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**International Cyanide Management Code
Gold Mining Operations**

ICMI SUMMARY AUDIT REPORT

NORTHERN STAR RESOURCES – KCGM OPERATIONS



ICMI SUMMARY AUDIT REPORT NORTHERN STAR RESOURCES – KCGM OPERATIONS

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SUMMARY AUDIT REPORT

Name of Mine

KCGM Operations – Fimiston Open Pit, Mt Charlotte Underground Mine, Fimiston Mill and Gidji process facility

Name of Mine Owner

Northern Star Resources Ltd

Name of Mine Operator

Kalgoorlie Consolidated Gold Mines (KCGM)

Name of Responsible Manager

Matthew Leske – Processing Manager

Address

Black Street
Kalgoorlie 6430
Western Australia

Contact Information

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Location Detail and Description of Operation

Kalgoorlie Consolidated Gold Mines (KCGM) manages the Fimiston Open Pit (the Super Pit), Mt Charlotte Underground Mine, Fimiston Mill and Gidji process facility for Northern Star Resources Ltd. Cyanide is used at the Fimiston and Gidji sites.

The Fimiston Mill is located immediately east of the City of Kalgoorlie-Boulder and comprises two parallel circuits for processing refractory sulphide ore mined from KCGM's open pits and underground operations. Ore produced by KCGM is treated through crushing, grinding, gravity, flotation and carbon-in-leach circuits. In the flotation circuit, the gold bearing refractory sulphide is separated and referred to as concentrate. The concentrate is de-slimed and slimes are leached at the Fimiston mill and the coarse fraction separated into two streams:

- One stream is washed, filtered and transferred to the Gidji Facility, located 17km north of Kalgoorlie-Boulder, where the concentrate is re-pulped and processed by Ultrafine Grinding Mills followed by conventional carbon in pulp (CIP) circuit, where gold is absorbed onto activated carbon. The loaded carbon is transported to the Fimiston Mill elution circuit for stripping, electrowinning and smelting.
- The other stream is transferred to the ultra-fine grinding mill at Fimiston for processing via the carbon in leach circuit.

The Fimiston Plant also comprises an Acacia reactor, elution, electrowinning circuits and facilities for smelting, pouring and the production of gold dore. A cyanide destruction plant is used as needed at Gidji to treat excess tailings dam return and seepage water prior to re-use as process water at Gidji and Fimiston. The grinding and flotation circuits at Fimiston are considered within the cyanide facilities due to the potential for weak acid dissociable cyanide concentrations to exceed 0.5 mg/L. Tailings produced at the Fimiston facility are discharged into the Fimiston and

Kaltails paddock impoundment tailings storage facilities (TSF's). The tailings generated at the Gidji facility are discharged to a paddock impoundment TSF's located at Gidji. Australian Gold Reagents (AGR) supplies and delivers liquid sodium cyanide to both the Gidji and Fimiston sites from its Kwinana manufacturing facility.

Auditors Finding

The Operation is:

- IN FULL COMPLIANCE
- IN SUBSTANTIAL COMPLIANCE**
- NOT IN COMPLIANCE

With the International Cyanide Management Code.

This operation was found in substantial compliance with the Cyanide Code based on the audit findings discussed in this report under Standards of Practice 4.1 and 7.6.

Audit Company

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Date(s) of Audit

The site audit was conducted inclusive of the 23rd – 26th November 2021

Audit Team

Lead Auditor and Technical Specialist – John Miragliotta



13 June 2022

Trainee Auditor – Rudi Seebach

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

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

PRINCIPLE 1 – PRODUCTION AND PURCHASE

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

Standard of Practice 1.1

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

The operation is IN FULL COMPLIANCE
 IN SUBSTANTIAL COMPLIANCE with Standard of Practice 1.1.
 NOT IN COMPLIANCE

KCGM is in full compliance with Standard of Practice 1.1.

The operation purchases its cyanide from Australian Gold Resources (AGR) and retains delivery and chain of custody records that demonstrate AGR as the sole supplier of cyanide. AGR certified by the International Cyanide Management Institute (ICMI) as being in full compliance with the Code.

PRINCIPLE 2 – TRANSPORTATION

Protect communities and the environment during cyanide transport.

Standard of Practice 2.1

Require that cyanide is safely managed through the entire transportation and delivery process from the production facility to the mine by use of certified transport with clear lines of responsibility for safety, security, release prevention, training and emergency response.

The operation is IN FULL COMPLIANCE
 IN SUBSTANTIAL COMPLIANCE with Standard of Practice 2.1.
 NOT IN COMPLIANCE

Based on the finding of the audit KCGM are in full compliance with Standard of Practice 2.1.

KCGM purchases its cyanide reagent from AGR who supply to the Fimiston and Gidji facilities in accordance with AGR’s certified Western Australian Supply Chain. The operation maintains delivery dockets identifying all elements of the supply chain. The delivery dockets conform to the elements of AGR’s West Australian Supply Chain. AGR’s West Australian Supply Chain was re-certified under the Code on 15 November 2019.

PRINCIPLE 3 – HANDLING AND STORAGE

Protect workers and the environment during cyanide handling and storage.

Standard of Practice 3.1

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

The operation is IN FULL COMPLIANCE
 IN SUBSTANTIAL COMPLIANCE with Standard of Practice 3.1.
 NOT IN COMPLIANCE

Based on the finding of the audit KCGM are in full compliance with Standard of Practice 3.1.

KCGM cyanide unloading and storage facilities have been in place for 15 years. Cyanide storage tanks are located outdoors in an open-air environment. They were designed and constructed in accordance with sound engineering practices, industry standards and statutory requirements.

The design has ensured that

- The facilities are located away from people and water bodies
- Access is controlled via physical barrier that only allow authorised access
- Measurement via level indicators and engineering control via the control system to prevent over filling
- Concrete and or HDPE liners to prevent seepage into the subsurface
- Secondary containment that provides a competent barrier to leakage and has sufficient capacity for potential events
- Separation from incompatible materials.

In the case of a loss of primary containment there is secondary containment to ensure that the consequence of the spill is mitigated.

Standard of Practice 3.2

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

The operation is IN FULL COMPLIANCE
 IN SUBSTANTIAL COMPLIANCE with Standard of Practice 3.2.
 NOT IN COMPLIANCE

Based on the finding of the audit KCGM are in full compliance with Standard of Practice 3.2.

All cyanide for the process plant is delivered in bulk liquid form and dosed directly into the circuit via the ring mains at Gidji and Fimiston. The bulk liquid sodium cyanide tanks are returned to the AGR production facility for re-filling. As such, there are no empty cyanide containers that require management. Procedures are in place that address the operation of all valves and couplings for

offloading and specify that the cyanide transporter is responsible for cleaning any cyanide residue from hose connections and couplings if required at the completion of off-loading

KCGM procedures prescribe the requirements for safe unloading of liquid cyanide at the sites. Appropriate personnel protective equipment is kept at the observation shelter at the unloading areas at both Fimiston and Gidji. There is no handling of solid cyanide and no management of containers. Delivery and unloading responsibility is shared between the supplier AGR and KCGM. Each have a documented system that has been developed so that they align to each other and contribute to successful safe delivery. AGRs controls are articulated within the Vehicle Operator Handbook for Sodium Cyanide Solution. KCGMs controls are articulated within cyanide unloading procedures and reagent unloading checklists for both Gidji and Fimiston. AGR adds colorant dye to sodium cyanide solution prior to it being delivered to site.

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.

The operation is IN FULL COMPLIANCE
 IN SUBSTANTIAL COMPLIANCE with Standard of Practice 4.1.
 NOT IN COMPLIANCE

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

KCGM continues to implement a written management system including operating plans and procedures for both Fimiston and Gidji cyanide facilities including unloading and storage facilities, leach plants, tailings impoundments, and cyanide destruct systems. The management systems for the management of cyanide are aligned with the ICMI Code through the application of the corporate Northern Star Resources (NSR) Cyanide Management Standard.

The operation is being operated in compliance with the statutory obligations and maintains plans that identify the facility design assumptions and standards. The Hypersaline Tailings Management Plan is implemented at the Fimiston operations and prescribes the operating parameters required for compliance with the Code. The TSF operating requirements established in the Tailings Operating Manual - Fimiston establishes an operating minimum freeboard based on not exceeding 15% of calculated capacity from surface contours. The Fimiston and Gidji Tailings Operations Manuals incorporate the requirements established in the Western Australian Department of Mines and Industry Regulation and Safety (DMIRS) Code of Practice for Tailings Dams. The operations have plans and procedures for cyanide management including specific measures for compliance with the Code, inspections and preventative maintenance. Both the Gidji and Fimiston process plants generally operate a documented preventative maintenance system that specify the inspection and maintenance schedules of cyanide equipment and facilities to ensure equipment operates in accordance with design and to prevent harm to workers or the environment. KCGM had not established an effective or systematic maintenance schedule for the calibration checks of the online WADCN analyser on the discharge from the Gidji tailings decant cyanide destruct process. The online analyser was inspected and calibrated by an external vendor through 2019 but this did not occur in 2020 or 2021. KCGM corrected the maintenance and inspection planning for this equipment in December 2021 with the addition of quarterly inspections/calibrations and annual maintenance scheduled in the Pronto maintenance planning system at KCGM. A calibration and maintenance inspection was carried out in January 2022. In regard to the identified deficiency:

- The deficiency did not result in a significant risk of cyanide release or exposure as the WADCN analyser on the Gidji tailings return cyanide destruct circuit is not the only monitoring of the discharge to the Fimiston tailings and the sampling at the Fimiston tailings had not detected any impacts associated with this discharge stream.

- KCGM has demonstrated a good faith effort to ensure that its plans and procedures are adequate to define the standard of practice necessary to ensure safe and environmentally sound operation of the facility. The identified deficiency in the maintenance planning system was isolated in the context of the full range of equipment that is maintained and inspected in accordance with systematic procedures.
- Lastly, the deficiency was immediately rectified by KCGM once this was identified during the audit.

KCGM has implemented a Management of Change process to identify when changes to site processes, equipment or practices may impact KCGM's operations, plant or equipment, people, and the environment. The Management of Change process scope is sufficient to assess changes that may impact compliance with the Code or that may increase the risk of cyanide release. The process requires changes to be reviewed prior to implementation and approved by operational management including the occupational health and safety and environment managers. The operation has developed a range of contingency procedures, plans and manuals to address situations when there is an upset in a facility's water balance, when inspections and monitoring identify a deviation from design or standard operating procedures and/or when a temporary closure or cessation of operations may be necessary. KCGM undertakes regular inspections and verifications of cyanide facilities at appropriate frequencies sufficient to assure and document that they are functioning within design parameters. The operation's inspections of cyanide facilities include:

- Cyanide process and destruct tank containment integrity, signs of corrosion, leak detection and condition and capacity of secondary containment;
- Pipelines containing cyanide solutions for evidence of leaks, periodical corrosion and integrity testing;
- Cyanide facility leak detection systems, collection systems and valves for signs of deterioration and corrosion.
- Pumps within cyanide facilities for evidence of leaks, maintenance of pump capacity and reliability, and;
- Tailings facilities, ponds impoundments inspected against freeboard requirements, leak detection systems, integrity of containments, maintenance of water balance, evidence of leaks and overflows

Inspection records that include names of inspector, date of inspection, deficiencies, and actions taken are generally retained in a combination of hard copy and electronically for area inspections, programmed preventative maintenance inspections and external integrity tests. However, deficiencies were observed with missing records between 2019-2020 for Gidji cyanide storage tank level calibration checks, Gidji external tanks inspection checks and tank level monitoring records. The records for 2021 were generally complete with the transfer to a new maintenance system. The failure to retain maintenance records does not result in significant cyanide risk as there is reasonable evidence that work orders were raised in the maintenance system throughout the period. The operation has demonstrated a good faith effort with most maintenance records being retained within KCGM's operations and the deficiency has been readily corrected with improved record retention in 2021 being evident.

The operations at Fimiston and Gidji have alternative grid power resources readily available to operate pumps and other equipment to prevent unintentional releases and exposures in the event

its primary source of power is interrupted and regularly tests the switching of power supply between its primary and alternative grid supplies.

Standard of Practice 4.2

Introduce management and operating systems to minimise cyanide use, thereby limiting concentrations of cyanide in mill tailings.

The operation is IN FULL COMPLIANCE
 IN SUBSTANTIAL COMPLIANCE with Standard of Practice 4.2.
 NOT IN COMPLIANCE

The operation is in full compliance with Standard of Practice 4.2.

KCGM has a program to determine appropriate cyanide addition rates in the processing plants at Gidji and Fimiston and evaluate and adjust addition rates as necessary when ore types and processing practices change cyanide requirements. The operations undertake ongoing evaluation of cyanide addition control options and continue to analyse test results for the optimisation of cyanide. Both Gidji and Fimiston have effectively implemented the strategies described in operational plans to control cyanide additions.

Standard of Practice 4.3

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

The operation is IN FULL COMPLIANCE
 IN SUBSTANTIAL COMPLIANCE with Standard of Practice 4.3.
 NOT IN COMPLIANCE

The operation is in full compliance with Standard of Practice 4.3.

KCGM has developed and implemented a comprehensive probabilistic water balance model that considers the facility design, operating plans/strategies, climatic conditions and physical geographic conditions. The water balance is implemented through procedures and manuals that include inspection and maintenance activities so as to prevent overtopping and unplanned discharges to the environment.

The operational water balance considers measured precipitation from nearby weather stations (BOM at airport) and revised its water balance inputs to reflect measured data. The nearby weather stations at the airport are located sufficiently close to the mine site and at comparable topographic conditions in order for precipitation data to be representative of conditions at the mine.

Standard of Practice 4.4

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

The operation is IN FULL COMPLIANCE
 IN SUBSTANTIAL COMPLIANCE with Standard of Practice 4.4.
 NOT IN COMPLIANCE

The operation is in full compliance with Standard of Practice 4.4.

The Fimiston operation has continued to implement alternative mechanisms for the prevention of impacts to wildlife on tailings dams where Weak Acid Dissociable (WAD) cyanide exceeds 50 mg/L. All tailings dams are fenced to prevent access by livestock. The Fimiston operation continues to implement the Hypersaline Tailings Management Plan that is consistent with the recommendations of a peer reviewed scientific study that supports hypersalinity of tailings being a protection measure for preventing impacts to wildlife. The operation has been operating in full compliance with the Hypersaline Tailings Management Plan for the Fimiston I and II and the Kaltails tailings facilities.

The Gidji operations tailings ponds and other associated surface waters contain WADCN concentration >50 mg/L and are both fenced and netted to prevent access by livestock and wildlife. The netting of the Gidji tailings facilities is complete and prevents wildlife ingress to the spigots, supernatant ponds and beach areas between.

The Gidji and Fimiston operations undertake regular inspections and wildlife observations that demonstrate that the management of cyanide containing surface water ponds and impoundments is effective in preventing significant wildlife mortality.

There is no heap leach at KCGM's operations

Standard of Practice 4.5

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

The operation is IN FULL COMPLIANCE
 IN SUBSTANTIAL COMPLIANCE with Standard of Practice 4.5.
 NOT IN COMPLIANCE

KCGM is in full compliance with Standard of Practice 4.5.

KCGM does not have a direct or indirect discharge to surface water at Fimiston or Gidji. The nearest surface water body to Fimiston is Hannan's Lake, an ephemeral salt lake located approximately 6 km to the south. The lake catchment is about 18 km long and between 8 km and 13 km wide. The nearest water body to Gidji is the King of the West Lake; an ephemeral salt lake located approximately 10 km to the north-east. All surface water ponds and impoundments within the KCGM operational areas are monitored for WADCN on a regular basis and the results confirm that there is no direct or indirect discharge to surface waters.

Standard of Practice 4.6

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

The operation is IN FULL COMPLIANCE
 IN SUBSTANTIAL COMPLIANCE with Standard of Practice 4.6.
 NOT IN COMPLIANCE

KCGM is in full compliance with Standard of Practice 4.6

The operation implements seepage and groundwater management plans to protect beneficial users (mining users) of groundwater. WADCN concentrations in groundwater at compliance points or down gradient of the Fimiston and Gidji tailings facilities are maintained below KCGM's internal targets. There is no established numeric standard or regulatory limit for WADCN or other forms of CN in groundwater for the KCGM operations.

KCGM does not use tailings for underground paste backfill.

Standard of Practice 4.7

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

The operation is IN FULL COMPLIANCE
 IN SUBSTANTIAL COMPLIANCE with Standard of Practice 4.7.
 NOT IN COMPLIANCE

KCGM is in full compliance with Standard of Practice 4.7.

Spill prevention or containment measures have been provided for all cyanide unloading, storage and process solution and cyanide destruction tanks at KCGM operations. Secondary containment has been designed and capacity maintained to ensure collection of the volume of the largest tank or volume contained in interconnected pipes, plus the rainfall inflow a design specified rainfall event.

Procedures at Fimiston and Gidji are in place and being implemented to prevent discharge to the environment of any cyanide solution or cyanide-contaminated water that is collected in the secondary containment areas. All tanks at both Fimiston and Gidji within the process area have secondary containment for external spills.

Fimiston and Gidji have containment systems that allow collection of spilled process liquors in lined tertiary collection sumps should secondary containment systems overflow. If there was a cyanide spill outside of the bunded area on unsealed ground, KCGM operations have procedures for neutralisation of any contaminated soil with ferrous sulfate. In a manner that protects surface and groundwater.

All cyanide process solution pipelines are contained within the process plant secondary containment area. The Fimiston and Gidji high strength cyanide delivery pipes are fully welded stainless steel lines that have been painted for ease of identification. Cyanide tanks and pipelines are constructed of materials compatible with cyanide and high pH conditions. Cyanide pipelines are inspected for leaks or damage through scheduled preventative maintenance inspections.

The tailings pipelines and return water pipelines are in an earthen bunds with spill collection sumps and are equipped with flow meters at each end to detect leaks. The cyanide containing

pipelines do not cross any surface water features and do not present a risk to surface or groundwater.

Standard of Practice 4.8

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

The operation is IN FULL COMPLIANCE
 IN SUBSTANTIAL COMPLIANCE with Standard of Practice 4.8.
 NOT IN COMPLIANCE

KCGM is in full compliance with Standard of Practice 4.8.

KCGM has retained records that demonstrate quality assurance programs have been implemented for all new cyanide facilities and modifications to existing facilities. The initial Code certification and subsequent recertification documented that QA/QC programs were implemented for cyanide facilities in existence at that time. QA/QC records have been retained for the cyanide facilities at both Gidji and Fimiston by the relevant engineering departments.

The initial Code certification audit documentation for KCGM includes records of appropriately qualified personnel review of cyanide facility construction and provided documentation that the facility has been built as proposed and approved. The hand-over of new engineering projects at KCGM includes appropriately qualified engineering verification of new facilities being compliance with design.

Modification of cyanide facilities since the last audit have been centered around the tailings facilities where the embankment was raised at the Fimiston Tailings Storage Facility (TSF). A civil construction report is produced by Golder at the conclusion of the project. The records include design and fabrication specifications; inspection and test plans against the relevant Australian Standards; details of weld procedures; verification of welder qualifications; soil compaction and moisture results; and compliance with the environmental works approvals. Construction reports are submitted to DMIRS and DWER as per the environmental license and safety regulations. Quality control and quality assurance programmes have addressed the suitability of materials and adequacy of soil compaction for earthworks for tailings storage facility raising and the design and fabrication standards for synthetic liners for containment ponds.

Standard of Practice 4.9

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

The operation is IN FULL COMPLIANCE
 IN SUBSTANTIAL COMPLIANCE with Standard of Practice 4.9.
 NOT IN COMPLIANCE

KCGM is in full compliance with Standard of Practice 4.9.

Written procedures have been developed by appropriately qualified professionals and implemented for monitoring of wildlife and cyanide and other chemical characteristics in waters including process liquors, tailings, groundwater and collected rainwater. The procedures specify how and where samples should be taken, QA/QC requirements, sample preservation techniques, chain of custody procedures, shipping instructions, and cyanide species to be analysed. The written procedures specify the recording of sampling conditions at the time of sampling. The frequency of monitoring is adequate to identify changes in a timely manner.

PRINCIPLE 5 – DECOMMISSIONING

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

Standard of Practice 5.1

Plan and implement procedures for effective decommissioning of the cyanide facilities to protect human health, wildlife and livestock.

The operation is IN FULL COMPLIANCE
 IN SUBSTANTIAL COMPLIANCE with Standard of Practice 5.1.
 NOT IN COMPLIANCE

Based on the finding of the audit KCGM are in full compliance with Standard of Practice 5.1.

KCGM has developed a cyanide decommissioning plan that details the process to be undertaken at the cessation of operations. The decommissioning plan covers the cyanide processing, storage, unloading, and destruct facilities at Fimiston and Gidji and the connecting infrastructure. Tailings storage facility closure planning for Gidji and Fimiston operations is included in the KCGM Mine Closure Plan. The decommissioning and closure plans include schedules for decommissioning activities and the plans are reviewed every three years.

Standard of Practice 5.2

Establish an assurance mechanism capable of fully funding cyanide related decommissioning activities.

The operation is IN FULL COMPLIANCE
 IN SUBSTANTIAL COMPLIANCE with Standard of Practice 5.2.
 NOT IN COMPLIANCE

Based on the finding of the audit KCGM are in full compliance with Standard of Practice 5.2.

KCGM's cyanide decommissioning plans and mine closure plans include estimates of the cost to fully fund the decommissioning activities for all cyanide facilities. These estimates are based on third party implementation of decommissioning activities. The operation has reviewed and updated the cost estimate for implementation of the cyanide decommissioning plan in 2021 and the cost estimate for the tailings storage facility closure management in 2021. These are scheduled for revision every three years. KCGM contributes annual payments to the Mine Rehabilitation Fund, sufficient to meet its legal closure obligations, to the applicable regulatory framework in Western Australia, managed by the Department of Mines, Industry and Resource Safety (DMIRS).

PRINCIPLE 6 – WORKER SAFETY

Protect workers' health and safety from exposure to cyanide.

Standard of Practice 6.1

Identify potential cyanide exposure scenarios and take measures as necessary to eliminate, reduce and control them.

The operation is IN FULL COMPLIANCE
 IN SUBSTANTIAL COMPLIANCE with Standard of Practice 6.1.
 NOT IN COMPLIANCE

Based on the finding of the audit KCGM are in full compliance with Standard of Practice 6.1.

The operation's safety management systems are effective in identifying potential cyanide hazards and has developed effective hazard control measures. The KCGM management systems follow the plan-do-check-act model and provide the basis for managing safety, environment and community aspects for the operation. These standards are complimented by procedures and local work instructions, which provide detailed information on how to perform tasks including unloading, plant operations, entry into confined spaces and equipment decontamination prior to maintenance.

The operation has a three level isolation process based on positive isolation and a detailed confined space entry and permit to work procedure.

Work Instructions support cyanide related tasks. Equipment decontamination is addressed through the isolation procedure generally together with the procedures for flushing cyanide pumps, lines and dosing points.

KCGM procedures address the use of personal protective equipment and KCGM has implemented a pre-work inspection process. Risk tools are used by workers to assess the workplace before each task in addition to the Work Instructions specific for the task.

KCGM has a Change Management Procedure for the purpose of providing a common framework for the systematic and structured management of changes at KCGM.

KCGM actively solicits and actively considers worker input in developing and evaluating health and safety procedures. There are formalised monthly safety representative meetings, monthly superintendent safety meetings, department and sub departmental meetings that provides a mechanism for consultation with the work force.

Standard of Practice 6.2

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

The operation is IN FULL COMPLIANCE
 IN SUBSTANTIAL COMPLIANCE with Standard of Practice 6.2.
 NOT IN COMPLIANCE

Based on the finding of the audit KCGM are in full compliance with Standard of Practice 6.2.

The operation has determined the pH to minimise the evolution of HCN gas at its operation. This is done by the metallurgist and provided in an operating parameters document and set in the control system. The operation identified areas and activities where workers may be exposed to cyanide in excess of 10 parts per million on an instantaneous basis and 4.7 parts per million continuously over an 8-hour period and require use of personal protective equipment in these areas or when performing these activities. Access is restricted to the cyanide processing plant areas, with no one permitted to enter the processing plant area until the necessary inductions have been completed which include cyanide awareness training or they are escorted by a fully inducted person. Warning signs have been placed where cyanide is used, advising workers that cyanide is present. Signs clearly indicate the requirement for PPE and the requirement for personnel monitors

BW Solo Honeywell personal HCN monitors are used at defined areas. These areas are clearly marked with signage and communicated within inductions and training. The devices are set to alarm at 4.7 and 10 ppm with designated actions associated with each alarm level. If greater than 10ppm the action is to immediately vacate the area, prevent access, investigate and report the incident. If the concentration of gas in the area is greater than 4.7 ppm then the worker is required to use appropriate breathing apparatus/respirator when working in the area for more than 8 hrs. Fixed HCN monitors have been installed by KCGM where the potential for HCN has been identified. The fixed HCN monitors alarm for 10 minutes at 10 ppm with audible and visible alarms. All personnel are prohibited from entering those areas when fixed alarms have been triggered. Hydrogen cyanide monitoring equipment is maintained, tested and calibrated as per the manufacturer's instructions. A review of records for the monitors shows that records are retained for at least one year and processes are now in place to retain these records for three years

KCGM provides designated facilities for eating and drinking, and these activities are restricted to areas away from cyanide. Designated smoking areas are provided away from areas where cyanide is used or stored. Showers, low-pressure eyewash stations and dry powder fire extinguishers are located at strategic locations throughout the operation and are maintained, inspected and tested on a regular basis. KCGM conducts an inspection program for the sites where each area is inspected by operational personnel. This inspection includes checking the operation of each emergency shower and eyewash station, and confirming that fire extinguishers are provided and are in a serviceable condition.

In addition to the rotational inspections conducted by the operators, there is a planned maintenance repetitive work order for the showers and a contract for the inspection, maintenance and servicing of fire extinguishers across the operation. During the site inspection showers, eye wash stations and fire extinguishers were checked and found to be in working order with relevant service tags attached and in date.

The unloading, storage, and process tanks, and piping containing cyanide, including tailings piping, is identified to alert workers of their contents, the direction of cyanide flow in pipes is designated. High strength cyanide is dyed for clear identification. The site cyanide supplier, AGR, adds colorant dye to sodium cyanide solution prior to it being delivered to site. Evidence was sighted of high strength cyanide solutions containing dye for clear identification. All cyanide containing pipework observed during the site inspection was labelled as containing cyanide and indicated the direction of flow in the pipes.

All tanks possess signage indicating the presence of cyanide including statutory HAZCHEM signage. Tanks have been identified as containing cyanide utilising the colour coding system.

Material Safety Data Sheets (MSDS), first aid procedures or other informational materials on cyanide safety in the language of the workforce are available in areas where cyanide is managed. Additionally, cyanide safety information is available at the unloading areas and includes information on first aid procedures.

KCGM has implemented an Accident Incident Reporting System that is used to report and record all injuries, incidents, hazards and near misses. The incident reporting database includes details of potential cyanide exposure incidents over the recertification period that resulted in medical assessments and incident investigations that resulted in changes to safe working procedures and work practices, including the requirement to carry breathing apparatus in the cyanide process areas.

Standard of Practice 6.3

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

- IN FULL COMPLIANCE
- The operation is IN SUBSTANTIAL COMPLIANCE with Standard of Practice 6.3.
- NOT IN COMPLIANCE

Based on the finding of the audit KCGM are in substantial compliance with Standard of Practice 6.3.

KCGM does have water, oxygen, a resuscitator, antidote kits, a radio, telephone and alarm system as a means of communication of emergency notification readily available for use at cyanide unloading, storage and elsewhere throughout its operations.

The cyanide unloading procedure requires the observer to have a two-way radio to communicate with the control room as well as pre approval from the control room. There are also PA systems at both the Fimiston and Gidji plant sites allowing the observer or other personnel to raise the alarm.

There is an adequate water supply for cyanide decontamination purposes through the emergency shower system or through fire response infrastructure. The operation does have emergency oxygen equipment positioned strategically within the plant areas near where cyanide is unloaded. The oxygen equipment is subject to regular inspection and planned periodic maintenance.

The operation does inspect its first aid kits on a regular basis with the replenishment of first aid kits facilitated by the full time onsite occupational health nurses. Cyanide antidote kits are stored at the onsite medical facility at Fimiston.

KCGM has developed specific written emergency response plans, procedures and work instructions for cyanide emergencies and exposures. The cyanide emergency procedures form part of the KCGM emergency management plan and address cyanide emergencies, exposures and environmental releases including detoxification procedures and decontamination.

KCGM does have on-site capability to provide first aid to workers exposed to cyanide. The emergency response team are the primary responders in the event of an emergency and have either occupational first aid or senior first aid training.

The operation has developed procedures to transport workers exposed to cyanide to Kalgoorlie Regional Hospital. KCGM has arrangements with Kalgoorlie Regional Hospital and liaised with the medical staff at the hospital to inform them that they use cyanide at both sites and there is potential for an incident.

As a regional hospital, the facility has a staff emergency department and on-call specialists. Kalgoorlie Regional Hospital has agreed to stock sodium thiosulfate and KCGM will stock the CYANOKIT that can be administered on route to the hospital (As well as provided to the hospital. Proximity to the hospital makes this feasible).

The Fimiston site has a fully equipped ambulance with an oxygen supply and a medical treatment room located at the gatehouse. The Gidji site has a small unmanned medical treatment room located adjacent to the administration area that is not manned. The emergency response team would mobilise from Fimiston to Gidji in the event of an emergency.

PRINCIPLE 7 – EMERGENCY RESPONSE

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

Standard of Practice 7.1

Prepare detailed emergency response plans for potential cyanide releases.

The operation is IN FULL COMPLIANCE
 IN SUBSTANTIAL COMPLIANCE with Standard of Practice 7.1.
 NOT IN COMPLIANCE

Based on the finding of the audit KCGM are in full compliance Standard of Practice 7.1.

KCGM has developed an Emergency Response Procedure to address potential accidental releases of cyanide. The cyanide emergency response plan has been developed to address potential accidental cyanide releases and to respond to cyanide exposures; this plan sits within the emergency management framework. The plan includes a cyanide decontamination procedure, a detoxification procedure and an environmental spill procedure. The emergency response procedures also describe measures to control cyanide releases at their source as well as the containment, assessment, mitigation and prevention of future releases.

The potential for failure of tailings impoundments are addressed in the operating manuals for the Tailing Storage Facilities (TSF) and generally under the emergency response plan. The TSF manuals contain sections on emergency management in the event of TSF failures. KCGM's cyanide supply contracts with AGR specifies the responsibilities and response actions for transport related cyanide emergencies. KCGM has developed and implemented a cyanide transport incident response work instruction for scenarios that may occur once trucks are onsite.

KCGM plans and procedures describe specific response actions (as appropriate for the anticipated emergencies), such as clearing site personnel from the exposure area, cyanide antidote use and first aid measures. The emergency response training materials provide for the establishment of exclusion zones based on the nature of the incident.

The Gidji Emergency Procedures and Fimiston Mill Emergency Procedures describe the actions taken and the responsibilities in the initial response and assessment of an incident and include specific instructions for cyanide related incidents. Evacuation protocols have been developed on the basis of modelled credible scenarios. The Cyanide Exposure Procedure details the actions to be taken when a person is suspected of cyanide poisoning. This procedure includes instructions for the use of antidote kits and first aid equipment.

Standard of Practice 7.2

Involve site personnel and stakeholders in the planning process.

The operation is IN FULL COMPLIANCE
 IN SUBSTANTIAL COMPLIANCE with Standard of Practice 7.2.

NOT IN COMPLIANCE

Based on the finding of the audit KCGM are in full compliance with Standard of Practice 7.2.

KCGM has involved its workforce and the external emergency responders in the cyanide emergency response planning process. KCGM implements a formal process for reviewing documents and communicating changes with crew members. KCGM involve local response agencies such as outside responders and medical facilities in the cyanide emergency planning and response process. The operation maintains formal agreements with key external emergency responders and hold regular meetings with these organisations. KCGM has a mutual aid agreement – Memorandum of Understanding with the Department of Fire and Emergency Services (DFES), which permits joint emergency training for the possible emergency scenarios which may occur at the Fimiston and Gidji sites including cyanide scenarios.

The Community Reference Group (CRG) provides a mechanism for KCGM to communicate and seek input to emergency response plans. KCGM through the local emergency management committee has made potentially affected communities aware of the nature of their risks associated with accidental cyanide releases, and consulted with them through community representatives regarding appropriate communications and response.

KCGM has engaged in consultation or communication with stakeholders to keep the Emergency Response Plan current. KCGM also conducts monthly safety meetings where the workforce can engage in safety issues including emergency response. The Safety Representatives and the Safety representative meetings are also used for communication and consultation with the workforce.

Standard of Practice 7.3

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

IN FULL COMPLIANCE

The operation is IN SUBSTANTIAL COMPLIANCE with Standard of Practice 7.3.

NOT IN COMPLIANCE

Based on the finding of the audit KCGM are in full compliance with Standard of Practice 7.3.

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

Elements of the KCGM cyanide emergency response plan and procedures:

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

KCGM has confirmed that outside entities included in the emergency response plan are aware of their involvement and are included as necessary in mock drills or implementation exercises. The operation through attendance at local emergency committee meetings and through direct correspondence has confirmed that agencies listed in the plan are aware of their involvement.

Standard of Practice 7.4

Develop procedures for internal and external emergency notification and reporting.

The operation is IN FULL COMPLIANCE
 IN SUBSTANTIAL COMPLIANCE with Standard of Practice 7.4.
 NOT IN COMPLIANCE

Based on the finding of the audit KCGM are in full compliance with Standard of Practice 7.4.

The KCGM emergency response framework includes procedures and contact information for notifying management, regulatory agencies, outside response providers and medical facilities of a cyanide emergency. The KCGM emergency response framework includes procedures and contact information for notifying those communities potentially affected by a cyanide-related incident and any necessary response measures, and for communication with the media.

The Cyanide Emergency Response Procedure references a commitment to report significant cyanide incidents, as defined in ICMI’s Definitions and Acronyms document, to the ICMI as part of the external reporting requirements. There were no significant cyanide incidents that were required to be reported to the ICMI for this recertification period.

Standard of Practice 7.5

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

The operation is IN FULL COMPLIANCE
 IN SUBSTANTIAL COMPLIANCE with Standard of Practice 7.5.
 NOT IN COMPLIANCE

Based on the finding of the audit KCGM are in full compliance with Standard of Practice 7.5.

The KCGM Cyanide Emergency Response Plan (CERP) describes specific remediation measures as appropriate for the likely cyanide release scenarios, and includes recovery or neutralisation of solutions or solids; decontamination of soils or other contaminated media, and; management and/or disposal of spill clean-up debris. The CERP describes where the treatment chemical used for neutralisation is stored, how the treatment chemical is to be prepared, application of the treatment chemical and sampling/ verification procedures to ensure that the defined end point of remediation has been achieved. The CERP describes the process for the provision of an alternate drinking water source if potable water is contaminated as the result of a cyanide emergency.

When no environmental risks are identified, ferrous sulfate is used for cyanide detoxification and clean-up. The Environmental Coordinator is involved in determining containment and clean up actions. The KCGM CERP does prohibit the use of chemicals such as sodium hypochlorite, ferrous sulfate and hydrogen peroxide to treat cyanide that has been released into or near surface water. The KCGM CERP addresses the potential need for environmental monitoring to identify the extent and effects of a cyanide release, and includes sampling methods, parameters and, where practical, possible sampling locations. There are no flowing waterways in proximity to the KCGM sites and the plan covers field testing of soils and testing of cyanide in the atmosphere.

Standard of Practice 7.6

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

The operation is IN FULL COMPLIANCE
 IN SUBSTANTIAL COMPLIANCE with Standard of Practice 7.6.
 NOT IN COMPLIANCE

Based on the finding of the audit KCGM are in substantial compliance with Standard of Practice 7.6.

The emergency management plan specifies that emergency mock exercises will be undertaken on a regular basis and will include cyanide related emergency scenarios. Records of mock emergency drills include improvement actions arising from the drills which are tracked through to completion.

Drills were found to be scheduled and evidence of these drills were available for 2019 and 2021. Drill records included cyanide release and exposure scenarios, onsite and external responders, evaluation of adequacy and the required improvements of plans and training if required. Evidence of a mock cyanide emergency drill for 2020 was unavailable. This finding is considered to be a substantial compliance due to:

- KCGM has made a good faith effort to comply with the lack of a cyanide emergency drill for 2020 being an oversight. Other emergency drills were undertaken during this period.
- The deficiency does not represent a significant environment or cyanide exposure risk
- The deficiency was readily rectified with a drill being completed in 2021.

The Emergency Management Plan is reviewed regularly and supporting procedures and details updated as required, including contact details for emergency responders.

The operation’s incident reporting standards has provisions for evaluating and revising the emergency response plan, or associated procedure, following a cyanide related incident. Incident

investigation records that were generated during the ICMC recertification period show review of relevant procedures following actual cyanide-related incidents.

PRINCIPLE 8 – TRAINING

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

Standard of Practice 8.1

Train workers to understand the hazards associated with cyanide use.

The operation is IN FULL COMPLIANCE
 IN SUBSTANTIAL COMPLIANCE with Standard of Practice 8.1.
 NOT IN COMPLIANCE

Based on the finding of the audit KCGM are in full compliance with Standard of Practice 8.1.

KCGM implements the training of all personnel who may encounter cyanide in cyanide hazard recognition. Cyanide hazard recognition training is a component of the Mill Induction Training Program which is completed by all Process Department personnel at Gidji and Fimiston and updated every 2 years. The completion of the Mill Induction is required prior to being able to access areas that may contain cyanide. All visitors to any cyanide areas must be escorted at all times by an inducted person and are not permitted to undertake work.

In addition, all personnel at Fimiston and Gidji are required to undertake an online Cyanide Awareness Training as part of the mandatory general site induction. The Cyanide Awareness Training is required to be completed every 6 months.

KCGM records of completed cyanide training are retained in an electronic database and on hard copy files for each employee and contractor.

Standard of Practice 8.2

Train appropriate personnel to operate the facility according to systems and procedures that protect human health, the community and the environment.

The operation is IN FULL COMPLIANCE
 IN SUBSTANTIAL COMPLIANCE with Standard of Practice 8.2.
 NOT IN COMPLIANCE

Based on the finding of the audit KCGM are in full compliance with Standard of Practice 8.2.

KCGM trains workers to perform their normal production tasks, including unloading, production and maintenance, with minimum risk to worker health and safety and in a manner that prevents unplanned cyanide releases. KCGM employees are trained prior to working with cyanide. Cyanide hazard recognition training is included in the induction process for persons working in the processing areas, relevant contractors and maintenance personnel must also complete the induction and the online Cyanide Awareness training package as part of the general induction before working in the area. All personnel at Gidji and Fimiston complete the Cyanide Awareness training as part of the general site induction and the required refresher training every 6 months.

The KCGM operation also has a formalised competency based training framework for processing personnel that includes training on tasks involving cyanide. The operation’s in-house trainers are experienced in the operation of the facility and hold Training and Assessing Qualifications. The training elements necessary for each KCGM job involving cyanide management are identified in training materials. Formal competency training which includes cyanide tasks is run by the Process Trainer Coordinator and Process Trainers at Fimiston and Gidji out in the plant. All personnel are trained and assessed in procedures relating to cyanide tasks prior to allowing them to work independently.

The KCGM operation evaluates the effectiveness of cyanide training by testing, observation or other means. KCGM individuals complete a written assessment at the conclusion of the cyanide awareness training. Cyanide related work instruction refresher training is also regularly conducted. Following training a formal “knowledge assessment” is completed to assess the trainee’s knowledge.

KCGM records are retained throughout an individual’s employment documenting the training they receive. The records include the names of the employee and the trainer, the date of training, the topics covered, and if the employee demonstrated an understanding of the training materials. Personnel who may encounter cyanide complete the cyanide awareness and refresher training every 6 months.

Standard of Practice 8.3

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

- IN FULL COMPLIANCE
- The operation is IN SUBSTANTIAL COMPLIANCE with Standard of Practice 8.3.
- NOT IN COMPLIANCE

Based on the finding of the audit KCGM are in full compliance Standard of Practice 8.3.

All KCGM cyanide incident response personnel, including unloading, production and maintenance personnel, are trained in the procedures to be followed if cyanide is released. Response to incidents and emergency situations is covered in the induction process that all employees must complete. Cyanide specific aspects are covered in the cyanide awareness training material and via task specific procedures. Cyanide training addresses cyanide hazards, health effects, symptoms of exposure and procedures to follow in the event of exposure. Cyanide Awareness Training is conducted every 6 months.

KCGM site cyanide response personnel, including unloading, production and maintenance workers, are trained in decontamination and first aid procedures. They take part in routine drills to test and improve their response skills. KCGM Emergency Response Coordinators and members of the Emergency Response Team are trained in the procedures included in the Emergency Response Plan regarding cyanide, including the use of necessary response equipment.

The KCGM operation periodically communicates with off-site Emergency Responders, such as community members, local responders and medical providers, to ensure familiarity with those elements of the Emergency Response Plan related to cyanide.

The Emergency Response Team complete industry recognised training in fire, hazardous materials, breathing apparatus and fire aid response. The skills and knowledge attained through industry recognised courses are supplemented through regular training and drills (A schedule of this is

available and sighted). In addition to the regular training sessions, the operation has conducted full scale cyanide specific mock exercises..

KCGM attendance records for cyanide awareness training are maintained in hard copy by the processing training coordinator. The Emergency Response Coordinator maintains training records for the emergency response team members. A review of training records confirmed they detail the names of trainees and trainers, training dates, topics covered and an evaluation of the trainees knowledge.

PRINCIPLE 9 – DIALOGUE

Engage in public consultation and disclosure.

Standard of Practice 9.1

Promote dialogue with stakeholders regarding cyanide management and responsibly address identified concerns.

The operation is IN FULL COMPLIANCE
 IN SUBSTANTIAL COMPLIANCE with Standard of Practice 9.1.
 NOT IN COMPLIANCE

KCGM is fully compliant with Standard of Practice 9.1.

The operation provides a number of contact points, which can be used by stakeholders to communicate issues of concern and inquiries in relation to the use and management of cyanide. The KCGM Public Interaction Line (PIL) includes a 24-hour 7-day a week manned telephone line, which ensures a timely response to enquiries. Interactions are captured within a stakeholder database. The KCGM Community Reference Group (CRG) meets once a month with KCGM representatives to discuss operational issues and to provide feedback from the public.

Standard of Practice 9.2

Make appropriate operational and environmental information regarding cyanide available to stakeholders

The operation is IN FULL COMPLIANCE
 IN SUBSTANTIAL COMPLIANCE with Standard of Practice 9.2.
 NOT IN COMPLIANCE

KCGM are fully compliant with Standard of Practice 9.2.

KCGM has a range of mechanisms in place to make information publicly available on cyanide release or exposure incidents, where applicable. Key documents and publications relating to KCGM's operations are made available to the public via the KCGM website including an Information Sheet on Cyanide Management (https://www.superpit.com.au/wp-content/uploads/2021/10/KCGM-Information-Sheet_Cyanide-2021.pdf). KCGM reports any cyanide incidents to regulatory and other key stakeholders according to its procedures. The operation contributes information publicly regarding its operations through its Sustainability Report, Annual Report and published Annual Compliance Reports which would include details of significant cyanide related incidents or non-compliances should this occur.