



**REPORT**

# International Cyanide Management Code

## *Gruyere Pre-Operational Certification Audit - Summary Audit Report*

Submitted to:

**International Cyanide  
Management Institute (ICMI)**

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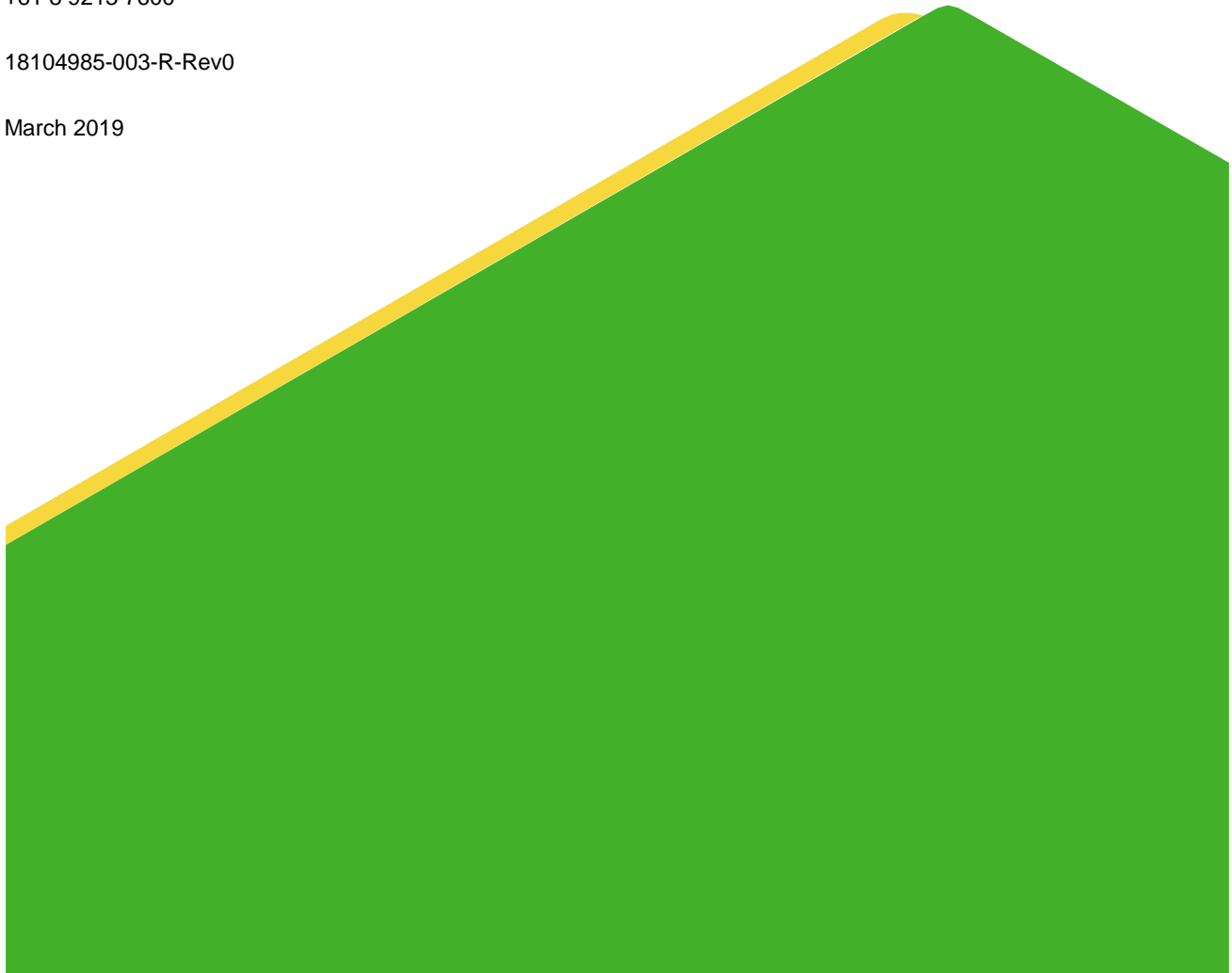
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## Distribution List

Electronic Copy – International Cyanide Management Institute

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# Summary Audit Report

<b>Name of Mine:</b>	Gruyere Gold Project
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## LOCATION DETAIL AND DESCRIPTION OF OPERATION

### Gruyere Management Pty Ltd

The Gruyere Gold Project (Gruyere) in Western Australia (WA) is a 50:50 joint venture between Gold Road Resources (Gold Road) and Gruyere Mining Company Pty Ltd, a wholly owned Australian subsidiary of Gold Fields. Under the Joint Venture Agreement, Gold Fields will manage the development of Gruyere and will also manage the operation of the mine. Gold Road retains responsibility for exploration on the Joint Venture tenements.

### Gruyere Gold Project

The Gruyere deposit is centred at latitude 27° 59' S, longitude 123° 50' E, within the Yamarna Terrane of the eastern Yilgarn, WA. Gruyere is located approximately 200 kilometres (km) east of Laverton and 1 000 km north-east of Perth.

Construction of the Project commenced at the beginning of 2017 and is scheduled to deliver first ore production at the end of 2018. The first gold pour is estimated for the beginning of the 2019 June quarter.

## AUDITORS FINDINGS

The Gruyere Gold Project is:

in full compliance with

in substantial compliance with

not in compliance with



**The International  
Cyanide Management  
Code**

**Audit Company:** Golder Associates Pty Ltd

**Audit Team Leader:** Mike Woods, Lead Auditor and Technical Specialist

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Name and Signatures of Other Auditors:

Name	Position	Signature	Date
Mike Woods	Lead Auditor and Technical Specialist		25 March 2019
Craig Currie	Auditor		25 March 2019

## Dates of Audit

The Pre-Operational Audit site visit was conducted between 6 and 8 November 2018.

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 Pre-Operational Audit. I further attest that the Pre-Operational Audit was conducted in a professional manner in accordance with the International Cyanide Management Code's *Mining Pre-Operational Verification Protocol* and using standard and accepted practices for health, safety and environmental audits.

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Important Information

## 1.0 PRINCIPLE 1 – PRODUCTION

### Encourage Responsible Cyanide Manufacturing by Purchasing from Manufacturers that Operate in a Safe and Environmentally Protective Manner

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

in full compliance with

The operation is

in substantial compliance with

**Standard of Practice 1.1**

not in compliance with

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

The operation is in FULL COMPLIANCE with Standard of Practice 1.1 requiring purchase of cyanide from manufacturers employing appropriate practices and procedures to limit exposure of their workforce to cyanide, and to prevent releases of cyanide to the environment.

The operation is committed to require in the contracts with the cyanide manufacturer that the cyanide is produced at a facility that has been certified in compliance with the Code.

The operation has entered into negotiations with Australian Gold Reagents (AGR) for the supply of cyanide to the site and clause 15 of the draft contract has requirement for the supplier to be compliant with Code.

AGR are a signatory to the Code and were re-certified with the Code on 3 August 2017 and are due for their recertification audit to be conducted before 3 August 2020.



## 2.0 PRINCIPLE 2 – TRANSPORTATION

### Protect Communities and the Environment During Cyanide Transport

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

in full compliance with

The operation is

in substantial compliance with

**Standard of Practice 2.1**

not in compliance with

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

The operation is in FULL COMPLIANCE with the Standard of Practice 2.1 requiring that the operation establish clear lines of responsibility for safety, security, release prevention, training and emergency response in written agreements with producers, distributors and transporters.

The operation has committed to enter into written agreements between the operation, the cyanide producer and transporters. The draft contract covers the production and supply to the mine. AGR are a Code certified production facility and transporter.

AGRs Western Australian Supply Chain was re-certified as compliant with the Code on 26 September 2016. The operations selected producer and transporter are certified as compliant with the Code.

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

in full compliance with

The operation is

in substantial compliance with

**Standard of Practice 2.2**

not in compliance with

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

The operation is in FULL COMPLIANCE with Standard of Practice 2.2 requiring that cyanide transporters implement appropriate emergency response plans and capabilities and employ adequate measures for cyanide management.

The operation has committed to require by contract that cyanide be transported to its site by transporter(s) that are certified as being in compliance with the Code. The draft contract covers both the production and supply of cyanide to the operation and AGR are a Code certified transporter.



### 3.0 PRINCIPLE 3 – HANDLING AND STORAGE

#### 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

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

in full compliance with

The operation is

in substantial compliance with

**Standard of Practice 3.1**

not in compliance with

#### Summarise the basis for this Finding/Deficiencies Identified:

The operation is in FULL COMPLIANCE with Standard of Practice 3.1 requiring that cyanide handling and storage facilities are designed and constructed consistent with sound, accepted engineering practices, quality assurance/quality control (QA/QC) procedures, spill prevention and spill containment measures.

The operation has demonstrated that cyanide unloading and storage facilities will be designed and constructed in accordance with cyanide producers' guidelines, applicable jurisdictional rules and/or other sound and accepted engineering practices.

The operation will receive liquid cyanide delivered in iso-containers and transferred to two storage tanks installed on concrete plinths within a dedicated bund. The operation consulted with the producer AGR on the design of the facility.

A series of engineering drawings and data sheets have been issued for the construction of the facility and reference Australian Standards for engineering aspects and provide detail on the installation.

The operation has demonstrated that unloading and storage areas for liquid and solid cyanide will be located away from people and surface waters. The unloading area is located away from administrative areas and frequently occupied areas in accordance with Australian Standards for the storage and handling of toxic substances.

The cyanide facility has a dedicated bund and unloading pad and the operation has developed a procedure for access to this area.

The cyanide compound is located away from surface waters with the nearest surface water feature (Lake Throssell) located approximately 25 km from the site. Further, the process plant site has an event pond that is designed to capture impacted water should a release outside of containment occur.

The design drawings demonstrate that liquid cyanide will be unloaded on a concrete surface that can minimize seepage to the subsurface. The concrete bund and unloading pad have been constructed and spillage that may occur would drain into the bund. The concrete was observed to be free of cracks or gaps that would allow seepage to the subsurface.

The design drawings also demonstrate that the cyanide unloading area is designed and will be constructed to contain, recover or allow remediation of any leakage from the tanker truck.

The unloading pad is designed to drain into the cyanide tank bund which drains to a sump which allows for the recovery of leakage from a tanker or hose. Water is available to wash the cyanide leakage into the bund. The unloading pad was observed to be off sufficient size for a single tanker unloading with kerbing to contain leakage.

Design drawings demonstrate the installation of level indicator and high-level alarms to prevent the overfilling of cyanide storage tanks. Visual level indicators will be provided on tanks and also linked to the control room. The tanks will also be fitted with high-high alarms with warning lights and sirens.

Design drawings also demonstrate that the operation has committed to locating cyanide storage tanks on a concrete surface that can prevent seepage to the subsurface.

Cyanide storage tanks are installed on concrete plinths within a concrete bund facility. At the time of the audit the bund, plinth and tank were installed with the tank lids yet to be fitted. The construction drawings show a solid concrete plinth for tank foundation integrated into the containment bund. There are no cyanide mixing tanks.

Design drawings demonstrate that the operation has committed to constructing secondary containments for cyanide storage tanks out of materials that provide a competent barrier to leakage.

The construction drawings show a solid concrete plinth for tank foundation integrated into the containment bund provide a competent barrier to leakage. At the time of the audit the concrete containment had been constructed and no defects or cracks in the containment were observed. The bunds were complete, and the tanks partially completed at the time of the audit.

The operation has provided design drawings showing that cyanide will be stored with adequate ventilation, in a secure area and separately from incompatible materials.

Cyanide tanks have been installed in a well-ventilated area and the liquid cyanide is stored in two tanks within a dedicated bund that is located away from normally occupied areas. The mining operation is located in a remote location and access to the site is controlled. The compound drawings show a security fence on top of the bund wall with lockable gates. The procedure for entry into the compound details access via control room authorisation.

**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

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

not in compliance with

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

The operation is in FULL COMPLIANCE with Standard of Practice 3.2 requiring that cyanide handling and storage facilities are operated using inspections, preventive maintenance and contingency plans to prevent or contain releases and control and respond to worker exposures.

With respect to empty containers the operation has committed to clean any cyanide residue from the outside of cyanide containers that are returned to the vendor and securely close them for shipment.

The operation is designed to receive liquid cyanide in iso-containers that are decanted into the storage tanks. The iso-containers are connected to the transfer system via flexible hoses and the cyanide liquor is transferred to the holding tanks. This operation is undertaken by the supplier/transporter AGR and the empty tanks return with the transporter following delivery for re-use. The procedure for unloading includes procedures for rinsing residue from the outside of the iso-container before the iso-container leaves the unloading pad.

The operation has prepared draft procedures and committed to implementing the procedures to prevent exposures and releases during cyanide unloading activities. The unloading of the iso-container is undertaken by AGR and follows their delivery procedures. The operation has developed their own procedures for cyanide unloading which includes a pre-operational check on the area and confirmation that systems are working and non-essential personnel have been removed from the area before the task commences.

The two procedures address operation of valves, isolations, Personal Protective Equipment (PPE) and use of a spotter.

## 4.0 PRINCIPLE 4 – OPERATIONS

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

**Standard of Practice 4.1:** Implement management and operating systems designed to protect human health and the environment including contingency planning and inspection and preventive maintenance procedures.

in full compliance with

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

not in compliance with

#### Summarise the basis for this Finding/Deficiencies Identified:

The operation is in FULL COMPLIANCE with Standard of Practice 4.1, requiring that the operation implement management and operating systems designed to protect human health and the environment including contingency planning and inspection and preventive maintenance procedures.

The operation has prepared draft plans and written management and operating plans and procedures for cyanide facilities including unloading and storage facilities, leach plants, and tailings impoundments. Heap leach, cyanide treatment and mixing are not applicable to the operation.

The operation has prepared a suite of operating procedures covering unloading, operation of the plant, process water pond and tailings storage facility. At the time of the audit a significant proportion of the management level procedures have been developed, reviewed and issued. The remaining management level procedures were substantially progressed. The operation has commenced the development of task level operating procedures based on Original Equipment Manufacturer (OEM) manuals, Piping and Instrumentation Diagrams (P&ID) and manufacturer information.

The operation has committed to include in its procedures and prepared draft plans or procedures that identify the assumptions and parameters on which the facility design is based on and any applicable regulatory requirements.

The operation has prepared plans with the following documents providing details on assumptions and parameters:

- Cyanide Management Plan (CMP)
- Process Control Philosophy
- Tailings Storage Facility (TSF) Operating Manual.

The operation has adopted 50 mg/l Weak Acid Dissociable (WAD) CN as the maximum level for cyanide within tailings and is implementing online WAD CN and Free Cyanide analysis in the tails and feed respectively as part of the management strategy and developing set points and trigger levels.

The freeboard for the TSF is detailed within the operating manual and this has been included in the operational check sheets.

The operation has developed procedures for inspections and preventative maintenance activities.

Operational inspections will be conducted on a periodic basis using checklists that are supported by a training package that outlines the expected standards. Specific operational inspection procedures have been developed for the TSF and process water pond to check freeboard and leaks from tails lines.

The operation is in the process of loading its preventative maintenance strategies into their software system (AMT) that will control preventative and reactive maintenance. The operation has a draft work management procedure for maintenance that details how maintenance activities will be identified, planned and performed. A job list map has been developed that identifies inspections and maintenance activities for each asset of the processing plant including cyanide facilities and this will be used to program AMT. The detailed inspection procedures and checklists are in the process of being developed.

The operation has developed a Change Management Procedure and forms that guide the initiation and assessment of change. The adopted approach is risk based and the procedure provides guidance on engineering and operational changes that would trigger formal change assessment.

The change assessment includes a team-based risk assessment approach (and/or higher-level risk assessment tools). These risk tools include consideration of safety and environmental risks and consultation with stakeholders including Health Safety and Environment (HSE) representatives.

The operation has committed to prepare cyanide management contingency procedures for 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.

The operation is in the process of developing a probabilistic water balance which includes the TSF and Process Water Pond however these facilities will be managed with sufficient freeboard to prevent overtopping.

The operation is preparing an emergency shutdown process for the plant to address situations for when a temporary cessation of operations is necessary which will include deviation from design or operating parameters.

The operation has prepared draft operational inspection forms and committed to inspect cyanide facilities on an established frequency sufficient to assure and document that they are functioning within design parameters.

The CMP provides that routine area inspections of the Processing Plant shall be conducted as a minimum every quarter. These inspections have a formalised template to assist personnel completing the inspections. Draft checklists for reagent, CIL, elution, Intensive Leach Reactor (ILR) and Gravity circuits and the TSF facility have been developed for process operators. Actions from the inspections will be recorded through INX software platform or where maintenance or repair is needed, through AMT.

The operation has prepared draft inspection forms and has committed to inspect unloading, storage and process areas. Draft operational inspection checklists have been developed that address general condition, drains, build-up of material, leak detection and freeboard.

Maintenance inspection procedures and checklists for structural integrity, corrosion and leakage are being developed. The assets on the plant have been mapped and jobs identified for uploading into AMT. The associated procedures and inspection documentation are being developed.

A work management procedure has been drafted that covers preventative and reactive maintenance activities including initiation, validation, scheduling, completion and monitoring.

The operation has prepared draft inspection forms and procedures to document inspections, including the date of the inspection, the name of the inspector, any observed deficiencies, and the nature and date of corrective actions. Draft inspections checklists for reagent, Carbon in Leach (CIL), elution, In-line Leach Reactor (ILR) and Gravity circuits and the TSF facility include prompts for observed deficiencies and recording of actions. The forms include date and inspector.

The work instructions being developed to accompany work orders through AMT will also have provision to record the inspection, outcomes, the inspector and the date.

The operation has developed a draft preventive maintenance program to document these activities to ensure that equipment and devices function as necessary for safe cyanide management. The operation is in the process of loading the maintenance program into the AMT that will be used to control and monitor workflow. The operation has completed a maintenance job map that identifies equipment for cyanide management.

The operation has reviewed process operations and emergency power resources to prevent unintentional releases and exposures. The operation has concluded that emergency power is not necessary to prevent unintentional releases.

The emergency generators are set to provide power to plant safety systems (safety showers, RO plant, RO/potable/fresh water pumps, plant air compressors, fire water systems) and for equipment/process protection (gland water pumps, Tailings Thickener rakes, Pre-Leach Thickener rakes, CIL agitators).

During a loss of power event to the Processing Plant, the process pumps will stop, and the circuit valves will fail closed preventing the release of slurry and solution. This includes the cyanide delivery pumps.

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

in full compliance with

The operation is  in substantial compliance with **Standard of Practice 4.2**

not in compliance with

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

The operation is in FULL COMPLIANCE with Standard of Practice 4.2 requiring that the operation limit the use of cyanide to that optimal for economic recovery of gold so that the waste tailings material has as low a cyanide concentration as practical.

The operation has committed to conduct a program to determine appropriate addition rates in the mill. Initial test work as part of the Detailed Feasibility Studies (DFS) has indicated cyanide addition rates of 0.55 kg/t. Gold in Circuit (GIC) (contained metal inventory) profiles will also be used to determine if the cyanide addition rates are sufficient.

The operation is committed conducting programs to continually assess the cyanide addition requirements with the aim to reduce cyanide concentration in the tails and hence the discharge to the TSF. The CMP outlines the following activities will be conducted to achieve cyanide optimisation and control:

- Online cyanide monitoring and control
- Manual free cyanide monitoring
- Routine testwork (bottle rolls)
- pH monitoring and control
- Ore characterisation testwork.

The operation has developed a draft strategy to control its cyanide addition as necessary when ore types or processing practices change cyanide requirements. The ore characterisation test work has commenced on future ore bodies that may be processed through the Gruyere plant.

**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

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

The operation is in FULL COMPLIANCE with Standard of Practice 4.3, requiring the operation to implement a comprehensive water management programme to protect against unintentional releases.

The operation has committed to develop a comprehensive, probabilistic water balance (PWB). The operation is in the process of engaging a third party to modify the existing balance to comply with the requirements of a probabilistic balance and a looking at using GoldSim based water balance. The proposal scope addresses the requirements of the Code in relation to a PWB. The detail within the proposal document and the CMP are considered to demonstrate commitment along with the commitment of funds to the development of the PWB.

The operation has prepared draft procedures that 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.

The TSF and process water pond levels will be monitored daily and recorded on the TSF inspection sheets. Meteorological data will be obtained from on-site stations where possible or nearest Bureau of Meteorology (BoM) station.

The operation has committed to develop a water balance that consider the factors outlined by the Code in a reasonable manner and as appropriate for the facilities and environment. Design storm durations are presented in the TSF operating manual and precipitation data will be taken from the closest BoM station for use in the model. There are stormwater diversions installed around the plant area and TSF facility to minimise impacts from up gradient watershed. The proposal scope addresses the requirements of the Code for a water balance and a basic water flow diagram has been prepared to facilitate the water balance design.

The operation has provided engineering drawings that demonstrate that ponds and impoundments have been designed with adequate freeboard above the maximum design storage capacity determined to be necessary from water balance calculations. For the process water pond, a minimum free board of 300 mm is to be maintained after the 1:100 year 72 hour storm event has been taken into consideration.

The process water pond will be managed to maintain operational freeboard and there is a design spill way from the process water pond to the event pond in the event it should be necessary. The event pond will be managed as a contingency facility.

For the TSF, provision is made for a minimum 500 mm total freeboard, comprised of a minimum operational freeboard (vertical height between the tailings beach and embankment crest) of 300mm and a minimum beach freeboard (vertical height between the 1:100 year 72 hour storm event water level and top of the tailings beach) of 200 mm.

The operation has committed to measuring precipitation, comparing the results to design assumptions and revising operating practices as necessary. Precipitation data will be taken from the closest BoM station for use in the model and the model will be updated quarterly.

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

in full compliance with

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

not in compliance with

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

The operation is in FULL COMPLIANCE with Standard of Practice 4.4 requiring the operation implement measures to protect birds, other wildlife and livestock from adverse effects of cyanide process solutions.

The operation has committed to implementing measures to restrict access by wildlife and livestock to all open waters where WAD cyanide exceeds 50 mg/l. The operation has identified that the process water pond will receive some cyanide bearing water and may exceed 50 mg/l WAD cyanide. The operation has plans to undertake monitoring of this facility to understand the WAD cyanide levels and if needed has contingency plans to install netting over this facility.

As discussed in Standard of Practice 4.2, the operations cyanide addition strategy and monitoring will influence WAD cyanide levels in the TSF and process water pond. Initial metallurgical assessment and the operators experience on mines within the region of the facility indicates levels within the TSF should be below 50 mg/l and this will be closely monitored during commissioning. Contingency measures are being developed should the planned management measures prove ineffective during commissioning in controlling WAD cyanide levels in the supernatant pond.



**Standard of Practice 4.5: Implement measures to protect fish and wildlife from direct or 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

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

The operation is in FULL COMPLIANCE with Standard of Practice 4.5 requiring the operation to implement measures to protect fish and wildlife from direct or indirect discharges of cyanide process solutions to surface water.

The operation does not have a direct discharge to surface water or an established mixing zone.

The operation has provided documentation to demonstrate that its facilities have been designed in a manner that will limit indirect discharge to surface water so that it will not result in a concentration of free cyanide in excess of 0.022 mg/L.

The nearest permanent surface water body is Lake Throssell which is located approximately 25 km to the north-east, only undefined and ephemeral surface water channels run in proximity to the site.

TSF design documentation shows that the facility has been designed to store stormwater from a 1:100 year Annual Exceedance Probability (AEP), 72-hour storm event plus maintain minimum operational freeboard of 0.3 m and beach freeboard of 0.2 m; and, the TSF has an underdrainage and partial liner system to mitigate basal seepage. Stage 1 embankments have a composite liner comprising a 6 mm Geosynthetic Clay Liner (GCL) and a 1.5 mm High Density Polyethylene (HDPE) geomembrane liner. Subsequent staged embankments will have a geotextile layer (acting as a cushion/protection layer) underlying a 1.5 mm HDPE geomembrane liner.

The TSF design incorporates an underdrainage system comprising perimeter drains placed around the embankment upstream toe and an underdrainage network around the decant structure. The underdrainage system has been constructed to capture seepage water through the tailings mass. Water collected via the underdrainage system will drain by gravity to an internal underdrainage sump. Water will be recovered via an inclined riser pipe housing a submersible pump and the recovered water will be pumped back to the central decant system and from there back to the plant.

The operation's process water pond is a 1.5 mm HDPE lined storage pond with leak detection capabilities. If this pond overtops it will occur along the northern embankment where there is an established drainage channel that reports to an event pond.

Cyanide reagent and CIL tanks are located inside secondary containments made of competent material. Concrete foundations are 150 mm thick and bund heights range from approximately 1-1.5 m, with sumps and pumps installed. CIL tanks are on ring beam foundations with HDPE liner and leak detection capabilities. The reagent tanks are on solid concrete foundations.

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

in full compliance with

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

not in compliance with

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

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

The operation has developed, and committed to further developing (draft), operating information regarding specific water management techniques or other measures to manage seepage to protect the beneficial use(s) of groundwater beneath and or immediately down gradient of the operation.

TSF design documentation shows that the facility has been designed to store stormwater from a 1:100 year AEP, 72-hour storm event plus maintain minimum operational freeboard of 0.3 m and beach freeboard of 0.2 m; and, the TSF has an underdrainage and partial liner system to mitigate basal seepage. Stage 1 embankments have a composite liner comprising a 6 mm Geosynthetic Clay Liner (GCL) and a 1.5 mm HDPE geomembrane liner. Subsequent staged embankments will have a geotextile layer underlying a 1.5 mm HDPE geomembrane liner.

The TSF design incorporates an underdrainage system comprising perimeter drains placed around the embankment upstream toe and an underdrainage network around the decant structure. The underdrainage system has been constructed to capture seepage water through the tailings mass. Water collected via the underdrainage system will drain by gravity to an internal underdrainage sump. Water will be recovered via an inclined riser pipe housing a submersible pump and the recovered water will be pumped back to the central decant system and from there back to the plant.

The operation's process water pond is a 1.5 mm HDPE lined storage pond with leak detection capabilities. If this pond overtops it will occur along the northern embankment where there is an established drainage channel that reports to an event pond.

Cyanide reagent and CIL tanks are located inside secondary containments made of competent material. Concrete foundations are 150 mm thick and bund heights range from approximately 1-1.5 m, with sumps and pumps installed. CIL tanks are on ring beam foundations with HDPE liner and leak detection capabilities. The reagent tanks are on solid concrete foundations. The operation has committed to a quarterly groundwater monitoring program and baseline monitoring has commenced. There are two former dewatering bores located within the footprint of the processing plant and nine TSF monitoring bores. Based on the site's knowledge of groundwater flow direction, current bore locations are both point source and downgradient. Upstream sampling can be undertaken via a series of pit dewatering bores if required.

The Sites Prescribed Premises Licence will include specific monitoring requirements when the project progresses to its operational phase and commences discharge of tailings into the TSF. The updated licence will require quarterly monitoring of all TSF and process plant monitoring bores for a suite of heavy metals, basic water quality and WAD cyanide.

The operation consists of surface mining only and there is no requirement to use mill tailings as underground backfill, therefore it has not assessed the potential impacts of residual cyanide on worker health or on the beneficial uses of groundwater.

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

in full compliance with

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

not in compliance with

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

The operation is in FULL COMPLIANCE with Standard of Practice 4.7 requiring that the operation Provide spill prevention or containment measures for process tanks and pipelines.

Design drawings demonstrate that containment measures will be provided for all cyanide unloading, storage and process solution tanks. The tanks within the reagent bund are installed on concrete plinths integrated into the bund and there is sufficient capacity for the tanks and pipework.

The CIL tanks are installed on concrete ring beams with a poly welded HDPE liner and leak detection system. There is compacted controlled filled beneath the tank and above the liner. A procedure has been drafted for the periodic inspection of the leak detection system. Thickeners, elution, ILR tanks are installed within a competent concrete bund.

Design drawings demonstrate that secondary containments for cyanide unloading, storage and process tanks will be 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.

There is a discrete bund for the cyanide reagent facility that has sufficient capacity and there is an integrated bund for the CIL and thickener circuit that has sufficient capacity. The operation has considered that the largest spillage would come from a leach tank with a capacity of 5000 m<sup>3</sup>, the bund holds 5703 m<sup>3</sup>. The cyanide reagent tanks are 397 m<sup>3</sup> each and the bund holds 943 m<sup>3</sup>. The operation is confirming with the construction contractor that the bunds will hold the design storm event and 100% of the largest tank as committed to in the CMP.

The operation has prepared procedures to prevent discharge to the environment of cyanide solution or cyanide contaminated water that is collected in secondary containments. Each of the bunds are fitted with sumps and pumps that allow for the collected material to be pumped back into the process. The design of the facility also allows for pumping of solution within bund into the lined process water pond and then back into the process. The process water pond has a spill way to the raw water pond which in turn has a spill way that directs overflow to the site's event pond.

Spill prevention and containment methods are committed to for all cyanide process solution pipelines. The operation has adopted pipe in pipe containment for reagent cyanide lines and a preventative maintenance approach for pregnant liquor lines that are installed on pipe racks that sit outside of secondary containment. Tell-tale lines are installed on the pipe in pipe that drain back to the bunds.

The tails line is positioned within earthen containment from the process plant and the TSF and the process water line from the process pond is within the drainage system of the site which would drain to the event pond.

The operation has considered risk to surface water, the nearest surface water feature is approximately 25 km from the processing plant. Notwithstanding the distance to surface water, cyanide reagent pipe lines are pipe in pipe design with tell-tales within bunds, the TSF pipe lines are provided with earthen containment. In addition, there are surface water diversions around the process plant to minimise stormwater flow within the plant area.

Design drawings show that cyanide tanks and pipelines will be constructed of materials compatible with cyanide and high pH conditions. The drawings show pipe in pipe PVC lines for reagent pipelines and ILR has poly-ethylene pipelines and there are steel carbon lines for pregnant solution pipelines to elution circuit.

The CIL tanks are steel with a liner and the reagent tanks are steel also. These materials are commonly used in the industry and are recognised as compatible with cyanide and high pH conditions.

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

in full compliance with

The operation is

in substantial compliance with

**Standard of Practice 4.8**

not in compliance with

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

The operation is in FULL COMPLIANCE with Standard of Practice 4.8 requiring that operations implement Quality control and quality assurance (QA/QC) procedures to confirm that cyanide facilities are constructed according to accepted engineering standards and specifications.

The operation has committed to implement quality control and quality assurance programs during construction of all new cyanide facilities including cyanide unloading, storage and other facilities.

The operation has prepared as series of documents detailing quality and QA/QC requirements for the project and for the construction contractor. The operation also has an on-site representation overseeing the construction progress and quality by the contractor. Evidence of the foundation and under tank liner and leak detection installation QA/QC assessment has been collected and retained.

The Quality Management Plan for the contractor details the provision of as-built drawings and inspections and testing to be included in the manufactures date record including inspection test records, field inspection sheets.

As part of its QA/QC programs, the operation has committed to 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. Evidence of the foundation and under tank liner and leak detection installation QA/QC assessment has been collected and retained.

Interviews with personnel confirmed that test work and inspection have been completed during the construction of the process water pond including compaction and installation of the liner and that this evidence will be retained in the project handover package.

The operation has committed to retain QA/QC records for construction of its cyanide facilities. The CMP includes a commitment to retain records for verification and hard copies of QA/QC documents are current stored in a library and digital via Integrated Management System (IMS) (for drawings/reports/etc) which will have tag function and search functionality. Current project document control is managed through Quality Document Management System (QDMS) which will be migrated to IMS at completion of the project.

The operation has committed to have appropriately qualified personnel review cyanide facility construction and provide documentation that the facility has been built as proposed and approved. The Quality Management Plan includes process for the inspection and sign off and the organisational structure for QA/QC activities including Project Director, Quality Manager, Quality Assurance Superintendent, Quality/Welding Inspector, Third Party technicians and document controllers.

The Projects Team for Goldfields are completing periodic check on construction quality of the contractor and there is a formalised handover acceptance process for completion of the project.

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

in full compliance with

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

not in compliance with

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

The operation is in FULL COMPLIANCE with Standard of Practice 4.9 requiring that operations implement monitoring programs to evaluate the effects of cyanide use on wildlife, surface and groundwater quality.

The operation has developed, and is committed to further developing, written standard procedures for monitoring activities.

The operation uses a combination of Standard Work Instructions (SWI), checklists/forms and plans/procedures to document it's monitoring activities. Current monitoring activities are based on the Site's Works Approval conditions, these will be updated for operational requirements via a licence amendment.

The majority of SWIs are completed and signed off though some remain in draft format. The operation has committed to completing these remaining documents by the end of Q4 2018.

The operation has had monitoring procedures developed by appropriately qualified personnel.

Sampling methodologies contained with the standard work instructions have been developed to be consistent with the requirements of:

- Australian Standard/New Zealand Standard (AS/NZS) 5667.1 – Water Quality – Sampling – Guidance of the Design of Sampling Programs, Sampling Techniques and the Preservation and Handling of Samples
- AS/NZS 5667.10 – Water Quality – Sampling – Guidance on sampling of waste waters, and

- AS/NZS 5667.11 – Water Quality – Sampling – Guidance on sampling of groundwaters.

The operation has developed draft and final version sampling procedures that include detail on how and where samples should be taken, sample preservation techniques, chain of custody (CoC) procedure, shipping instructions and the cyanide species to be analysed for.

The (Draft) Groundwater Monitoring Procedure provides written instruction for preparing and collecting the sample. A map showing monitoring bore locations and a table that lists the required analytes and the preservation procedure is also provided. The freight process is described and an example of the CoC is provided as an appendix.

The WAD Cyanide Monitoring Work Instruction provides a uniform standard for collecting samples used to monitor WAD cyanide levels in the Processing Plant discharge and water streams. This SWI provides detail on sampling preparation, where samples are to be collected from, the method for collecting the sample and delivering the samples to the on-site laboratory for WAD cyanide analysis.

A Leak Detection Monitoring Work Instruction has been developed.

A processing sampling manual is being developed. Current sampling documentation for circuit inspections and or wildlife observations consider weather and wildlife activity and there is space for general comment and observations to be captured. Operator training material includes consideration of weather (impact on sampling), wildlife identification tips and other key observations to note during routine inspections. A sampling program has been developed and the operation has committed to monitor for cyanide in discharges of process water to surface water and in surface and groundwater down gradient of the site.

The WAD cyanide level of the tails discharge is monitored in close to real time via the TAC 1000-S unit. Daily WAD cyanide sampling and analysis is also conducted as per the CMP and WAD Cyanide Monitoring SWI requirements. This routine sampling regime is conducted to ensure that the operation is compliant with the environmental operating licence and ICMC target of maintaining a discharge of WAD cyanide level of less than 48 mg/L in to the process water pond and TSF. Process stream monitoring will be conducted for the following parameters:

- Free cyanide, WAD cyanide, Total Dissolved Solids (TDS), pH, conductivity and Au.

Groundwater monitoring requirements are documented and will be incorporated into the operations licence via a licence amendment. Groundwater monitoring will be conducted quarterly for the following parameters:

- Sodium, potassium, calcium, magnesium, chloride, sulphate, bicarbonate, antimony, arsenic, cadmium, chromium, cobalt, copper, iron, manganese, mercury, molybdenum, nickel, selenium, thallium, uranium, zinc, WAD cyanide and total cyanide.

Monitoring locations consist of:

- Nine TSF monitoring bores.
- Two Process monitoring bores.
- Should additional upstream locations be required, groundwater bores around the pit can be also be sampled.

Direct or indirect discharges of cyanide bearing process solutions to surface water do not occur at the operation. Monthly environmental inspections of ephemeral surface water bodies and opportunistic surface water sampling will be conducted. There is no licence requirement to monitor surface waters at this time.

The operation has committed to inspect for and record wildlife mortalities.

There is an overarching work instruction and multiple inspection forms which consider the presence of wildlife and or the inspection for cyanide related wildlife mortalities.

The purpose of the Wildlife Observation Work Instruction is to maintain a uniform standard when conducting wildlife observations on and around the TSF and associated open water bodies (e.g. Process Water Pond). Wildlife observations are conducted by site-certified (internal training) or trained (external training) employees. The SWI states that routine wildlife monitoring is to be conducted once per day, preferably within three hours of sunrise.

The Wildlife Observation Form can be used to record the presence of wildlife and wildlife mortalities, whilst the Carcass Detection Form requires a detailed assessment of any identified animal carcass. The TSF inspection forms (daily and monthly) also prompt the operator to look for living/deceased wildlife as part of the routine check.

The operation has specified the frequencies of monitoring activities and these are adequate to characterise the medium being monitored and identify changes.

## 5.0 PRINCIPLE 5 – DECOMMISSIONING

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

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

in full compliance with

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

not in compliance with

#### Summarise the basis for this Finding/Deficiencies Identified:

The operation is in FULL COMPLIANCE with Standard of Practice 5.1 requiring that operations plan and implement procedures for effective decommissioning of cyanide facilities to protect human health, wildlife and livestock.

The operation has developed a conceptual plan for the decommissioning of cyanide facilities at the cessation of operation.

The Mine Closure Plan (MCP) addresses the planned closure and rehabilitation of the Project, including all disturbed areas, mining landforms, plant and other built infrastructure within the project tenements. It also addresses contingencies for temporary suspension of operations and unplanned closure.

In addition to the MCP, the operation has developed a Cyanide Decontamination and Decommissioning plan (CDDP). The CDDP separates the site into Low, Medium and High cyanide contamination areas and provides area specific plans for decontamination, prior to decommissioning.

The operation has included an implementation schedule in its CDDP.

The CDDP contains a preliminary implementation schedule. The schedule is appropriately detailed for the current stage of the operation, timeframes are provided for both pre and post-closure activities.

The operation has committed to review its decommissioning procedures for cyanide facilities during the life of the operation and revise them as needed.

Group Accountants are responsible for commissioning an annual review of the MCP and current closure obligations and cost estimates. As part of this, the closure task register is reviewed and updated to consider any changes to:

- The site, including any increase in disturbance, accumulation of mine wastes, new infrastructure, or new (suspected or actual) contaminated sites.
- Closure obligations and criteria, arising from studies and consultation, that may affect the decommissioning and rehabilitation works required.

The CDDP is reviewed, as a minimum, on a two-yearly basis; or as required to align and/or comply with statutory, organisational governance and process changes.



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

in full compliance with

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

not in compliance with

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

The operation is in FULL COMPLIANCE with Standard of Practice 5.2 requiring that the operation establish an assurance mechanism capable of fully funding cyanide related decommissioning activities.

The operation has developed an estimate of the cost to fully fund third party implementation of the cyanide-related decommissioning measures as identified in its site CDDP or MCP.

The operation has a site wide closure cost estimate as calculated by an independent third party using the Standardised Reclamation Cost Estimator (SRCE) model.

Within the operation's total closure cost estimate is detailed provisioning for costs associated with the decontamination and decommissioning of cyanide-related infrastructure.

The operation has committed 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 SRCE cost model is reviewed on an annual basis.

The operation is required by the applicable jurisdiction to establish a financial mechanism to cover the estimated costs for cyanide-related decommissioning activities as identified in its CDDP and MCP.

The operation presently reports to the Mining Rehabilitation Fund (MRF) for the existing disturbance on its tenements, and will report on new disturbance for the Project as it develops.

The MRF requires tenement holders to report current areas of exploration and mining disturbance every year to the Department of Mines, Industry Regulation and Safety (DMIRS). DMIRS then invoices the tenement holder for a financial contribution to the MRF, based on rates set by the *Mining Rehabilitation Fund Regulations 2013*, reflecting expected typical closure costs for different types of disturbance.

The operation complies with the requirements of the applicable jurisdiction.

## 6.0 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.**

in full compliance with

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

not in compliance with

#### Summarise the basis for this Finding/Deficiencies Identified:

The operation is in FULL COMPLIANCE with Standard of Practice 6.1 requiring an operation to identify potential cyanide exposure scenarios and take measures as necessary to eliminate, reduce and control them.

The operation has prepared draft and final version procedures that describe how cyanide related tasks such as unloading, plant operations, entry in confined spaces and equipment decontamination should be conducted to minimise worker exposure.

The operation has prepared a suite of operating procedures covering hazardous material management, site PPE requirements, cyanide unloading and delivery, operation of the plant and WAD cyanide sampling from process ponds and the tailings storage facility.

At the time of the audit a significant proportion of the management level procedures have been developed, reviewed and issued. The remaining management level procedures were substantially progressed. The operation is continuing the development of task level operating procedures.

Procedures require the use of PPE where necessary. Each SWI contains a list of the required PPE for the task at hand. PPE lists include consideration of HCN detectors.

The Cyanide Unloading and Delivery Work Instruction and the Cyanide Delivery Checklist require operators to complete pre-work inspections. These inspections include operational checks of emergency eyewash and shower facilities, two-way communications, personal HCN monitors and emergency response items such as shut off valves, fire extinguishers and neutralising agents (ferrous sulphate).

Emergency response actions are covered in detail in the Emergency Response and Management Plan and during on-boarding inductions, these are also mentioned in documentation for higher risk processes such as the Hazardous Materials Management Procedure and the Confined Space Procedure.

The operation has committed to soliciting and actively considering worker input in developing and evaluating health and safety procedures. Worker input is referenced in both the Change Management Procedure and the CMP. The operation uses a "Squad Check" system for review of documents currently being developed, prior to upload to QDMS. SWIs and procedures will be updated following worker consultation; as the site moves into an operational phase and as issues are identified and resolved.

The Occupational Health and Safety Committee (OHSC) Procedure outlines the purpose and the authority of the OHSC and provides the basis for continuous improvement and innovation in relation to Health and Safety issues as they may affect employees, contractors and the broader community. The OHSC meets at a minimum, once per month.

The Health and Safety Issue Resolution Procedure also provides an outlet for worker feedback. The intent of this procedure is to provide a process for resolving health and safety issues within the workplace. It applies after a work health and safety matter is raised but not resolved to the satisfaction of either party after initial discussions.

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

in full compliance with

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

not in compliance with

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

The operation is in FULL COMPLIANCE with Standard of Practice 6.2 requiring operation and monitoring of cyanide facilities to protect worker health and safety and periodically evaluates the effectiveness of health and safety measures.

The operation has determined the appropriate pH for limiting the evolution of HCN and committed to maintaining pH at a level that limits its production.

Initial test work indicates that pH will be maintained at >9.2. This value is expected to be refined during commissioning activities. pH control is addressed in the CMP, as well as in various operational SWIs. pH will be a component of bottle roll test work (non-routine) and process slurry sampling once the plant is operational. pH monitoring and control is included in daily operational checks and set point alarms will be established. The plant will be equipped with two online pH probes to provide continuous live data.

There are no mixing activities undertaken. Cyanide is delivered in liquid form via AGR iso-containers and this is transferred directly to the two cyanide holding tanks.

The operation has prepared procedures and committed to requiring the use of ambient and personal monitoring devices to confirm that controls are adequate for limiting worker exposure to HCN.

HCN monitoring is covered in the CMP and the Managing HCN Gas work instruction. Both fixed monitors and personal monitors will be used. Adopted alarm levels are- low: 4.7ppm (15-minute Short Term Exposure Limit (STEL)) and high: 10ppm (instantaneous exposure limit). SWIs describe the personnel response to activated alarms and reference the requirement for a personal HCN monitor where necessary.

According to the CMP, personal gas detection monitors shall be supplied for use in areas that have been identified as likely to experience HCN gas emissions. This shall include, but is not limited to, the CIL area, the tails and carbon screen areas, the ILR area, the electrowinning area and the laboratory.

Fixed HCN gas detectors are installed in the following locations where there is potential for evolution of HCN gas:

- Leach feed distribution box
- CIL tank 2/3/4
- Tailings screens

- Tailings distribution box
- ILR feed end
- ILR discharge end
- Elution column and acid wash column
- Pre-treatment tank
- Electrowinning
- Cyanide storage
- Free cyanide analyser operator station
- WAD cyanide analyser operator station.

The fixed detectors provide a continuous reading to the Digital Control System (DCS). Programmed into the detectors are high and high-high alarm points. If HCN concentrations above the high alarm point are detected, a siren and flashing light is activated. If HCN concentrations above the high-high alarm setpoint are detected, the alarm tone changes and the light flashes continuously. The siren can also be activated via the DCS.

The operation is committed to conducting a survey of high-risk areas following commissioning and commencement of operations to confirm fixed HCN gas detectors are installed in the correct locations.

The operation has identified areas and activities where workers may be exposed to cyanide in excess of 10 ppm on an instantaneous basis and 4.7 ppm continuously over an eight-hour period. Procedures have been developed and the operation has committed to requiring the use of PPE in these areas and when performing these tasks.

Areas within the processing facilities where cyanide will be in use and/or where the water used in that area may contain residual cyanide and have the potential for the generation of HCN are identified as follows:

- CIL
- Tails Pumping
- Wet Lab
- Cyanide Reagents Area.

The entrance to these areas will be clearly signposted and signage will state that a personal gas detection monitor must be worn.

Individual task, such as the WAD Cyanide Monitoring and Cyanide Storage Compound Access SWIs also require a personal gas detection monitor.

The operation has committed to maintaining, testing and calibrating HCN monitoring equipment as directed by the manufacturer, and records will be retained for at least one year.

The operation is finalising a decision on which make and model of personal gas detector to purchase. Once this decision has been made, maintenance and calibration SWIs will be developed.

Fixed monitors are calibrated on site, the AMT maintenance system prompts operations personnel when calibrations are due.

The operation has drafted procedures and committed to placing warning signs where cyanide is going to be used advising workers that cyanide is present, and that smoking, open flames, eating and drinking are not allowed.

The entire plant area is non-smoking. There are designated, indoor crib rooms for food storage and consumption.

The operation has committed to using dyed, high strength cyanide solution. Cyanide is purchased through AGR and the solution is dyed during production.

The operation has committed to locating showers, low-pressure eyewash stations and dry powder fire extinguishers at strategic locations throughout the site and to maintain, inspect and test them on a regular basis. As the Site is still under construction, these facilities were not yet installed at the time of the Audit.

The processing plant will contain twenty-nine (29) combination eye/face wash and emergency shower units, these units are compliant with the Australian Standard AS 4775-2007.

Fire extinguisher inspections are included in routine area checks. The Safety Showers and Eyewash Station work instruction specifies the required maintenance regime for these facilities. Routine inspection and maintenance requirements are separated into three categories:

- 52 Weekly – Preventative Maintenance Operation, this inspection comprises of: a visual inspection of the installation, an audit of the installation site and a function test of the safety shower. Results include verification of: demarcation of the installation, clear and unobstructed access to the safety shower, unobstructed potable water flow through both the shower and face wash components, and a bucket test to ensure minimum flow rates achieved.
- Routine – This inspection and operational check is to comply with the Australian Standard. The intent of this weekly activation is to ensure that there is a flushing water supply at the outlet of the device, to clear the supply line of any sediment build-up that could prevent water from being delivered and to minimise microbial contamination due to sitting water.
- Weekly – Regardless of both the annual and weekly inspections it remains the individual personnel's responsibility, as per operational Occupational Health and Safety (OH&S) Commitments and Procedures, to ensure prior to undertaking works that they are aware of the closest safety shower and that the safety shower is accessible and working correctly.

An inspection of built facilities will occur during the commissioning phase and this will include a design review and handover process. The operation will confirm the installation of dry powder fire extinguishers; and that emergency eyewash stations and safety showers are in working order during this process.

The operation has drafted procedures and committed to posting signs and labels to alert workers that unloading, storage and process tanks and piping contain cyanide.

The Cyanide Unloading and Delivery work instruction requires the placement of signage around the work area prior to commencing the task.

Cyanide containing pipes will be colour coded (lilac) and labelled according to AS 1345 for design and materials and AS 2700 for colours, including directional markers indicating flow. Cyanide containing tanks will be signed to alert workers that cyanide is stored in the area.

Signage will be installed prior to hand over of the facility. Contractual agreements state the plant must be handed over in an operational state. An inspection of built facilities will occur during the commissioning phase and this will include checks to ensure signage and tank and pipe labelling has been installed.

The operation has drafted procedures and committed to making Safety Data Sheets (SDS), first aid information and other information on cyanide safety available in the language of the workforce in areas where cyanide is stored and managed.

The operation will use the Chemwatch online system to store and manage SDS and other information for all chemical substances used on site. Chemwatch will be accessible to all employees. In addition, cyanide SDS will be kept in hard copy format in designated locations.

The CMP states that SDS shall be stored in key locations around the processing plant, these include the reagent unloading and storage areas, the CIL analyser and titration huts, the gold room, the laboratory, the warehouse and the control room. The on-site medical clinic will also have access to both hard copies and the electronic versions of the SDS through Chemwatch.

The operation has drafted procedures and committed to develop and implement procedures to investigate and evaluate cyanide exposure incidents. The Incident Reporting and Investigation System will be used to avoid repeat incidents by ensuring hazards and incidents relating to health, safety, environment, community and production loss events are reported, recorded, investigated and corrective or preventative action is taken.

All incidents and near misses are required to be reported. The system categorises incidents based on severity. Low severity incidents require no formal investigation, simple investigation techniques are provided for medium severity incidents, and more rigorous techniques for significant severity incidents.

The operation will utilise the Incident Cause Analysis Method (ICAM) as the preferred incident investigation process. The incident investigation provides a process to review the timeline leading up to and following the incident and assists to identify the underlying contributing factors so that corrective actions can be implemented to prevent reoccurrence. Significant incidents trigger the development of a Significant Incident Report (SIR) which is communicated throughout the operation using the SIR Distribution List located on the global address list on the Company email system. Worker injuries (including exposures) are classified according to an Injury Classification and Terminology List, contained in the Incident Reporting and Investigation System work instruction.

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

in full compliance with

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

not in compliance with

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

The operation is in FULL COMPLIANCE with Standard of Practice 6.3 requiring an operation develop and implement emergency response plans and procedures to respond to worker exposure to cyanide.

The operation has drafted procedures and committed to having water, oxygen, a resuscitator, antidote kits (Cyanokits - Hydroxocobalamin and Sodium Thiosulphate), radio communications and Closed-circuit Television (CCTV) readily available for use at cyanide unloading and storage facilities and elsewhere at strategically selected locations within the plant such as the laboratory and the control room.

The cyanide unloading and storage area will have access to water and will be equipped with an emergency eyewash and safety shower station. Also stored in the area will be a first aid kit, defibrillator and oxygen soft pack (Oxy-soft device). Operators working in this area will carry radios and the unloading and storage area will be under 24-hour CCTV coverage.

First aid kits, oxy-soft devices, defibrillators and other emergency response equipment will also be strategically located in other areas around the plant including in the laboratory and the control room.

The operation has drafted procedures and committed to inspecting first aid equipment regularly to ensure that it is available when needed and to store, test and replace materials such as cyanide antidotes as directed by their manufacturer.

The CMP states that oxy-soft packs, first aid kits and defibrillator units are to be checked, at a minimum, as part of the plant inspections to ensure that they are available and in good working order. The cyanide antidote will be checked by the medical staff on a weekly basis to ensure that it is in date; replacement antidotes will be ordered as required to ensure that there is always a minimum of one antidote kit available.

First aid and emergency response equipment checks are also covered in the routine area inspections and are included in the Conducting Workplace Inspections Tool Box.

The operation has developed draft written emergency response procedures and committed to developing further procedures for responding to cyanide exposures.

The Cyanide Emergency Response Plan (CERP) contains six Pre-Incident Plans (PIPS) that will be used as guidelines for emergency response procedure and for training purposes, the PIPs cover the following scenarios:

- Cyanide related injury
- Hazardous energy isolation
- Transportation accidents
- Fires involving cyanide

- Liquid cyanide spills outside of bunded areas
- Catastrophic release of HCN Gas (>50 ppm).

Each PIP details the required equipment/resources and provides a method for responding to each scenario.

SWIs such as the Managing HCN Gas and Hazardous Materials Management also provide high level emergency response procedural information.

The operation has committed to having its own on-site capability to provide first aid and medical assistance to workers exposed to cyanide.

There will be an on-site medical facility, known as the Medical Centre. The centre will be equipped with emergency response equipment suitable for responding to cyanide exposures. At least one suitably qualified medical person is required to be on site at all times.

The operation has drafted procedures for the transport of workers exposed to cyanide to available off-site medical facilities.

Due to the remote location of the operation, medical assistance is initially provided by the on-site Medical Centre. If required, transportation of patients would be provided by the Royal Flying Doctor Service (RFDS) and the patient would be transported to the nearest and best equipped medical facility.

The operation has committed to making formalised arrangements with local hospitals, clinics and surrounding operational sites so that these providers are aware of the potential need to treat patients for cyanide exposure.

The operation has a formal mutual aid agreement with the RFDS and the Laverton Hospital. Additionally, other mine sites in the region may be able to provide support in extended emergency scenarios if required.

A formal mutual aid agreement is also in place with the Department of Fire and Emergency Services (DFES).

The operation has drafted procedures and committed to conducting periodic mock emergency drills to test response procedures for various cyanide exposure scenarios and to incorporate the lessons learned from the drills into response planning. The CERP contains the following schedule:

- Cyanide emergency response exercise with Emergency Response Team (ERT) – Annually
- Site evacuation exercise – Annually
- Crisis exercise with Incident Management Team response – Annually.

Each exercise requires a thorough debrief where participants are encouraged to contribute learnings and recommendations for training, procedure or equipment changes. Debrief documentation is kept by the Emergency Services and Security (ESS) Coordinator.



## 7.0 PRINCIPLE 7 – EMERGENCY RESPONSE

### Protect Communities and the Environment through the Development of Emergency Response Strategies and Capabilities

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

in full compliance with

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

not in compliance with

#### Summarise the basis for this Finding/Deficiencies Identified:

The operation is in FULL COMPLIANCE with Standard of Practice 7.1 requiring an operation prepare detailed emergency response plans for potential cyanide releases.

The operation has drafted an Emergency Management Plan (EMP) to address emergency management at the site and has developed a Draft CERP to address potential accidental releases of cyanide.

The operation is developing a CERP for which the main purpose is to provide a single point of reference for all cyanide incidents on site where emergency response is required. It details the site cyanide hazards, required response, equipment, responsibilities, training and procedures for foreseeable cyanide emergencies at Gruyere.

The operation has considered in its drafted CERP the potential cyanide failure scenarios appropriate for its site specific environmental and operating circumstances, including the following:

a) Catastrophic release of hydrogen cyanide from storage or process facilities:

The draft CERP includes a PIP for liquid cyanide spills outside of bunded areas (PIP – 19). PIP 19 addresses HCN release from storage and processing facilities. The draft CERP also includes the Mill Evacuation Procedure, and HCN exposure first aid treatment.

b) Transportation accidents

The CERP includes a PIP for transportation accidents (PIP – 16). PIP 16 addresses HCN releases from truck accidents anywhere on site and also off site (but in close proximity to Gruyere). PIP 16 includes response procedures for HCN related transportation accidents.

c) Releases during unloading and mixing

The operation does not store or handle solid cyanide. Liquid cyanide is delivered in iso-containers and the CERP has a PIP that addresses liquid cyanide releases.

d) Releases during fires and explosions

The CERP includes a PIP for fires involving cyanide (PIP –17). PIP 17 includes response procedures for small, medium and large scale fires at the cyanide storage and loading areas. It also covers transport accidents involving product on fire and product on fire after an explosion.

## e) Pipe, valve and tank ruptures

The CERP includes a PIP 19 for liquid cyanide spills outside of bunded areas which addresses HCN release from storage and processing facilities. PIP 19 includes response procedures for pipe, valve and tank ruptures involving cyanide.

## f) Overtopping of ponds and impoundments

The CERP includes a PIP 19 for liquid cyanide spills outside of bunded areas which addresses HCN release from storage and processing facilities. PIP 19 includes response procedures for overtopping of ponds and impoundments.

## g) Power outages and pump failures

The plant will default closed in the event of a power failure and releases are not anticipated from power outages or pump failures. Should a pump failure result in the overtopping of a tank then this will be collected within a bund and if the bund overflows then the CERP will address release to ground.

## h) Uncontrolled seepage

The TSF Operations Manual describes the emergency response actions with regards to seepage of the TSF.

## i) Failure of cyanide treatment, destruction or recovery systems

There are no cyanide treatment, destruct or recovery systems installed at the site.

## j) Failure of tailings impoundments, heap leach facilities and other cyanide facilities?

The TSF Operations Manual describes the emergency response actions with regards to seepage of the TSF. The process water pond has an overflow to the event pond and release to this pond will be managed as an incident. There are no heap leach facilities at the site.

The draft CERP does provide information on response actions for the anticipated situations on the site. The site is located remote from communities and neighbouring properties an off-site response actions are not anticipated for cyanide related incidents. The draft CERP describes the first aid measures for cyanide exposure including cyanide exposure routes, signs of poisoning, first aid measures and use of antidotes. It also provides guidance on the releases to the environment. The plant area is designed to drain cyanide bearing release that may occur outside of the bund to an unlined event pond. The intent is that cyanide bearing material will be controlled within the plant foot print.

The TSF Operations Manual outlines a response action plan which addresses:

- TSF embankment failure
- Burst or leakage of tailings delivery pipeline
- Leakage of return water pipeline.

**Standard of Practice 7.2: Involve site personnel and stakeholders in the planning process.** in full compliance withThe operation is  in substantial compliance with **Standard of Practice 7.2** not in compliance with**Summarise the basis for this Finding/Deficiencies Identified:**

The operation is in FULL COMPLIANCE with Standard of Practice 7.2, requiring an operation involve site personnel and stakeholders in the planning process.

The operation has drafted procedures and committed to providing the opportunity for its workforce and stakeholders to communicate issues of concern during the cyanide emergency response planning process.

The nearest community to the site is the Cosmo Newberry Aboriginal Community located approximately 100 km west via an unsealed road, which has a population of approximately 70 people.

The operation has committed to including their workforce in the emergency response planning process via their participation in emergency exercises such as the cyanide emergency drills. The evacuation drills outlined in the draft CERP, will be conducted to test evacuation procedures, muster points, identifying and accounting for personnel, communications and general emergency response capability.

The operation has made public, via an article in the Sturt Pea regional publication and a community information flyer, it's intended transportation and use of cyanide. A "Responsible Use of Cyanide" flyer has been in circulation and placed on community notice boards in Laverton and Cosmo Newberry since October 2018. The flyer contains information on:

- When the first expected delivery of cyanide will be
- The operation's commitment to the ICMC
- Transportation of cyanide solution
- Gruyere's safety and training requirements for working with cyanide
- Environmental monitoring and community engagement overview
- Email address for contacting the Communities department.

The operation has been actively engaging with relevant stakeholders throughout the Project life. The Consultation to date has been captured in the Stakeholder Engagement Register and has involved face-to-face meetings, phone conversations and correspondence with stakeholders.

The operation has considered potential cyanide release scenarios from site operations through the development of the draft CERP. Due to the remote location of the site, topography and distance to the nearest neighbour off-site release and response actions are not anticipated.

Whilst community action is not anticipated, the operation has consulted with the community through representatives and discussed response actions. The operation has developed memorandum of understanding (MOUs) with external responders for a range of emergency scenarios, some including cyanide.

The operation has committed to engage in communication with stakeholders and these commitments are outlined in the MOUs and within the Draft CERP. The Sustainability Manager is responsible for maintaining MOU arrangements.

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

in full compliance with

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

not in compliance with

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

The operation is in FULL COMPLIANCE with Standard of Practice 7.3 requiring an operation designates appropriate personnel and commit necessary equipment and resources for emergency response.

The draft CERP and EMP do address the requirements of the Code for:

- Designating primary and alternate emergency response coordinators who have explicit authority to commit the resources necessary to implement the plan.
- Identifying ERT personnel. The ERT is a voluntary system with Captains and a full time ERT coordinator.
- Require appropriate training for emergency responders. Section 7 of the draft CERP provides a training matrix for responders.
- Including call-out procedures and 24-hour contact information for the coordinators and response team members. This is covered by a radio and phone system.
- Specifying the duties and responsibilities of the coordinators and team members are outlined in the Plan and the operation is committed to developing ERT procedures for task level activities.
- Listing emergency response equipment, including personal protection gear, available on site. The draft CERP outlines key equipment for ERT and the medical centre. Specific equipment checklists are being developed.
- Including procedures to inspect emergency response equipment to ensure its availability. The draft CERP includes commitments for daily and weekly inspections of the equipment.
- Describe the role of outside responders, medical facilities and communities in the emergency response procedures. The role of external responders is detailed within the Mutual Aid Agreement section of the draft CERP. Off-site support is not anticipated but has been agreed should it be necessary.

The operation has committed to engage in communication with stakeholders and these commitments are outlined in the MOUs and within the Draft CERP. The Sustainability Manager is responsible for maintaining MOU arrangements.

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

in full compliance with

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

not in compliance with

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

The operation is in FULL COMPLIANCE with Standard of Practice 7.4 requiring the development of procedures for internal and external emergency notification and reporting.

The operation has developed a draft EMP that includes procedures and contact information for notifying management, regulatory agencies, outside response providers and medical facilities of the cyanide emergency. The draft CERP includes internal and external contacts lists and a procedure for contacting external agencies.

The draft CERP does outline authorisation and responsibilities for liaison with the media. Responses from the community are not anticipated for cyanide related incidents at the Gruyere operation due to the remote location and distance to neighbours.

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

in full compliance with

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

not in compliance with

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

The operation is in FULL COMPLIANCE with Standard of Practice 7.5, requiring an operation develop procedures for internal and external emergency notification and reporting.

The operation has prepared draft descriptions of specific remediation measures in the draft CERP as appropriate for the likely cyanide release scenarios. Section 6 of the draft CERP details clean up and neutralisation of soils through the use of ferrous sulphate. It also provides details on the decontamination of equipment.

Provision of an alternative drinking water supply is not considered applicable to the operational context. The water source for the operation is a borefield approximately 10 km from the site and there are no identified beneficial users of ground water in proximity of the site and the nearest surface water feature is over 10 km from the site.

The draft CERP does commit to prohibit the use of chemicals to treat cyanide release to surface water, Section 6.3 provides:

While some unique situations may exist where it is acceptable to add neutralising agents to water sources, generally, hypochlorite and ferrous sulphate **MUST NOT** be allowed to enter any natural body of surface or ground water. Gruyere does not have any water sources on the mine site.

The operations draft CERP does commit to address the potential need for environmental monitoring to identify the extent and effects of a cyanide release, and include sampling methodologies, parameters and, where practical, possible sampling locations.

Section 7 of the draft CERP details sampling methods and sampling locations and provides a grid-based sampling approach to spills to soil. Spills to surface water are not anticipated due to distance from the nearest surface water feature.

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

**in full compliance with**

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

not in compliance with

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

The operation is in Full Compliance with Standard of Practice 7.6 requiring an operation periodically evaluate response procedures and capabilities and revise them as needed.

The operation has drafted procedures to review and evaluate the cyanide related elements of its Emergency Response Plan for adequacy on a regular basis. The draft CERP provides that the plan is to be reviewed and revised following all cyanide related emergencies and drills (in the absence of incidents, review and revision should occur immediately after the mock cyanide drill) and revision information kept on file. The draft CERP also provides for annual site evacuation and cyanide related drills with an ERT response. The draft CERP provides that the plan is to be reviewed and revised following all cyanide related emergencies and drills.

## 8.0 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

#### Summarise the basis for this Finding/Deficiencies Identified:

The operation is in FULL COMPLIANCE with Standard of Practice 8.1 requiring an operation train workers to understand the hazards associated with cyanide use.

The operation has drafted procedures and committed to training personnel who may encounter cyanide in cyanide hazard recognition.

At a minimum, all personnel receive cyanide awareness training, material is provided by the cyanide supplier AGR and competencies are valid for 12 months. Additional role specific training framework is being developed and will be managed via an online Learning Management System (LMS) known as LMS Success Factors.

Within Success Factors, role specific curricula, assignment profiles and training matrices are being developed. For an employee who will encounter cyanide, the following training may be required (Note: some training material names not yet finalised):

- Cyanide general awareness
- Spill response/Spill awareness
- Cyanide unloading
- Area specific orientations for:
  - Leaching and Adsorption circuit
  - Gold Room
  - Elution circuit
  - Tailings
  - Gravity ILR
  - Reagents.
- TSF daily inspection and Operation
- Cyanide storage compound access
- Managing HCN gas.

Cyanide related training and competency requirements are addressed in the Hazardous Material Management Procedure and the CMP. Training material is a combination of inductions (introductory and refresher), training manuals (documents that provide detailed introductions to a work area and tasks to be performed), Procedures and SWIs (detailed instructional documents outlining steps taken to complete a task including safety requirements and hazard identification).

The operation has committed to conducting periodic refresher training for cyanide hazard recognition. Cyanide Awareness refresher training is required on an annual basis.

The operation has committed to retaining records of personnel who complete cyanide hazard recognition training. All training records are retained within System Application and Products (SAP) and LMS Success Factors. Records are stored against an individual's profile. AGR, the cyanide supplier, also retains records of those who have completed their online Cyanide Awareness training.

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

in full compliance with

The operation is  in substantial compliance with **Standard of Practice 8.2**

not in compliance with

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

The operation is in FULL COMPLIANCE with Standard of Practice 8.2 requiring that an operation trains appropriate personnel to operate the facility according to systems and procedures that protect human health, the community and the environment.

The operation has drafted procedures and committed to drafting further procedures and training workers to perform their normal production tasks, including unloading cyanide and maintenance, with minimum risk to worker health and safety and in a manner that prevents unplanned releases.

A Buddy System will be implemented for new employees. The purpose of initial training, via the Buddy System, is to provide new personnel with the relevant information and knowledge required to safely operate and perform tasks in their new working environment. The Task Performance Observation process is used to assess the competency of a trainee that has previously been working under the Buddy System.

Training material is a combination of inductions (introductory and refresher), training manuals (documents that provide detailed introductions to a work area and tasks to be performed) and Procedures and SWIs (detailed instructional documents outlining steps taken to complete a task including safety requirements and hazard identification). Approximately 60 % of operational SWIs have been developed. Completed SWIs include:

- Hazardous Material Management Procedure
- Confined Space Procedure
- WAD Cyanide Monitoring Work Instruction
- Process Sample Collection – Leaching and Adsorption Work Instruction
- Managing HCN Gas



- Cyanide Storage Compound Access Procedure
- Cyanide Unloading and Delivery Work Instruction
- Cyanide Spill Ground Decontamination Work Instruction.

Each SWI contains an acknowledgement form for employees and their supervisors to sign off.

The operation has drafted procedures and committed to identifying the training elements necessary for each job involving cyanide management in a training plan and other materials.

The operation is in the process of creating Assignment Profiles for each role. Role Profiles are developed and maintained in LMS Success Factors to ensure that personnel have the required training and competencies to meet regulatory and operational requirements and to perform specific tasks and functions.

An assignment profile will contain the list of required competencies an employee must have in order to work in each role. A training matrix is also being developed.

The operation has drafted procedures and committed to employ only appropriately qualified personnel to provide task training related to cyanide management activities.

Site based trainers are qualified Certificate IV Trainers and Assessors. Subject matter experts are used in the development of processing SWIs and the training of new employees.

The operation will have three site-based, qualified trainers.

The operation has drafted procedures and committed to train employees prior to allowing them to work with cyanide.

Assignment profiles will detail the required competencies that an employee must obtain. Supervisors verify competency for specific work instructions prior to allowing new personnel to work without direct supervision. This is done by confirming initial review/sign off on the Individual Procedure Acknowledgement forms and then obtaining feedback from the Buddy, verbal questioning of the new person and Task Performance Observations.

The operation has committed to providing refresher training on cyanide management to ensure that employees continue to perform their jobs in a safe and environmentally protective manner.

Cyanide Awareness refresher training is required on an annual basis. All SWIs have a set review period on the cover page of the document, for most processing and higher risk task SWIs the review period is two-yearly.

According to the Processing Training Procedure (draft), All Competencies, Safety Management System (SMS) Compliances, Procedures and Work Instruction based training must be refreshed every two years. If a competency or compliance lapses, the worker shall not operate the plant or machine until they have successfully completed the appropriate re-assessment.

The operation has drafted procedures and committed to evaluating the effectiveness of cyanide training by testing, observation and other means. There are written assessments included at the end of each training session. Task Based Performance Observations are used to assess the competency of a trainee who has been working under the Buddy System and can also be used for on the spot assessments of an employee's competency and/or compliance with SWIs.

Site Orientation Assessments (area specific) are conducted to verify an employee is familiar with a particular work area and can identify potential hazards, critical safety equipment such as isolation points and emergency stops and the nearest muster point. The operation has drafted procedures and committed to retain records throughout an individual's employment documenting the training they receive. All training records are retained within System Application and Products (SAP) and LMS Success Factors. Records are stored against an individual's profile and records include the name of the employee, the date of the training and the training topic. The trainer's name is assigned against the training session.

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

in full compliance with

The operation is  in substantial compliance with **Standard of Practice 8.3**  
 not in compliance with

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

The operation is in FULL COMPLIANCE with Standard of Practice 8.3 requiring an operation train appropriate workers and personnel to respond to worker exposures and environmental releases of cyanide.

The operation has drafted procedures and committed to training cyanide unloading, production and maintenance personnel in the procedure to be followed if cyanide is released.

The Cyanide Spill Ground Decontamination Work Instruction ensures that spills containing cyanide that have occurred to unsealed/un-banded ground are controlled, contained and cleaned up in a safe and appropriate manner.

Operations personnel receive basic response training and SWIs (and other training material) prompt for the escalation to ERT for more serious release and or exposure incidents.

The operation has drafted procedures and committed to train response personnel, including unloading, production and maintenance workers, in decontamination and first aid procedures. These personnel will take part in routine drills when they occur.

The operation has made it mandatory for personnel working in the Processing Plant area to hold a valid first aid certificate. All employees are trained in cyanide general hazards and first aid responses as part of the Cyanide General Awareness training.

The CMP states that as the site moves from construction into commissioning and operation, additional training shall be provided including how to use the Oxygen Soft Pack (Oxy-soft device) and general first aid procedures including resuscitation techniques.

The operation has drafted procedures and committed to train emergency response personnel in the procedures included in the CERP, including the use of necessary response equipment.

The CERP details the required training for site personnel, relating to cyanide emergencies. Courses/competencies are listed and a frequency for refresher training is provided. The use of necessary response equipment is included in training such as Self-Contained Breathing Apparatus, Hazardous Material Response and Fire Fighting (Basic).

The CERP also contains six Pre-Incident Plans (PIPS) that will be used for training purposes, these are for the following scenarios:

- Cyanide related injury
- Hazardous energy isolation
- Transportation accidents
- Fires involving cyanide
- Liquid cyanide spills outside of bunded areas
- Catastrophic release of HCN Gas (>50 ppm).

Each PIP contains a prompt for whether or not the plan has been tested, as well as a list of required equipment/resources and a detailed method for responding to the particular scenario.

The operation has drafted procedures and made off-site emergency responders, such as community members, local responders and medical providers, familiar with elements of the emergency response plan related to cyanide.

Formalised agreements in the form of MOU exist between the operation and both the Laverton and Kalgoorlie Hospitals. Laverton Hospital is the closest hospital for medical support for cyanide related injuries as well as for telephone medical support. The RFDS will be utilised to supply medical doctors to site for cyanide related injuries as well as telephone and radio medical support. In the event of a significant cyanide related injury, it is likely that the injured personnel will be airlifted to Perth via the RFDS.

The operation has drafted procedures and committed to retain records throughout an individual's employment documenting the training they receive.

All training records are retained within System Application and Products (SAP) and LMS Success Factors. Records are stored against an individual's profile and records include the name of the employee, the date of the training, the outcome of the assessment and the training topic. The trainer's name is assigned against the training session.

The operation has committed to conducting regular refresher training for response to cyanide exposures and releases.

Cyanide Awareness refresher training is required on an annual basis. All SWIs, including the Cyanide Spill Ground Decontamination and Response to High HCN Alarm Work Instruction have a set review period on the cover page of the document, for most processing and higher risk task SWIs the review period is two-yearly.

According to the Processing Training Procedure (draft), All Competencies, SMS Compliances, Procedures and Work Instruction based training must be refreshed every two years. If a competency or compliance lapses, the worker shall not operate the plant or machine until they have successfully completed the appropriate re-assessment.

The ERT run mock emergency response drills. The draft CERP states that emergency response drills involving cyanide are to be conducted annually. The CMP states that mock drills are to be conducted but does not specify a frequency.

The operation has drafted procedures and committed to conducting periodic simulated cyanide emergency drills for training purposes, and evaluating cyanide emergency response drills from a training perspective to determine if personnel have the knowledge and skills required for effective response.

The CERP states that following each emergency response exercise, a thorough debrief will take place. Recommendations for training and or procedural or equipment changes will be documented. Records of each exercise, debriefing session and recommendation notes will be kept by the ESS coordinator.

## 9.0 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

#### Summarise the basis for this Finding/Deficiencies Identified:

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

The operation has drafted procedures and committed to providing the opportunity for stakeholders to communicate issues of concern regarding the management of cyanide.

The operation has made public, via an article in the Sturt Pea regional publication and a community information flyer, it's intended transportation and use of cyanide. A "Responsible Use of Cyanide" flyer has been in circulation and placed on community notice boards in Laverton and Cosmo Newberry since October 2018. The flyer contains information on:

- When the first expected delivery of cyanide will be
- The operation's commitment to the ICMC
- Transportation of cyanide solution
- Gruyere's safety and training requirements for working with cyanide
- Environmental monitoring and community engagement overview
- Email address for contacting the Communities department.

The operation has been actively engaging with relevant stakeholders throughout the Project life. The Consultation to date has been captured in the Stakeholder Engagement Register and has involved face-to-face meetings, phone conversations and correspondence with stakeholders.

A Stakeholder Engagement Plan has also been developed. This plan includes information on a Public Consultation and Disclosure Program, and details the operation's Grievance Mechanism, which is an established process by which means any stakeholder can file an observation, make a complaint or register a grievance.

The operation has identified and ranked it's key stakeholders and designated responsibilities and the approximate timing frequency for engaging with each key party.

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

in full compliance with

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

not in compliance with

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

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

The operation has committed to providing stakeholders with information regarding cyanide management practices and procedures.

High-level information regarding cyanide use and management has already been provided via the “Responsible Use of Cyanide” community information flyer and an article in the Sturt Pea regional publication.

Stakeholders can also obtain more detailed information regarding cyanide use and management via a number of forums, these include:

- Annual General Meetings
- Annual site visits (community invitations are issued)
- Question and answer sessions
- Directly contacting the Communities department with any specific query.

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

in full compliance with

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

not in compliance with

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

The operation has drafted procedures and committed to make information publicly available following confirmed cyanide release or exposure incidents and has identified the method(s) to be used.

The CMP states that the operation is required to submit an Annual Environmental Report (AER) to government regulators, once accepted by the regulator, the AER becomes publicly available. The AER will contain cyanide monitoring information and data, and information relating to cyanide releases occurring both on and off site.

The operation has an Incident Reporting and Investigation Procedure which aims to ensure hazards and incidents relating to health, safety, environment, community and production loss events are reported, recorded, investigated and corrective or preventative action is taken. This procedure has triggers and defined processes for reporting to DMIRS and Department of Water and Environmental Regulation (DWER) and other

equivalent bodies where required. Where applicable, information relating to reportable incidents may also be made publicly available via the AER or shared during routine stakeholder engagement activities.

## 10.0 IMPORTANT INFORMATION

Your attention is drawn to the document titled – “Important Information Relating to this Report”, which is included in Appendix A of this report. The statements presented in that document are intended to inform a reader of the report about its proper use. There are important limitations as to who can use the report and how it can be used. It is important that a reader of the report understands and has realistic expectations about those matters. The Important Information document does not alter the obligations Golder Associates has under the contract between it and its client.

## Signature Page

### **Golder Associates Pty Ltd**



Mike Woods  
*ICMI Lead Auditor/Technical Specialist*

CC/MCW/ds

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**APPENDIX A**

**Important Information**

The document ("Report") to which this page is attached and which this page forms a part of, has been issued by Golder Associates Pty Ltd ("Golder") subject to the important limitations and other qualifications set out below.

This Report constitutes or is part of services ("Services") provided by Golder to its client ("Client") under and subject to a contract between Golder and its Client ("Contract"). The contents of this page are not intended to and do not alter Golder's obligations (including any limits on those obligations) to its Client under the Contract.

This Report is provided for use solely by Golder's Client and persons acting on the Client's behalf, such as its professional advisers. Golder is responsible only to its Client for this Report. Golder has no responsibility to any other person who relies or makes decisions based upon this Report or who makes any other use of this Report. Golder accepts no responsibility for any loss or damage suffered by any person other than its Client as a result of any reliance upon any part of this Report, decisions made based upon this Report or any other use of it.

This Report has been prepared in the context of the circumstances and purposes referred to in, or derived from, the Contract and Golder accepts no responsibility for use of the Report, in whole or in part, in any other context or circumstance or for any other purpose.

The scope of Golder's Services and the period of time they relate to are determined by the Contract and are subject to restrictions and limitations set out in the Contract. If a service or other work is not expressly referred to in this Report, do not assume that it has been provided or performed. If a matter is not addressed in this Report, do not assume that any determination has been made by Golder in regards to it.

At any location relevant to the Services conditions may exist which were not detected by Golder, in particular due to the specific scope of the investigation Golder has been engaged to undertake. Conditions can only be verified at the exact location of any tests undertaken. Variations in conditions may occur between tested locations and there may be conditions which have not been revealed by the investigation and which have not therefore been taken into account in this Report.

Golder accepts no responsibility for and makes no representation as to the accuracy or completeness of the information provided to it by or on behalf of the Client or sourced from any third party. Golder has assumed that such information is correct unless otherwise stated and no responsibility is accepted by Golder for incomplete or inaccurate data supplied by its Client or any other person for whom Golder is not responsible. Golder has not taken account of matters that may have existed when the Report was prepared but which were only later disclosed to Golder.

Having regard to the matters referred to in the previous paragraphs on this page in particular, carrying out the Services has allowed Golder to form no more than an opinion as to the actual conditions at any relevant location. That opinion is necessarily constrained by the extent of the information collected by Golder or otherwise made available to Golder. Further, the passage of time may affect the accuracy, applicability or usefulness of the opinions, assessments or other information in this Report. This Report is based upon the information and other circumstances that existed and were known to Golder when the Services were performed and this Report was prepared. Golder has not considered the effect of any possible future developments including physical changes to any relevant location or changes to any laws or regulations relevant to such location.

Where permitted by the Contract, Golder may have retained subconsultants affiliated with Golder to provide some or all of the Services. However, it is Golder which remains solely responsible for the Services and there is no legal recourse against any of Golder's affiliated companies or the employees, officers or directors of any of them.

By date, or revision, the Report supersedes any prior report or other document issued by Golder dealing with any matter that is addressed in the Report.

**Any uncertainty as to the extent to which this Report can be used or relied upon in any respect should be referred to Golder for clarification**



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