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**Newcrest Mining– Telfer Operations**

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**International Cyanide Management Code  
Gold Mining Operations**

# **ICMI SUMMARY AUDIT REPORT**

## **NEWCREST RESOURCES – TELFER OPERATIONS**



# ICMI SUMMARY AUDIT REPORT NEWCREST RESOURCES – TELFER OPERATIONS

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## SUMMARY AUDIT REPORT

**Name of Mine**

Telfer Gold Copper Mine

**Name of Mine Owner**

Newcrest Mining Ltd (100%)

**Name of Mine Operator**

Newcrest Mining Ltd

**Name of Responsible Manager**

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**Location Detail and Description of Operation**

The Telfer Gold Mine (TGM) is 100% owned by Newcrest and is located in north-west Western Australia in the Pilbara region in the Great Sandy Desert in the Paterson Province, approximately 450 km east-south-east of Port Hedland. The original gold mine operated from 1977 to 2000 and produced almost six million ounces of gold. TGM was redeveloped and opened in July 2005 and consists of the Main Dome and West Dome open pits and underground mining.

The ore from the mining operations is processed by a large, dual train, comminution circuit followed by flotation, gravity and cyanidation circuits, which produce gold doré and a copper-gold concentrate. The process is complex because of the need to accommodate differing ore types. Copper-gold concentrates produced at TGM are filtered to produce a dewatered concentrate which is trucked to Port Hedland and exported to various smelters, primarily in the East Asia region. The gold doré produced at TGM is refined at the Perth Mint. Tailings from the process plant are pumped to large paddock tailings storage facilities, Tailings Storage facility (TSF) 7 and 8, where decant water is returned to the process. The cyanide concentration in the tailings at TGM are managed to achieve environmental criteria through optimisation of cyanide addition to the process circuit.

TGM also treats ore through cyanide heap leaching of low grade bearing ore at two locations, Dump Leach 5 and Dump Leach 237 with collection ponds and carbon in leach processing facilities at both locations. Since the last recertification audit at TGM, cyanide addition to the flotation circuit has been discontinued and boxed solid cyanide mixing facilities at Dump Leach 5 have been decommissioned. All cyanide is now supplied by Orica Australia in iso-containers where solid sodium cyanide within sealed vessels is sparged at unloading facilities located at the main TGM processing plant and at Dump Leach 237. Telfer does not utilise a cyanide destruct circuit but utilises the high cyanide solution from the counter current circuit as cyanide solution for Dump Leach 5. The Dump Leach 5 circuit has further controls to ensure the protection of fauna with all ponds being fenced and protected with bird netting

**Auditors Finding**

The operation is:

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

With the International Cyanide Management Code.

This operation has not experienced any compliance issues or significant cyanide incidents during the previous three-year audit cycle.

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**Date(s) of Audit**

The site audit was conducted inclusive of the 6<sup>th</sup> – 8<sup>th</sup> December 2022

**Audit Team**

**Lead Auditor and Technical Specialist** – John Miragliotta



**co-Lead 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  
with Standard of Practice 1.1.

The operation purchases its cyanide from Orica Australia Ltd and retains delivery and chain of custody records that demonstrate Orica as the sole supplier of cyanide. Orica is 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  
with Standard of Practice 2.1.

Telfer purchases its cyanide from Orica who supply to the facilities in accordance with Orica's certified supply chain. The operation maintains delivery dockets identifying all elements of the supply chain. Orica's supply chain was re-certified to full compliance under the Code on 4 February 2022.

## 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

with Standard of Practice 3.1.

Engineering documents have been retained to demonstrate that the facilities have been designed and constructed in accordance with sound engineering practices and statutory requirements. The cyanide producer and supplier has undertaken engineering inspections of the cyanide unloading, dissolution and storage facilities at Telfer and identified no design or construction issues. Unloading and storage areas are located away from people. All the facilities are located at least 200m from nearest offices used by workers.

The cyanide sparge facilities are designed such that the unloading from the sparge iso-containers to the dissolution tank occurs on a concrete surface that drains to a collection sump. The concrete is designed and maintained to prevent seepage to subsurface of any spills or leaks. The concrete condition of the cyanide unloading surface is regularly inspected and repairs are undertaken as required.

The operation uses level indicators and high-level alarms to prevent the overfilling of cyanide storage tanks. The level sensors at all facilities are inspected on a six-monthly basis. All cyanide dissolution and storage tanks are located on a concrete surface that prevents seepage to sub surface. The concrete secondary containments for the cyanide storage facilities are inspected regularly through operational area inspections. Solid cyanide is stored within locked sparge iso-containers that prevent contact with water at sparging facilities. All cyanide storage areas, including the cyanide dissolution and storage tanks, are adequately vented to prevent the build-up of hydrogen cyanide gas and are located within fully fenced and locked compounds. All cyanide storage areas, including dissolution and storage tanks, are dedicated for cyanide storage only. There are no other reagents stored within the dedicated cyanide storage areas and no incompatible chemicals stored nearby.

Any potential spills are contained at Stage 7 and at Dump Leach 237 through design and process of the unloading from the sparge iso-containers to the dissolution tank occurring on a concrete surface that drains to a collection sump.



**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

with Standard of Practice 3.2.

Solid sodium cyanide is received at Telfer in iso-containers for sparge unloading. After unloading empty cyanide iso-containers are rinsed with water to remove any residual cyanide in the tank in accordance with procedures. Procedures have been implemented for the safe placement of sparge iso-containers and operation of sparging and unloading facilities including the operation and maintenance of valves, hoses and couplings. The Telfer procedures do not allow any stacking of solid sparge iso-containers and require the immediate clean-up of spills during unloading (sparging) through rinsing of liquid spills to collection sumps on concrete drained surfaces in the unloading area. Procedures are in place and implemented to ensure that the personal protective equipment for cyanide unloading is used and to ensure that a spotter observes unloading from a safe distance at all times. The cyanide delivered to the operation in sparge units includes the addition of colorant dye.

## 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  
 with Standard of Practice 4.1.

TGM has well developed management plans, operating plans and procedures for the cyanide facilities required for the processing operations. The Cyanide Management Plan (CMP) provides an overarching framework, describing the individual cyanide facilities, from storage to disposal. The CMP references Standard Work Procedures, operating manuals and procedures that are in place to ensure safe and environmentally sound operations. The CMP includes the specific measures needed for compliance with the International Cyanide Management Code including inspections and preventative maintenance activities. Telfer has a system to implement changes in the management of equipment, processes, and plans when current practices have been highlighted. The Management of Change process assesses cyanide related risks to the environment and human health prior to the changes being implemented. Changes are authorised by environment and safety personnel prior to implementation.

Through the CMP and associated documentation, TGM identifies the assumptions and parameters on which the facility was based and adhere with regulatory requirements as necessary to prevent or control cyanide releases and exposures. Emergency and contingency procedures account for non-standard operating situations that may present a potential for cyanide exposures and releases. These include a Cyanide Emergency Response Plan, Cyclone Management Plan and a Cyanide Facilities decommissioning Plan that specifies measures to be implemented in case of permanent or temporary cessation of operations.

Inspections are undertaken by TGM at a frequency sufficient to ensure the functionality of the facilities is within design parameters. All cyanide facilities are inspected at appropriate intervals, assessing the structural integrity, deterioration and signs of corrosion, presence of fluids and leakage. Ponds and impoundments, and associated diversion drains, are inspected to ensure sufficient freeboard, integrity and other relevant parameters critical for their function according to design. Standard Work Procedures inform the inspector of specific items/areas to inspect within the areas subject to the inspection.

Inspection records are managed on digital platforms. Inspection records include the date of the inspection, the name of the inspector, any observed deficiencies, and any immediate corrective actions undertaken.

TGM has determined what equipment is critical in preventing releases and exposures through a risk assessment process. The risks are reduced through regular preventative maintenance programmes, which are recorded. These maintenance activities are to ensure that equipment and devices function as necessary for safe cyanide management. The cyanide equipment included in the preventative maintenance system includes cyanide tanks, pipelines, pumps, HCN gas monitors, dosing systems and tank level sensors.

TGM has necessary emergency power resources to operate pumps and other equipment to prevent unintentional releases and exposures in the event its primary source of power is interrupted. Backup emergency power is available from diesel generators, which are routinely tested and maintained.

**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  
with Standard of Practice 4.2.

TGM evaluates cyanide addition rates regularly through weekly bottle roll tests which are used to verify the addition rates to the Carbon in Leach (CIL) circuit and adjust addition rates accordingly. Telfer controls cyanide addition through the use of in-line free cyanide analysers on the CIL process to monitor cyanide concentration in the process and auto-adjust dosing using set points which reflect process monitoring data and results of weekly bottle roll tests.

TGM has introduced measures to reduce the levels of cyanide in the gold recovery process through an ongoing program of optimisation and is trialling further methods to reduce the rates of cyanide being used.

**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  
with Standard of Practice 4.3.

TGM 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 from the TSF and other ponds containing cyanide process solutions, including the dump leach barren, intermediate, pregnant and stormwater ponds. The

operational water balance considers measured precipitation from nearby weather stations and TGM revises its water balance inputs to reflect measured data. The weather stations at the mine are located sufficiently close to the storage facilities that contain cyanide and at comparable topographic conditions in order for precipitation data to be representative of conditions at the storage facilities.

**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  
with Standard of Practice 4.4.

The operation has implemented measures to restrict access by wildlife to open waters where Weak Acid Dissociable (WAD) cyanide exceeds 50 mg/L WAD cyanide. The only open waters containing WAD cyanide of greater than 50 mg/L are in the Dump Leach 5 solution ponds. The pregnant, intermediate and barren ponds at Dump leach 5 are all netted to restrict access by wildlife. The netting is checked daily, through documented inspections, to identify any damage that would allow access by birds and other wildlife. Maintaining a WAD cyanide concentration of 50 mg/L or less in open water appears to be effective in preventing significant wildlife mortality. TGM has not recorded any cyanide wildlife mortalities during the period of recertification.

The operation applies leach solutions to its Dump Leach 5 and Dump Leach 237 facilities in a manner designed to avoid significant ponding on the heap surface and limits overspray of solution off the heap liner. Telfer has implemented guidance for operators on acceptable and unacceptable ponding and introduced measures to avoid ponding and the potential for wildlife access to dump leach irrigation areas. Telfer’s fauna monitoring data and independent monitoring has not recorded any fauna mortalities on the dump leach pads.

**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  
with Standard of Practice 4.5.

Telfer does not have a direct discharge to surface water. The nearest permanent surface water is the Oakover River located approximately 140 km to the west.

**Standard of Practice 4.6**

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

IN FULL COMPLIANCE

The operation is  IN SUBSTANTIAL COMPLIANCE with Standard of Practice 4.6.

NOT IN COMPLIANCE

with Standard of Practice 4.6

The only beneficiary of groundwater in the vicinity is TGM itself. The nearest communities are located over 140km from Telfer and are not beneficial users of the groundwater in the vicinity of TGM. Telfer has implemented preventative maintenance and monitoring measures to manage seepage to protect groundwater beneath and/or immediately downgradient of the operation.

All ponds containing cyanide solutions, Dump Leach 5 and Dump Leach 237 are lined with HDPE liner to prevent seepage, with the exception being the tailings storage facilities, which are lined with low permeability material. Seepage is monitored on a 6 monthly basis through the groundwater bores surrounding these facilities. Telfer's Water Management Plan establishes a groundwater WAD cyanide concentration trigger criterion of 0.5 mg/L. Groundwater quality monitoring indicates that groundwater cyanide is consistently below the trigger value of 0.5mg/L. The operation does not use mill tailings as underground backfill.

#### **Standard of Practice 4.7**

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

IN FULL COMPLIANCE

The operation is  IN SUBSTANTIAL COMPLIANCE with Standard of Practice 4.7.

NOT IN COMPLIANCE

with Standard of Practice 4.7.

Spill prevention or containment measures are provided for all cyanide unloading and storage tanks, and for the majority of process solution tanks. Secondary containments for cyanide unloading, storage and process tanks are sized to hold a volume greater than that of the largest tank within the containment and any piping draining back to the tank, and with additional capacity for the design storm event, secondary containments are inspected.

The cyanide containing tanks in the CIL and elution circuits are constructed on ring beams and compacted fill with a 1.5mm thick HDPE liner. Due to this design, there is no secondary containment to prevent potential leaks from the tank floor from entering the soil undetected. To mitigate the risk of contamination of the surrounding earth a tank leak detection system has been installed in the ring beam foundations. Ring beam leak detection inspections on the elution and CIL tanks are conducted and recorded monthly.

Procedures are in place and are being implemented for the operation of sumps and pumps that manage stormwater from secondary containment areas. TGM has procedures in place for remediation of contaminated soils. Spill prevention or containment measures are provided for cyanide process solution pipelines and tailings pipelines to collect leaks and prevent releases to the environment. TGM has assessed that the distance between cyanide pipelines and surface waters and special protection measures for protection of surface waters are not considered necessary. Cyanide tanks and pipelines are constructed of materials 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.

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

Quality control and quality assurance programmes (QC/QA) have been implemented during construction of cyanide facilities referenced during the Certification Audit as well as changes to cyanide facilities constructed since this period. The QA/QC documentation for the modification works undertaken since the last re-certification were reviewed and found to be sufficient.

The QA/QC programs for the construction of TGM's cyanide facilities that remained unchanged since the last recertification audit have been previously assessed as compliant with the Code. The modifications to the cyanide facilities undertaken since the previous recertification audit have had effective QA/QC programs completed which addressed suitability of materials, compaction and engineering design verification. The Tailings Storage Facility changes include detailed testing of soil compaction and geotechnical parameters against engineering standards.

Telfer has continued to retain records for the QA/QC programs and engineering sign off of constructions for its previous construction described in past recertification reports and for the modifications undertaken since the past recertification. External qualified engineers have reviewed and verified the modifications to the cyanide facilities undertaken since the last recertification audit and confirmed that these modifications have been constructed as per approved design.

**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  
with Standard of Practice 4.9.

The operation has written standard procedures for monitoring activities for cyanide sampling, groundwater sampling, wildlife observations and monitoring and soil sampling which were prepared by qualified professionals including TGM Environment Department, and external specialist consultants.

The procedures contain information on how and where samples should be taken, sample preservation techniques, chain of custody procedures, shipping instructions and cyanide species to

be analysed. The sampling field sheets record the sampling conditions, including environmental conditions and anthropogenic influences at the time of sampling.

The operational monitoring frequencies for groundwater, tailings discharge, dump leach pads, surface water storages and wildlife observations are undertaken at frequencies sufficient to characterise the various media being monitored and to allow any changes to be identified and acted upon 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

with Standard of Practice 5.1.

TGM has developed a Cyanide Facilities Decommissioning Plan that provides the overarching framework for mine closure activities, including the decommissioning of cyanide facilities at the cessation of operations. The Cyanide Facilities Decommissioning Plan contains an implementation schedule for decommissioning activities. The operation reviews its decommissioning procedures and costs for cyanide facilities at least every three years during the life of the operation and revises them as needed.

**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

with Standard of Practice 5.2.

TGM has developed an estimate of the cost to fully fund third party implementation of the cyanide-related decommissioning measures as identified in its Cyanide Facilities Decommissioning Plan. The cost estimate is reviewed every three years and when revisions to the plan are made that effect cyanide-related decommissioning activities. The last review and update was completed in 2021. The costs were reviewed by an independent consultant and determined to be suitable for a third party to undertake the works.

Telfer contributes annual payments as required to the Mine Rehabilitation Fund, the applicable regulatory framework for mine closure funding 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

in full compliance with Standard of Practice 6.1.

TGM has developed procedures for all cyanide related tasks including operational and maintenance tasks to ensure the health and safety of workers and minimise worker exposure to cyanide. The procedures are described in the Cyanide Management Plan and are available to all personnel through the electronic document management system.

Procedures are revised on a prescribed frequency to ensure currency. Procedures for operations and maintenance include minimum Personal Protective Equipment requirements. The pre start risk assessment is undertaken as required prior to all tasks that involve the handling, use or potential exposure to cyanide. TGM discusses and seeks inputs from workers on safe work procedures, work instructions, plans and manuals through its regular crew safety meetings held monthly and safety committee meetings with worker representatives who meet on a 3-weekly basis.

#### 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

in full compliance with Standard of Practice 6.2.

TGM has determined that the pH is to be maintained above 9.5 for the leaching circuit solutions to limit the evolution of HCN gas during production activities.

TGM has identified areas where the potential exists for significant cyanide exposure, where workers may be exposed to hydrogen cyanide gas or cyanide dust in excess of 10 parts per million (ppm) (11 mg/m<sup>3</sup>) on an instantaneous basis and 4.7 ppm (5 mg/m<sup>3</sup>) continuously over an 8-hour period, as cyanide. Static HCN gas detectors are located in the process plant at locations which have been identified from risk assessments. Personal monitoring devices are also used by personal working in the process pant and at the dump leach operations to confirm that controls are adequate to limit worker exposure to HCN gas. Portable HCN and static monitors are

maintained, tested and calibrated as per manufacturer requirements and records of calibration are retained.

Warning signs are located where cyanide is used, advising workers that cyanide is present and that smoking, open flames and eating and drink are not allowed for example entrances to the plant areas and on fencing to cyanide storage areas and at Dump Leach pads. Signs are used to indicate mandatory PPE requirements in specific areas in the plant. These signs also indicate the required PPE and must be adhered to at all times.

A coloured dye is added to the cyanide iso-containers that are delivered to Telfer by the cyanide supplier. Safety showers and low pressure-eyewashes are installed throughout the TGM processing plant and the Dump Leach CIL and Cyanide storage areas. The safety showers and eye wash stations are inspected and maintained through documented area inspections and maintenance checks.

Firefighting capability includes hand held dry powder fire extinguishers located across the operation which are inspected monthly by the Security Department. Maintenance inspection records of firefighting equipment are documented and retained. Unloading, storage and process pipelines that may hold cyanide solutions are clearly marked with cyanide labels that have arrows showing direction of flow.

Safety Data Sheets for cyanide are maintained in hard copies in reagent areas and electronically. The Safety Data Sheets are available in English language which is the language used by all workers onsite. Telfer has implemented incident investigation measures to evaluate and investigate cyanide related incidents to ensure that procedures and plans for protection of worker health and safety and cyanide exposure response are effective or require revision.

**Standard of Practice 6.3**

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

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

compliance with Standard of Practice 6.3.

TGM stores first aid equipment for responding to cyanide incidents at specific locations in the process areas where cyanide exposure risk has been identified. The first aid cabinets at these locations include oxygen resuscitation units and a neutralisation agent. Cyanide antidote kits and additional oxygen resuscitators and bulk oxygen are located at the medical clinic adjacent to the process plant facilities.

Two-way radios must be carried by all staff conducting the cyanide unloading activities including spotters. A combination of fixed line telephones, mobile telephones and radios (base station and portable handheld) are available onsite. The TGM process department operators and safety representatives inspect the first aid equipment, safety shower, potable water supply and oxygen units as part of the scheduled monthly operational area inspections. These area inspections are documented, and records are retained. Emergency Response personnel complete 6 monthly documented inspections of first aid kits.

The TGM medic undertakes monthly inspections of clinic first aid equipment including the cyanide antidote kit to ensure these remain valid and are stored correctly in accordance with manufacturers specification. TGM has developed the Cyanide Emergency Response Plan (CERP) which includes written procedures for response to cyanide exposures including first aid and decontamination response. The TGM medical clinic provides onsite medical assistance and first aid with capability to respond to cyanide incidents. The TGM Clinic has medivac procedures in place to trigger a medical evacuation to nearby hospitals with the appropriate emergency facilities, located in Port Hedland or Perth, via air transport using contracted providers, the Royal Flying Doctor Service, if medical treatment is required beyond the capacity of the site medical clinic.

# 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

in full compliance Standard of Practice 7.1.

The TGM Cyanide Emergency Response Plan includes response plans for a range of feasible cyanide incident scenarios which have been identified from risk assessments. The Cyanide Emergency Response Plan considers both on-site transportation emergencies and the physical form of cyanide. The site receives cyanide in solid form in sparge iso-containers from Orica, its contracted supplier. The cyanide iso-containers (or sparge units) are transported to the site by road in accordance with Orica’s ICMI certified supply chain.

Off-site Transport emergencies are managed under the Code certified transporters emergency management plan and the site would provide assistance as requested. The TGM Cyanide Emergency Response Plan describes evacuation procedures for clearing site personnel from the area of potential exposure. The site is over 140km from the nearest established community and the processing plant is several kilometres from the accommodation village which is the closest residential use to the mine site. The local Martu community have been consulted but there are no plausible emergency scenarios that would affect these off-site communities.

The Plan includes specific actions to deal with cyanide releases at their source including actions to shut down high strength cyanide dosing/pumping; isolation of process and tailings slurry pipelines in case of spill; address HCN release through pH control, cessation of CN dosing; and measures to stop HCN release from chemical interactions due to loss of containment. The Cyanide Emergency Response Plan includes specific actions for containment, assessment, mitigation and future prevention of releases.

### 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

in full compliance with Standard of Practice 7.2.

Cyanide emergency response procedures and plans are discussed with workers via the TGM Safety Committee meetings which include nominated worker representatives. Although there are no communities that may be potentially affected from a cyanide incident at TGM, the operation has mechanisms in place to facilitate dialogue with offsite communities such as the Relationship

Committee, which meets formally twice a year to discuss matters of the TGM operations of interest to the Traditional Owners. The operation is located in a remote area of Western Australia with the nearest regional centres with emergency services located over 300 km away and accordingly there are no outside responders (e.g. fire brigades) that would conceivably be involved in a response.

Any requirement for offsite medical evacuation would be triggered by the site based medic in direct consultation with the Royal Flying Doctor Service (RFDS). TGM has formal agreements in place with the RFDS to respond to medical emergencies at TGM.

### Standard of Practice 7.3

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

The operation is  IN FULL COMPLIANCE  
 IN SUBSTANTIAL COMPLIANCE with Standard of Practice 7.3.  
 NOT IN COMPLIANCE

in full compliance with Standard of Practice 7.3.

The TGM Cyanide Emergency Response Plan:

- a) Designates primary and alternate emergency response coordinators who have explicit authority to commit the resources necessary to implement the Plan.
- b) Identifies Emergency Response Team members. The chain of command and roles of the Crisis Management Team (CMT), the Emergency Management Team (EMT), the On Scene Commander (OSC) and the Emergency Response Team (ERT) are also presented in the CERP.
- c) Requires appropriate training for emergency responders.
- d) Includes call-out procedures and 24-hour contact information for the coordinators and response team members.
- e) Specifies the duties and responsibilities of the coordinators and team members.
- f) Lists all emergency response equipment that should be available along on-site, including personal protective equipment.
- g) Includes procedures to inspect emergency response equipment to ensure its availability when required.
- h) Describes the role of outside responders, medical facilities and communities in emergency response procedures.

The Cyanide Emergency Response Plan outlines the requirements for mock emergency drills to include the role of external parties such as the RFDS to ensure systems are tested adequately.

### 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

in full compliance with Standard of Practice 7.4.

The TGM operations emergency documentation includes procedures and contact information for notifying management, regulatory agencies, outside response providers and medical facilities of the cyanide emergency. There are no external responders with a designated role in the Cyanide Emergency Response Plan other than the RFDS for medical evacuation. Any requirement for offsite medical evacuation would be triggered by the onsite Medic in direct consultation with the RFDS.

TGM has determined that there are no potentially affected communities associated with accidental cyanide releases. However, TGM does engage with Traditional Owner communities through its Relationship Committee, which meets formally twice a year to discuss matters of the TGM operations of interest to the Traditional Owners. Matters relating to cyanide can be raised during Relationship Committee meetings. TGM has procedures which outline public reporting obligations for cyanide incidents and has developed a procedure for the notification to the ICMI of a significant cyanide incident.

#### **Standard of Practice 7.5**

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

IN FULL COMPLIANCE

The operation is  IN SUBSTANTIAL COMPLIANCE with Standard of Practice 7.5.

NOT IN COMPLIANCE

are in full compliance with Standard of Practice 7.5.

The TGM Cyanide Emergency Response Plan (CERP) includes specific remediation measures for cyanide release scenarios including:

- a) Cyanide recovery or neutralisation of solutions and solids is detailed in the cyanide response actions.
- b) Decontamination of soils and other contaminated media is described including equipment requirements, PPE, detoxification of contaminated soils, decontamination chemical use and methods.
- c) Management and /or disposal of clean up debris is described with contaminated soils disposal of to the tailings storage facility or to the process plant, and contaminated equipment/materials being subject to decontamination processes to allow disposal with general wastes if required.
- d) The operation is located in a remote arid region and the site drinking water is bottled and potable water for washing is sourced from bores remote from site cyanide facilities. There are no drinking water supplies in proximity to the operation that could be impacted by a cyanide incident and as such, there are no provisions for an alternative drinking water supply in the emergency response plans.

The CERP prohibits the use of chemicals to treat cyanide that has been released into or nearby to surface water. The CERP addresses the potential need for environmental monitoring to identify the extent and effects of a cyanide release.

**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  
with Standard of Practice 7.6.

TGM reviews the Cyanide Emergency Response Plan at least every 2 years but these reviews occur more frequently in response to identified update requirements. TGM plans for cyanide mock drills through the implementation of the Cyanide Emergency Response Plan and has completed cyanide mock drills annually through the period of recertification. The evaluations completed at the completion of the mock emergency drills have identified improvements actions for emergency response planning.

## 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  
in full compliance with Standard of Practice 8.1.

All personnel who are required to access TGM are provided basic cyanide awareness information prior to commencement of work/visit. Detailed cyanide safe handling and awareness training is provided to all personnel at TGM who work in or near cyanide areas. The mandatory cyanide awareness training is undertaken every two years for those personnel who work in areas where cyanide may be encountered. Digital records are retained for completed training for all TGM personnel and includes the various cyanide recognition/awareness training, inductions and area inductions.

**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  
in full compliance with Standard of Practice 8.2.

The operational and maintenance workforce at TGM who are involved with cyanide facilities are trained to undertake their role in a manner that minimises risks to worker health and safety and prevents unplanned cyanide release.

The TGM Learning Management System assigns the training needs relevant to specific job roles and includes training on specific cyanide operational and maintenance tasks. The training addresses the key competencies to ensure that the Safe Work Instructions and Procedures are implemented for each operational or maintenance task and include training on the application of management controls, or use of equipment, as defined in the work instructions, that minimise health, safety and environmental risks associated with cyanide.

The training elements for each job involving cyanide management are identified in the Safe Work Procedures and operating manuals which form the basis of training. Assessment of competencies have been developed to verify that trainees understand the key cyanide management elements of the procedures. All training and assessments at TGM, including theory and practical, are delivered by approved and technically experienced personnel with oversight formally recognised trainers.



All employees are trained prior to working with cyanide. Workers can only perform cyanide management activities alone once they are deemed to be competent following training assessments. Workers who are involved in cyanide management undertake the mandatory Cyanide Safe Handling and Awareness training every two years. The process plant area cyanide induction is carried out annually.

Training records are retained for completed training at TGM through the Learning Management System. The records include details of the date of training, who was trained, the trainer, the training objectives/topics and the outcomes of the training assessments.

**Standard of Practice 8.3**

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

The operation is  IN FULL COMPLIANCE  
 IN SUBSTANTIAL COMPLIANCE with Standard of Practice 8.3.  
 NOT IN COMPLIANCE  
in full compliance Standard of Practice 8.3.

Training on cyanide spill response including decontamination and first aid is provided to all processing operations and maintenance personnel through the mandatory Cyanide Safe Handling and Awareness Training. The training is required to be completed and refreshed every two years for those workers who undertake cyanide unloading, sparging, production and maintenance tasks.

The Cyanide Safe Handling and Awareness training includes the use of personal protective equipment, first aid, decontamination and spill response. The TGM Emergency Response Team, including emergency coordinators, are required to complete cyanide emergency response training, including the use of the necessary emergency response equipment, as specified in the Cyanide Emergency Response Plan. The only external organisation with a role in TGM's Cyanide Emergency Response is the RFDS undertake medical evacuations. The RFDS has been made aware that it be required to respond to cyanide emergencies at TGM and the Cyanide Emergency Response plan includes the requirements for including the RFDS in mock drill exercises at TGM. Records of training for cyanide emergency response are retained by TGM in the Learning Management System.

## 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  
fully compliant with Standard of Practice 9.1.

TGM provides phone numbers, addresses, facsimiles, and email addresses to stakeholder through its website and newsletters. TGM has also established a Relationship Committee with the representatives of the Traditional Owners. The Relationship Committee meets formally twice a year to discuss matters of the Telfer operations, including cyanide use. Matters or concerns relating to cyanide can be raised during Relationship Committee meetings.

#### 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  
is fully compliant with Standard of Practice 9.2.

The operation has the mechanisms to make information publicly available on the cyanide release or exposure incidents, where applicable. TGM has an Incident Reporting and Investigation Procedure that identifies triggers for external reporting of cyanide incidents to regulators. TGM is required by its Operating Licence to report on breaches of specified cyanide limits. Newcrest produces sustainability reports, which includes information on spills and incidents that occur across all of its sites, including TGM. The Newcrest Sustainability Reports are prepared each year and are available on the Newcrest website.