants, and tailings impoundments. No heap leach operations or cyanide treatment, regeneration or disposal systems exist at GGM.

GGM utilises a Document Management System referred to as IMS. The IMS is used to control, store and manage operational and maintenance procedures and documentation.

A comprehensive Cyanide Management Plan exists. Individual work instructions and guidelines exist for cyanide-related tasks within GGM’s cyanide facilities.

All referenced plans, procedures and technical reference documents within the Cyanide Management Plan were verified to exist and to be in use/operational.

Plans and Procedures exist which identify assumptions and parameters on which cyanide facility design is based, and include regulatory requirements, cyanide concentrations in tailings, and other parameters consistent with prevention or control of cyanide releases and exposures. The more salient documents include: the Cyanide Management Plan, which identifies the weak acid dissociable (WAD) cyanide concentrations to the TSF; the Tailings Management Plan, which identifies tailings
properties, beaching criteria and flood and freeboard requirements; the Gruyere Tailings Storage Facility Detailed Design Report, which identifies design parameters and assumptions for the TSF; the Decontamination of Equipment for Maintenance or Removal, which identifies hydrogen cyanide gas exposure criteria; the TSF Daily Inspections, which inspects and records design parameters for normal operation and assumptions; the Process Design Criteria, which identifies important process design parameters and limits, the Process Water, Raw Water, Settlement, and Site Run Off Pond Operation Review Report, which identifies catchment volumes and contingency limits, and the Change of Management Plan, which identifies change trigger points for review of cyanide-related proposed changes or modifications.

GGM has developed 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 preventive maintenance activities.

A comprehensive range of inspection procedures and log sheets exists. A cross-section of procedures and completed inspection sheets were viewed and verified as consistent with sound industrial practice.

GGM implements a comprehensive Preventative Maintenance System, with triggering/prompting of preventative maintenance tasks, planning, scheduling, execution, and close-out documentation.

GGM have a procedure to identify when changes in a site's processes or operating practices may increase the potential for the release of cyanide and to incorporate the necessary release prevention measures. Two Management of Change (MOC) systems exist; the first for changes to the Plant Control System, known as Operational Technology MOC, and the second being for physical changes, known as MOC. The change of management procedure and notification form requires review and sign-off on proposed process changes and modifications by various stakeholders and management prior to implementation of the changes and modifications, including Environmental and Safety personnel.

A cross-section of completed cyanide-related MOC items were reviewed and found to be consistent with the intent of evaluating the potential for the release of cyanide and to incorporate the necessary release prevention measures. The system also considers the potential for increased risk of cyanide-related impacts to worker health and safety, with incorporation of necessary measurements to limit exposure. Examples of operational changes that had been processed via the MOC system were observed during field inspections.
Gruyere Gold Mine has cyanide management contingency procedures for situations when there is an upset in a facility’s water balance, when inspections and monitoring identify a deviation from design or standard operating procedures, and/or when a temporary closure or cessation of operations may be necessary.

Gruyere Gold Mine inspects cyanide facilities on an established frequency sufficient to assure and document that they are functioning within design parameters. Inspections are broadly divided into Operational Inspections and Maintenance Inspections, with Operational inspections occurring monthly and focused on cyanide facility areas, with maintenance inspections occurring at a range of frequencies determined by equipment requirements and risk, and focused on equipment and infrastructure. In addition to internal inspections, GGM utilises third party experts to conduct specialised inspections such as annual TSF audits and tank corrosion, concrete condition, and thickness testing.

GGM inspects the following at unloading, storage and process areas – tanks holding cyanide solutions for structural integrity and signs of corrosion and leakage; secondary containments for their integrity, presence of fluids and available capacity, drain management to prevent accidental releases to the environment, leak detection systems, pipelines, pumps and valves for deterioration and leakage, ponds and impoundments for key containment parameters such as freeboard and integrity of surface diversions.

The Cyanide Unloading and Storage Area is audited on an annual basis by the Cyanide Producer.

GGM inspections are documented, including the date of the inspection, the name of the inspector, and any observed deficiencies. The nature and date of corrective actions are documented, and records are retained. A cross-section of completed inspection forms were reviewed and found to be consistent with stated requirements. Site electronic storage of inspections was verified.

GGM implement comprehensive preventive maintenance programs and document activities to ensure that equipment and devices function as necessary for safe cyanide management. A detailed demonstration of the Preventative maintenance system was provided. During the demonstration, a cross-section of cyanide-specific equipment was interrogated and maintenance plans and records verified.

GGM has necessary 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. The back-up power generating equipment maintained and tested. GGM’s primary power generation is fuelled by natural gas, with design redundancy. GGM maintain two 1.6mW diesel powered generators for the specific
purpose of emergency power generation. Maintenance records for both the primary and back-up power generators exist, and back-up power generators are tested periodically.
**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 ☐ not in compliance with **Standard of Practice 4.2**

Summarize the basis for this Finding/Deficiencies Identified:

GGM conducts a program to determine appropriate cyanide addition rates in the mill and evaluate and adjust addition rates as necessary when ore types or processing practices change cyanide requirements.

GGM conducts testwork both on site in the metallurgical laboratory and with external metallurgical laboratories to evaluate and optimise cyanide addition rates.

GGM has evaluated various control strategies for cyanide additions.

GGM has the facility to dose cyanide at multiple locations, and also to utilise the Leach Tank as a pre-oxidation tank to reduce cyanide addition, and has evaluated multiple options to minimise cyanide usage whilst maintaining gold recovery.

GGM has implemented a strategy to control its cyanide addition, via a dedicated cyanide process control software package, which receives inputs from multiple on-line free cyanide and WAD cyanide detectors, and optimises cyanide addition on a continuous basis.

These initiatives have resulted in a significant reduction in cyanide usage against that predicted by Feasibility testwork.

GGM Process Technicians demonstrated a strong understanding of the existing cyanide control strategy and importance of optimising cyanide consumption.
Standard of Practice 4.3:

Implement a comprehensive water management program to protect against unintentional releases.

☑ in full compliance with
☐ in substantial compliance with Standard of Practice 4.3
☐ not in compliance with

Summarize the basis for this Finding/Deficiencies Identified:

GGM has developed a comprehensive, probabilistic Site-wide water balance and model (PWB). The Balance was developed in 2019, and became operational in October 2019. The PWB was developed by an expert third party hydrology consultant. The model is run at GGM by the Senior Metallurgist, who is trained in operation of the model software, and has experience with a similar model at another Operation. Probabilistic modelling is carried out on a quarterly basis, and to date has not identified any risk of overtopping of the TSF, ponds or impoundments.

The PWB model considers the following aspects in a reasonable matter as appropriate for the facilities and environment: the rates at which solutions are applied to leach pads and tailings that are deposited into tailings storage facilities; a design storm duration and storm return interval that provides a sufficient degree of probability that overtopping of the pond or impoundment can be prevented during the operational life of the facility; the quality of existing precipitation and evaporation data in representing actual site conditions; solution losses in addition to evaporation, such as the capacity of decant, drainage and recycling systems, allowable seepage to the subsurface, and allowable discharges to surface water; and the effects of potential power outages or pump and other equipment failures on the drain down from a leach pad or the emergency removal of water from a facility.

The following aspects were deemed by the expert third party model developer to not be relevant to the GGM for site-specific reasons: the amount of precipitation entering a pond or impoundment resulting from surface run-on from the upgradient watershed, including adjustments as necessary to account for differences in elevation and for infiltration of the runoff into the ground; effects of potential freezing and thawing conditions on the accumulation of precipitation within the facility and the upgradient watershed; and where solution is discharged to surface waters, the
capacity and on-line availability of necessary treatment, destruction or regeneration systems.

GGM 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. GGM has existing inspection procedures, particularly in relation to the TSF, ponds and impoundments, and carries out periodic inspections and monitoring to implement the water balance.

GGM 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 freeboard operating parameters are managed by GGM via implementation of the Gruyere Tailings Management Plan, supplemented by related inspection and monitoring procedures.

GGM measures precipitation at three weather stations located at the Airport, Power Station and Laboratory. GGM been in operation for less than one year, and as such, comparison of measured precipitation with design assumptions is limited. GGM will complete such comparisons upon compilation of a reasonable dataset of seasonal data.
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

☐ in substantial compliance with Standard of Practice 4.4

☐ not in compliance with

Summarize the basis for this Finding/Deficiencies Identified:

The defined open waters at GGM are the TSF slurry/supernatant solution and Decant Return Pond, and the Process Water Pond.

There is no fencing of the TSF or Process Water Pond as the cyanide concentration in all open waters does not exceed 50 mg/l which is the protective mechanism against wildlife deaths due to cyanide.

GGM can demonstrate that the cyanide concentration in open waters at the TSF does not exceed 50 mg/l WAD CN for 99.5% of operating hours. GGM can demonstrate that the cyanide concentration in open waters at the Decant Return Pond and the Process Water Pond has not exceeded 50 mg/l WAD CN to date.

Three transient excursions above 50 mg/l WAD CN for the TSF spigot sample occurred during the initial months of Operation; all were noted as incidents within the site INX system and rectified rapidly. The highest transient excursion cyanide concentration was 53 mg/l WAD CN.

Sampling of the TSF spigot and decant occurs twice daily (at start of each shift), and weekly for the Process Water Pond. In addition, GGM operates on-line WAD CN monitoring of the tailings slurry within the Processing Plant.

Wildlife monitoring on the TSF is undertaken on a daily basis by operations personnel in conjunction with their standard visual inspections of the TSF and tailings infrastructure. These personnel are specifically trained in the observation tasks by third party wildlife experts.

A detailed electronic wildlife observation logsheet, designed by third party experts, is completed by the Observer, with observation periods typically 30 – 60 minutes per shift. The information is stored within a Wildlife monitoring database.
Several wildlife fatalities have been observed, primarily due to physical entrapment of kangaroos in wet tailings. No wildlife fatalities related to cyanide have occurred since commencement of Operations.

There are no heap leach facilities at GGM.
**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
- [ ] in substantial compliance with Standard of Practice 4.5
- [ ] not in compliance with

**Summarize the basis for this Finding/Deficiencies Identified:**

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

The nearest surface water is an ephemeral saline lake, Lake Throssell, located 25km northeast of the mine site.
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
☐ in substantial compliance with Standard of Practice 4.6
☐ not in compliance with

Summarize the basis for this Finding/Deficiencies Identified:

There is no beneficial use of the groundwater for pastoral purposes and the applicable jurisdiction, the Government of Western Australia Department of Water and Environmental Regulation (DWER), has not set established cyanide compliance limits for WAD cyanide concentrations in the groundwater beneath or immediately down gradient of the operation to date. Irrespective of this, GGM implement specific water management and other measures to manage seepage to protect potential beneficial use(s) of ground water beneath and/or immediately down gradient of the operation.

There is an underdrainage system for the TSF comprising of perimeter underdrainage around the embankment upstream toe and an underdrainage network around the decant structure. This system is designed to capture seepage water through the tailings mass. The water collected via this system reports to an internal underdrainage sump and is recovered via an inclined riser pipe housing a submersible pump. The recovered water is returned to the central decant system and recycled to the Processing Plant.

The two primary design elements for seepage management are the use of an underdrainage system and an upstream liner.

GGM monitors groundwater quality via a network of eight monitoring bores surrounding the TSF, and three monitoring bores immediately downgradient of the Processing Plant. GGM have recently installed an additional five monitoring bores to improve seepage detection and monitoring coverage at the TSF. The monitoring bores are sampled and assayed quarterly. The typical numerical value that DWER imposes for cyanide concentration in groundwater monitoring bores is 0.5mg/l WAD CN. Whilst cyanide has been detected in some bores downgradient of the TSF, no sample to date has exceeded a cyanide concentration of 0.1 mg/l WAD CN.
Seepage has expressed at Northeast toe of the TSF. GGM is addressing this via installation of a basal rock blanket, membrane, and associated recovery trench and sump. This work is being done under the supervision of Expert Third party consultants, following a formal investigation and delivery of a seepage report. Seepage water collected from the sump will initially be returned to TSF for decant return to the Processing Plant, pending evaluation of ongoing seepage following full commissioning and coverage of the TSF footprint with a base of tailings.

GGM has keep DWER informed of seepage monitoring and remedial activities.

Seepage from the TSF is actively managed through recovery in seepage trenches and pumping of seepage back into the TSF. Recovered solutions are pumped to the process water ponds for re-use. TSF inspections (daily and monthly) provide a means for monitoring seepage activity.

Management of the TSF pond volume is important in reducing the risk of seepage. GGM Water management procedures aim to have the minimum amount of water kept on the TSF as possible, to reduce potential for seepage.

In addition to existing seepage management activities, GGM is currently evaluating the option to install groundwater recovery bores in the identified area of seepage.

The TSF is still technically within its commissioning period, with the initial tailings footprint approaching 70% coverage; the design water recovery via the upstream liner and seepage sump is expected to become more effective upon full coverage.

GGM does not currently have any underground mining operations, and correspondingly does not use mill tailings as underground backfill.
Standard of Practice 4.7:

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

☑ in full compliance with

☐ in substantial compliance with Standard of Practice 4.7

☐ not in compliance with

Summarize the basis for this Finding/Deficiencies Identified:

GGM implements a number of measures for spill prevention or containment for cyanide storage and process solution tanks.

The Cyanide Storage Tanks are located upon solid concrete plinths that provide competent secondary containment.

The Leach Tank and CIL Tanks have under-tank secondary containment via a concrete ring beam and integral HDPE liner. In addition, the Leach Tank and each CIL Tank has a leak detection system which is monitored on a 3 monthly frequency.

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.

The appropriate sizing of secondary containment volumes was a design condition for the Construction Engineer. Post construction, the volume of secondary containments was independently reviewed by Third Party Engineers. Following this review, secondary containment volumes were upgraded to provide additional contingency.

GGM have procedures in place and being implemented to prevent discharge to the environment of any cyanide solution or cyanide-contaminated water that is collected in a secondary containment area. GGM has sump pumps in place in secondary containments to return slurry or cyanide-contaminated water to the circuit, and high level instrumentation and alarms in place for process water and raw water ponds. GGM implements a number of procedures and plans that address timely and adequate response to cyanide solution, slurry or cyanide-contaminated water that is collected in a secondary containment area.
Secondary containments are in place for all cyanide process tanks. Nevertheless, GGM has an existing Cyanide Spill Ground Decontamination Procedure.

GGM implements a number of measures for spill prevention or containment for all cyanide process solution pipelines to collect leaks and prevent releases to the environment. Process solution pipelines within the Processing plant have secondary containment primarily via concrete bunds, and in some cases via pipe-within-pipe containment, with potential spillage draining to a concrete bunded area. A number of periodic operational and maintenance inspections are conducted addressing spill prevention, including operations pipeline leak detection inspections, maintenance pipeline and valve inspections, and specialist thermographic testing of pipelines and pipeline fittings. The tailings pipelines have leak detection via differential flow measurement at source and delivery ends of the pipeline.

Internal auditing identified a section of buried piping from the process water dam to the mill. GGM have subsequently excavated this section of piping to allow for visual leak detection inspections.

Spills of process solutions are recorded within the INX system. Three spillage events have been logged since commencement of operations. Two events involved spillage of process water of nominal cyanide concentration of 10ppm WAD CN, and the remaining event involved flushing of a tailings pipeline, with the process solution/slurry concentration being less than 50 mg/l WAD CN. All spillage was contained within the immediate plant footprint, and were not externally reportable incidents.

Review of Incident Reports for spillage events verified that GGM has followed their response and management protocols and procedures, including adequate reporting of the incidents, analysis of root causes of failure, actions set to address deficiencies, and close-out and sign-off of completed actions.

No areas exist where cyanide pipelines present a risk to surface water. The nearest surface water is an ephemeral saline lake, Lake Throssell, located 25km northeast of the mine site.

Cyanide tanks and pipes have been installed and a comprehensive QA/QC process has occurred during design, procurement, construction and commissioning.

Post construction, a QA/QC collated document and representative data pack, with particular focus on cyanide tanks and pipelines, has been compiled by a third-party Engineer.
The Processing Facility design and construction Engineer has provided detailed information regarding the selection of piping materials and confirmation of cyanide compatibility.

The Processing Facility design and construction Engineer has provided a comprehensive range of design and construction documentation and drawings, with appropriate signoffs, confirming cyanide tanks and pipelines are constructed of materials compatible with cyanide and high pH conditions.

GGM holds a current Dangerous Goods permit (which includes Sodium Cyanide) with the applicable jurisdiction (State Government of Western Australia), and undertook a third-party audit and risk assessment in 2019.

The GGM Cyanide Unloading and Storage Facility is audited annually by the Cyanide Producer.
Standard of Practice 4.8:

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

☑ in full compliance with

☐ in substantial compliance with Standard of Practice 4.8

☐ not in compliance with

Summarize the basis for this Finding/Deficiencies Identified:

Quality control and quality assurance programs have been implemented during construction of all new cyanide facilities and modifications to existing facilities, including cyanide unloading, storage facilities and other cyanide facilities.

GGM has extensive and detailed QA/QC records and as-built engineering drawings for all current cyanide facilities. The records have been reviewed in detail by third party independent Engineers, who have concluded that:

- appropriate quality control and quality assurance (QA/QC) practices were undertaken at all stages of the project;
- QA/QC management procedures were set at the project level and drove down through engineering, procurement and construction phases of the project;
- the QA/QC procedures during the engineering phase were appropriate and ensured the design was fit for purpose;
- the procurement QA/QC procedures ensured equipment was purchased from reputable vendors and materials and the construction met the appropriate specifications; and
- the construction QA/QC procedures ensured the appropriate field inspections and tests were undertaken and recorded and the plant was constructed in accordance with design.

Quality control and quality assurance programs address the suitability of materials and adequacy of soil compaction for earthworks such as tank foundations and earthen liners, the installation of synthetic membrane liners used in ponds and leach pads and for construction of cyanide storage and process tanks.

QA/QC records and sign-offs exist for synthetic liners for the TSF and Process Ponds.
Detailed QA/QC records exist for testing and assessment of adequacy of soil compaction and other parameters for site cyanide facilities.

QA/QC records exist for the construction of cyanide storage and process tanks.

Quality control and quality assurance records been retained for cyanide facilities. GGM employs a dedicated information management system (QDMS) for storage and access to QA/QC records and as-built drawings. The system contains collated QA/QC reports, documents, signed drawings and designs, data and data packs.

Appropriately qualified personnel reviewed cyanide facility construction and provided documentation that the facility has been built as proposed and approved. Cyanide Facility construction at GGM has been reviewed by appropriately qualified personnel, including construction project managers, certified engineers, and Vendor engineers.

No post-construction inspection in lieu of quality control/quality assurance procedures and records is required, as quality control and quality assurance documentation and as-built certification for cyanide facility construction exists.
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

Summarize the basis for this Finding/Deficiencies Identified:


The sampling and analytical protocols have been developed by appropriately qualified personnel, as verified by provision of formal qualifications.

GGM procedures specify how and where samples should be taken, sample preservation techniques, chain of custody procedures, and cyanide species to be analysed, as verified by review of procedures and examples of chain of custody documentation.

GGM use electronic logsheets for field inspection, sampling and monitoring activities, with relevant sampling conditions and procedures documented in writing, both on logsheets and in summary report records.

GGM have no direct discharge to surface water from any defined cyanide facility, and there is no surface water within 25km of the Operation.

GGM monitors groundwater down gradient of the site, via a network of eight monitoring bores surrounding the TSF and three monitoring bores immediately downgradient of the Processing Plant. GGM have recently installed an additional five monitoring bores to improve seepage detection and monitoring coverage at the TSF. Field inspections and documented evidence confirmed the existence and location of monitoring bores.

Wildlife observations are conducted by trained wildlife observers and information is recorded electronically onto a tablet which is then uploaded into the wildlife monitoring database. The Environment Department is notified of wildlife deaths
through formal incident and hazard reports. Relevant information pertaining to the fauna related incident is held within the wildlife monitoring database.

No wildlife deaths attributable to contact or ingestion of cyanide solutions has been recorded for the project to date.

Monitoring is conducted at frequencies adequate to characterize the medium being monitored and to identify changes in a timely manner. The GGM monitoring frequency has been developed based upon legislative licence conditions, expert third party advice, and operational learnings.
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 cyanide facilities to protect human health, wildlife and livestock.

☐ in full compliance with

☐ in substantial compliance with Standard of Practice 5.1

☐ not in compliance with

Summarize the basis for this Finding/Deficiencies Identified:

GGM has developed written procedures to decommission cyanide facilities at the cessation of operations. The Cyanide Management Plan provides an outline of the Decontamination and Decommissioning Plan. The specific documents that address decommissioning are the Decontamination and Decommissioning Plan and the Mine Closure Plan. The Decontamination and Decommissioning Plan addresses decontamination and decommissioning of the Processing Plant and infrastructure associated with the transfer of tailings to the TSF and return water from the TSF decant to the Processing Plant. The Decontamination and Decommissioning Plan addresses cyanide-specific requirements.

An implementation schedule exists within Section 11 of the Decontamination and Decommissioning Plan. This includes a risk assessment to refine the tasks two years prior to closure. Each area of the plant is listed in order of clean-up over a period of 12 months. Monitoring tasks continue post-closure.

GGM reviews its decommissioning procedures for cyanide facilities on a periodic basis, with the frequency of review currently set at either two years, or in conjunction with the Mine Closure Plan if this were to occur within the two year period.
**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 ☐ not in compliance with Standard of Practice 5.2

**Summarize the basis for this Finding/Deficiencies Identified:**

GGM has developed an estimate of the cost to fully fund third party implementation of the cyanide-related decommissioning measures identified in the GGM Cyanide Decontamination and Decommissioning Plan. The cost estimate is reviewed and updated on an annual basis.

GGM maintains a funding mechanism known as the Gold Fields Rehabilitation Provision. Under the requisite accounting standards of the Operation, the recognised liability or estimate of costs for dismantling and restoring the site are included in the cost of the asset. These costs are addressed as part of the annual closure cost estimate process and captured in the provision.

Based on the annual updated cost estimate, GGM pays an annual Mine Rehabilitation Fee to the Western Australian Government mine regulator (Department of Mines, Industry Regulation and Safety) in accordance with statutory obligations.
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 or control them.

☑ in full compliance with

☐ in substantial compliance with Standard of Practice 6.1

☐ not in compliance with

Summarize the basis for this Finding/Deficiencies Identified:

GGM has identified potential cyanide exposure scenarios and developed written procedures to manage and control the risks to personnel for cyanide uploading, operations, equipment decontamination and confined space entry. These documents are stored and accessible to all personnel electronically.

The GGM Cyanide Management Plan provides an overarching management framework that describes the operational controls and procedures in place at GGM for minimising worker exposure to cyanide.

The use of personal protective equipment is required and outlined in the site induction process, including the use of hydrogen cyanide gas monitors in designated areas. Pre-work inspections and job hazard assessments identify appropriate personal protective equipment for each task.

GGM reviews any proposed process and operational changes and modifications through a formal Change Management Procedure. A risk and technical review of all proposed changes undergo a Health Analysis Impact Study to assess potential risk to Worker safety and health. GGM involve worker input into the drafting of procedures by sending out drafts for “squad review”. Standard Operating Procedures are developed by work teams with substantial worker input. Supervisors and Management personnel sign off on the procedures before implementation.
Standard of Practice 6.2:

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

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

Summarize the basis for this Finding/Deficiencies Identified:

GGM has determined that pH 9.8 is the target for process solutions throughout the mill to limit volatilisation of hydrogen cyanide (HCN) gas. Routine testwork to assess pH in relevant process solutions, such as the leach circuit, is carried out.

The potential for significant cyanide exposure is identified at the CIL, Tails Pumping, Cyanide Reagents Area, Tails carbon safety screens, Intensive leach reactor areas and it is therefore mandatory to wear a personal hydrogen cyanide Gas Detection Monitor at all times. In addition there are twelve locations in the plant area identified as risk areas where fixed hydrogen cyanide monitors are installed. Hydrogen cyanide gas monitoring instrumentation is calibrated and maintained in accordance with manufactures’ specifications.

Warning signs are placed at appropriate locations where cyanide is used, including signs that prohibit smoking, eating, drinking, open flames, use of personal hydrogen cyanide gas monitors and use of suitable personal protective equipment.

The cyanide supply contract stipulates that colourant dye is included in the Sodium Cyanide Solution.

Low pressure combination eyewash station/ safety showers and dry powder fire extinguishers are located strategically within the GGM Processing Plant. The units are subject to a program of regular inspection and preventative maintenance.

All pipes carrying high strength cyanide on site are coloured purple and/or labelled ‘cyanide’ with the direction of flow indicated. Pipes carrying tailings or process solutions are labelled ‘Process’ with the direction of flow indicated.

GGM maintains current English language SDS and first aid procedures at strategic site locations.
In the event of cyanide exposure incidents, GGM incident investigation procedures include the requirement to evaluate the sufficiency of operational controls, including procedures and training materials to protect worker health and safety and response to cyanide exposure.
Standard of Practice 6.3:

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

☐ in full compliance with

The Operation is ☐ in substantial compliance with ☐ not in compliance with Standard of Practice 6.3

 Summarize the basis for this Finding/Deficiencies Identified:

GGM maintains water, oxygen, a resuscitator, and radio communication and alarm systems at the cyanide unloading and storage area, and at several other strategically located locations elsewhere in the plant. The cyanide antidote kit, which utilises Hydroxycobalamine, is stored in the nearby site first aid clinic. The cyanide antidote is stored as directed by the manufacturer. Both cyanide antidote kits were found to be ‘in date’ and not expired.

Audible alarms are established throughout the process plant to raise the alarm if high hydrogen cyanide gas or other emergencies are triggered, as well as local alarm displays within the Plant Control operator interface system. All personnel carry two-way radios so they can readily report on emergencies.

GGM maintains and implements emergency management plans and first aid procedures to respond to worker exposure to cyanide.

GGM has its own on-site capability to provide first aid or medical assistance to workers exposed to cyanide, via an onsite First Aid medical clinic which is staffed by a full time Paramedic (on 24 hour call). Medical and First aid equipment are inspected and maintained in accordance with manufacturers’ recommendations.

GGM has developed procedures to transport workers exposed to cyanide to locally available qualified off site medical facilities. There is one on-site ambulance which is available to transport patients to the Laverton Hospital, or to the site airport for medivac via the Royal Flying Doctor Service.

A Memorandum of Understanding (MOU) is in place with the Laverton Hospital and the Royal Flying Doctor Service for the purpose of the treatment of patients suffering suspected exposure to cyanide.
Mock Emergency Drills are undertaken periodically for scenarios which cover worker exposures to cyanide. Drills are followed by a debrief, and changes to procedures are made if required.
**PRINCIPLE 7 – EMERGENCY RESPONSE:**

*Manage Protect communities and the environment through the development of emergency response strategies and capabilities.*

**Standard of Practice 7.1:**

*Prepare detailed emergency response plans for potential cyanide releases.*

- in full compliance with
- in substantial compliance with
- not in compliance with

**Summarize the basis for this Finding/Deficiencies Identified:**

GGM has developed an Emergency Response and Management Plan (ERMP) that outlines emergency procedures for multiple nominated emergency scenarios, including potential releases of cyanide. The ERMP has an overarching flow chart that outlines the actions to be taken during, and immediately after a cyanide emergency incident. The ERMP includes eight scenarios for the potential accidental release of cyanide, including: catastrophic release of hydrogen cyanide gas, pipe and tank rupture, fire and explosions, and failure or overtopping of the tailings impoundment. For each cyanide emergency scenario, a Pre-Incident Plan (PIP) exists, which provides decision-making guidance depending on the location of the incident, activation of an incident management team, evacuation, decontamination and recovery actions.

Planning for response to transportation-related emergencies is managed by the cyanide Producer (AGR-CSBP). Emergency management procedures are detailed in AGR-CSBP management plans for both rail transport and road transport incidents associated with transporting the liquid cyanide in isotainers to GGM. The ERMP has a scenario for managing a road transport incident involving cyanide close to the GGM site.

The ERMP describes specific response actions to clear site personnel in an emergency, first aid measures for cyanide exposure, control of releases at their source, and containment methods. Assessment and mitigation methods for soil contaminated in a spill are described, and investigation of incidents seek to prevent future releases. Potentially affected communities are not considered due to the very remote location.
of the Operation. Instructions on the appropriate use of the cyanide antidote kit is included in the ERMP, but would not be administered as a First Aid Treatment, but rather by the site Paramedic.
**Standard of Practice 7.2:**

*Involve site personnel and stakeholders in the planning process.*

☑ in full compliance with

☐ in substantial compliance with Standard of Practice 7.2

☐ not in compliance with

**Summarize the basis for this Finding/Deficiencies Identified:**

GGM involves the workforce in the cyanide emergency response planning process via participation in drill and evacuation exercises. The debrief sessions have identified improvements to be implemented. These drills are carried out as desktop or actual exercises with the involvement of its workforce and external agencies, including medical evacuation providers (Royal Flying Doctor Service).

The communities along the cyanide transport route have been advised of GGM’s use of cyanide and the management of the potential risks via updates in local newsletters.

GGM is a member of the Local Emergency Management Committee (LEMC) which includes the Laverton Shire Council, Laverton Police, Fire and Emergency Services Authority of Western Australia (FESA), Laverton Hospital, and local mining operations. GGM engages communication with the LEMC when changes are made to the Emergency Response Plan that involve or require stakeholder input.

Outside responders (Royal Flying Doctor Service and Laverton hospital) have been involved and informed of their role in an emergency and this is formalised in Memorandum of Understanding documents.
**Standard of Practice 7.3:**

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

- [✓] in full compliance with

The Operation is  [ ] in substantial compliance with  [ ] not in compliance with

**Summarize the basis for this Finding/Deficiencies Identified:**

GGM’s Emergency Response and Management Plan designates the emergency response coordinators role and responsibilities. The On Scene Command (OSC) is managed by the most senior person present at the time of the emergency. The Emergency Management Team assists with immediate management which includes the provision of planning and resources for evacuation, and informing key stakeholders. The Emergency Response Team is identified, their duties and responsibilities are specified, and required training requirements are outlined. Emergency Response Team training requirements include external courses, weekly training exercises and mock-drills. Call-out procedures and 24-hour contact information are included for all emergency responders. All members of the Emergency Management Team have Duty Cards to facilitate effectiveness of response and clarification of roles and responsibilities. Required emergency response equipment, including personal protection equipment, is listed and the locations and inspection procedures for the equipment is specified. The equipment is inspected weekly.

The role of outside responders (Royal Flying Doctor Service, other Mining Operation Emergency Response Teams) and medical facilities (Laverton Hospital) is described in the ERMP, including within the Pre-Incident Plans. Memorandum of Understanding documents with the Royal Flying Doctor Service, Department of Fire and Emergency Services, and the Laverton Hospital confirm that the outside entities are aware of their involvement in the ERMP. Members of the Gold Road Emergency Response Team have been involved with training and mock drills, and the Royal Flying Doctor Service have been involved in mock drills. The Local Emergency Management Committee provides a quarterly forum which allows GGM to keep the outside entities up to date with any changes to their involvement in the EMRP.
**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 ☐ not in compliance with Standard of Practice 7.4

**Summarize the basis for this Finding/Deficiencies Identified:**

GGM’s Emergency Management Response Plan describes the procedures to notify management, regulatory agencies, outside response providers (the Royal Flying Doctor Service) medical facilities (Laverton Hospital), and the community. Contact information for the mutual aid partners, local community and regulatory agencies are listed in the ERMP.

GGM’s location is remote from communities so incidents occurring on-site would not affect or require communications with those communities.

The Duty Card for the Public Information Officer (Registered Mine Manager) designates responsibilities for external contact, which includes the local community and the Media.
**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
- □ in substantial compliance with
- □ not in compliance with

**Summarize the basis for this Finding/Deficiencies Identified:**

The GGM Emergency Response and Management Plan (ERMP) describes remediation measures for cyanide release scenarios including: the recovery and neutralisation of liquid cyanide; neutralization and decontamination of soils; and management and/or disposal of spill clean-up debris.

Remedial Procedures identify the location of treatment chemicals (ferrous sulphate and hypochlorite); preparation and use of treatment chemicals at appropriate concentrations and quantities; required equipment and resources; required personal protective equipment and communication devices; specialist emergency response equipment including breathing apparatus; required vehicles and medical equipment; and decontamination of equipment upon completion of remedial works.

Remedial Procedures provide step-by-step instructions for remedial actions, including definition of the end point of the remediation.

There are no drinking water supplies that could come into contact with cyanide at the site.

The Emergency Response and Management Plan addresses the potential need for environmental monitoring to identify the extent and effects of a cyanide release, and refers to sampling methodologies in site environmental procedures.

The Emergency Response and Management Plan states that sodium hypochlorite and ferrous sulfate must never be used to treat cyanide that has been released into natural surface waters. No permanent lakes, rivers or ephemeral creeks are in close proximity to the site.
**Standard of Practice 7.6:**

Periodically evaluate response procedures and capabilities and revise them as needed.

☑ in full compliance with

☐ in substantial compliance with  Standard of Practice 7.6

☐ not in compliance with

**Summarize the basis for this Finding/Deficiencies Identified:**

The GGM Emergency Response and Management Plan (ERMP) is required to be reviewed at least every two years. The Emergency Response and Management Plan is updated as required, with seven revisions having occurred since first issue in 2019. GGM schedules and conducts annual emergency drills involving cyanide. The drills are scheduled by the Emergency Response Coordinator. The emergency response drill records included a debriefing to discuss lessons learned and includes provisions for updating or revising the emergency plans as required.

No cyanide related emergency has yet occurred and as such no changes to the Emergency Response and Management Plan were made as a result of a cyanide related emergency. Procedures require a debrief following any incident, which includes evaluation for opportunities for improvement.
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.

☑ in full compliance with

The Operation is ☐ in substantial compliance with Standard of Practice 8.1

☐ not in compliance with

Summarize the basis for this Finding/Deficiencies Identified:

All visitors and contractors who undertake any work at GGM are trained in cyanide hazard recognition by initially completing either the Visitors or Short Term Workers Induction which includes basic cyanide awareness, first aid, emergency response and hazard recognition.

GGM Process plant employees and contractors (including maintenance workers), emergency response team members and personnel that will regularly access the Processing Plant must complete the AGR Cyanide Awareness Training and the Processing Induction. This training includes information on cyanide exposure pathways, basic first aid for cyanide exposure, hydrogen cyanide gas monitors, resuscitator locations, operation of resuscitators, and safety shower operation. Personnel must receive refresher training of the AGR Cyanide Awareness Training on an annual frequency.

GGM maintains records of all personnel who have completed the General Induction and when refresher training is due to be completed.
**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.

☑ in full compliance with

The Operation is  □ in substantial compliance with  Standard of Practice 8.2

□ not in compliance with

**Summarize the basis for this Finding/Deficiencies Identified:**

GGM trains workers to perform their normal production tasks, including unloading, production and maintenance, with minimum risk to worker health and safety and in a manner that prevents unplanned cyanide releases.

The training elements necessary for each job involving cyanide management are based upon individual job roles, and ensures training occurs for safe and effective implementation of all cyanide related tasks. Curricula are specific to the individual but consist of sets of procedures, work instructions, competencies and compliance required for set roles such as: Reagents Operations, CIL Operations, Elution Operations, Gold Room Operations, and Tailings Operations. Training manuals exist for each area.

Personnel that provide cyanide-related task training have knowledge of the specific tasks to be accomplished.

An appropriately qualified or competent person provides task training related to cyanide management activities. Trainers have certification for Training and Assessment skills.

All employees and contractors at GGM who are involved in the management of cyanide must complete training in a procedure before a task can be performed unsupervised. A formalised Buddy System is implemented for all new processing personnel to ensure workers safety.

Cyanide specific training includes, but is not limited to: Cyanide Producer Cyanide Awareness, Managing HCN Gas, Cyanide Storage Compound Access, Resuscitator Awareness, Respiratory Protection Procedure, Cyanide Delivery and Unloading, Leak Detection Monitoring, Cyanide Spill and Ground Decontamination, WAD Cyanide Response Procedures, TSF WAD Cyanide Monitoring, and Leak detection for TSF tailings lines.
Cyanide-related task training includes, but is not limited to: Intertank Screen Removal Procedure, pH meter calibration, Process Preparation for Significant Rainfall Events, Managing Spigots at TSF, TSF Wildlife Observation, Cyanide Titration, and Elution Procedures.

All Competencies, Procedures and Work Instruction based training is scheduled to be refreshed every two years, but has not been triggered to date.

The effectiveness of cyanide training is evaluated by testing and observation and recorded on a Training Evaluation Form.

Training courses that include theory questions (written tests) at the conclusion of training instruction includes, but is not limited to: Cyanide Awareness, Processing Induction, Short Term Workers Induction, Working in Confined Spaces, Isolation, and Area Training Manuals.

Training courses that include verbal theory questions at the conclusion of training instruction, recorded and graded in writing at the conclusion of training instruction includes, but is not limited to: Cyanide Delivery, and Tailings Storage Facility and Water Ponds Inspections.

All training documentation is maintained by the Training Advisor (including signed forms, copies of certificates, completed assessments) and stored electronically.

Employees can at all times access their own training records.
**Standard of Practice 8.3:**

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

☑ in full compliance with

☐ in substantial compliance with  ☐ not in compliance with

**Summarize the basis for this Finding/Deficiencies Identified:**

All process plant and maintenance personnel, including those involved in cyanide unloading, are required to undertake training in spill clean-up, decontamination activities, as well as Oxygen Resuscitator training (first response for cyanide exposure) as part of their basic training.

First responder personnel are trained in decontamination and first aid procedures, and take part in routine drills to test and improve their response skills.

GGM maintains a training matrix for Emergency Response Team members which includes training in hazardous materials and cyanide incidents. The Emergency Response Team members undergo weekly training sessions which includes regular use of Oxygen Resuscitators and some cyanide related scenarios. Mock Drills are undertaken for scenarios which cover both worker exposures and environmental releases. Drills are followed by a debrief, and additional training and changes to procedures are made if required.

Due to the remote location of GGM, Emergency Response actions are primarily carried out by the Operation. GGM has several communication protocols to keep off-site responders such as the Royal Flying Doctor Service and Laverton hospital informed of emergency plans and procedures that may relate to their involvement.

All Emergency Response Team members are expected to work towards completion of Certification III Mine Emergency Response, which includes training in first aid; identification, detection and monitoring of hazardous materials at an incident; and rendering of hazardous material safe at an incident. GGM maintain training and assessment records for Emergency Response Team members.
Simulated cyanide emergency drills covering both worker exposures and environmental releases are periodically conducted for training purposes. The most recent drill was conducted on 18 January 2020.

GGM has made off-site Emergency Responders, such as the Royal Flying Doctor Service and Laverton Hospital, familiar with those elements of the Emergency Response Management Plan related to cyanide and formalised the arrangement with Memorandums of Understanding, and are able to keep them up to date with any changes via the Local Emergency Management Committee.

Training records are retained documenting the cyanide training, including the names of the employee and the trainer, the date of training, the topics covered, and how the employee demonstrated an understanding of the training materials.
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
☐ in substantial compliance with Standard of Practice 9.1
☐ not in compliance with

Summarize the basis for this Finding/Deficiencies Identified:

The operation manages Stakeholder engagement in accordance with a Stakeholder Engagement Plan.

GGM regularly posts information in the local Laverton Shire Newsletter publication, and on two occasions has posted information on cyanide management at the Operation at the Laverton Shire Council offices. GGM contact details are provided within the publication to allow stakeholders to communicate issues of concern.

Other avenues for communication include quarterly Local Emergency Management Committee meetings, quarterly relationship committee meetings between Native Title representatives and the GGM community department, and annual community site tours.
**Standard of Practice 9.2:**

*Initiate dialogue describing cyanide management procedures and responsively address identified concerns.*

- [x] in full compliance with
- [ ] in substantial compliance with Standard of Practice 9.2
- [ ] not in compliance with

**Summarize the basis for this Finding/Deficiencies Identified:**

GGM manages Stakeholder engagement in accordance with a Stakeholder Engagement Plan.

Initiatives to encourage dialogue include annual community site tours, quarterly Local Emergency Management Committee meetings, and quarterly relationship committee meetings between Native Title representatives and the GGM community department.

Written Information on cyanide management is posted in local community newsletters and notice boards, and in GGM newsletters and notice boards, with contact details provided for feedback and queries.
**Standard of Practice 9.3:**

*Make appropriate operational and environmental information regarding cyanide available to stakeholders.*

- ✔️ in full compliance with
-  □ in substantial compliance with Standard of Practice 9.3
-  □ not in compliance with

**Summarize the basis for this Finding/Deficiencies Identified:**

GGM has developed written descriptions of how their activities are conducted and how cyanide is managed, and made these descriptions available to communities and other stakeholders.

Written Information on cyanide management is posted in local community newsletters and notice boards, and in GGM newsletters and notice boards, with contact details provided for feedback and queries.

There is not a significant percentage of the local population that is illiterate; the spoken and written language is English.

GGM is required to notify native title holders of cyanide incidents including environmental releases, via Native Title Agreement.

GGM’s existing DWER licence includes requirements to notify the Department within 24 hours of any cyanide related incident that results in hospitalization, a fatality, release of cyanide off the mine lease or significant environmental effects.

All environmental incidents involving cyanide are disclosed in the Annual Environment Report.

The GGM Cyanide Management Plan commits to public disclosure of any cyanide incidents identified in Code requirements for this Standard of Practice via the Annual Environmental Report. No reportable cyanide-related incidents have occurred since first receipt of cyanide at site.
**APPENDIX A: Important Information**

Important information and limitations concerning the preparation and submission of this Audit Report both in its complete and summarised forms.

Kindly take notice of the following important qualifications and limitations in connection with the preparation and submission of this report (“Report”).

1. The Report has been prepared in good faith by the signatory for and on his own behalf and as an authorised representative of Veritas Metallica Pty Ltd (“VMPL”);
2. The Report is intended for the exclusive use of Gruyere Management Pty Ltd (“Client”).
3. It is not intended to be relied upon by any party other than the Client.
4. No permission is given by the author for reliance on this Report by any third party and the author takes no responsibility for publication thereof on any media by others.
5. The Report has been prepared on the basis of instructions, information and data supplied by the Client, and on the basis of the physical conditions and location of the site at which tests (if any) were undertaken.
6. The author of the Report gives no warranty or guarantee and makes no representation, whether express or implied, with respect to the content of this Report or the completeness or accuracy thereof.
7. No reliance should be placed upon anything other than that which is expressed in this Report.
8. The author of this Report accepts no responsibility or liability for any loss or damage suffered by any party which is incurred in reliance upon the contents of this Report. In particular and without limitation, the author shall not be liable for any loss or damage or economic loss suffered by any party which arises out of any of the contents of this Report or anything which is omitted from the contents of this Report.
9. Readers of this Report are alerted to the possibility that the conditions which existed at the time of the preparation of this Report may have changed both prior to and after the preparation of this Report and in no way does this Report encompass, take account of or refer to such changed conditions.