



April 2016

## INTERNATIONAL CYANIDE MANAGEMENT CODE RECERTIFICATION AUDIT

# Newcrest Mining Ltd - Telfer Gold Copper Mine Recertification Audit Summary Audit Report

**Submitted to:**

International Cyanide  
Management Institute (ICMI)  
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AUSTRALIA

REPORT

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**Distribution:**

- 1 Electronic Copy – International Cyanide Management Institute
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## **SUMMARY AUDIT REPORT FOR OPERATIONAL GOLD MINES**

**Name of Mine:** Telfer Gold Mine  
**Name of Mine Owner:** Newcrest Mining Limited  
**Name of Mine Operator:** Newcrest Mining Limited  
**Name of Responsible Manager:** Brett McFadgen (Ore Processing Manager)  
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### **LOCATION DETAIL AND DESCRIPTION OF OPERATION:**

#### **1.1 Newcrest Mining Limited**

Newcrest is Australia's largest gold producer and one of the world's top ten gold mining companies by production, reserves and market capitalisation. Headquartered in Melbourne, Australia, the Company has around 5100 employees and long-term contractors.

The origins of Newcrest date back to 1966, when Newmont Mining Limited established an Australian subsidiary, Newmont Australia Limited. In 1990, Newmont Australia Limited acquired Australmin Holdings Ltd, and subsequently merged with BHP Gold Limited in late 1990, changing its name to Newcrest Mining Limited. The Company has been listed on the ASX since 1987 – initially as Newmont Australia Limited.

Newcrest owns and operates six mines including Telfer. Two of these are located in Australia. These include Cadia Valley (Hill and Ridgeway), New South Wales and Telfer in the Pilbara region of Western Australia. Newcrest also has the Lihir and Hidden Valley Gold Operations in Papua New Guinea, Gosowong in Indonesia and the Bonikro operation in Côte d'Ivoire.

#### **1.2 Telfer Gold Mine**


Telfer is 100% owned by Newcrest. Telfer 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.

Telfer was the founding project for Newmont Australia Limited after its discovery in 1971 and became the cornerstone of Newcrest following its creation in 1990. The original gold mine operated from 1977 to 2000 and produced almost six million ounces of gold. Telfer was redeveloped and opened in July 2005.

Telfer consists of an open pit mine and underground mining. The Telfer concentrator comprises a dual train comminution circuit followed by flotation and a carbon-in-leach (CIL) circuit. The two processing trains contain two stage grinding circuits each comprising a 15 MW SAG mill and 13 MW ball mill. Both streams contain a gravity gold recovery circuit. Approximately 40% of the gold at Telfer is produced as doré which is smelted on site. Following the gravity recovery circuit ore with:

- A relatively low pyrite content is treated in a conventional single stage flotation circuit to produce gold-copper concentrate, or

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- A higher pyrite content is treated via a sequential flotation process. The first stage is a conventional copper flotation with depression of pyrite to produce a gold-copper concentrate. Tails from the first stage are refloated to produce a pyrite-gold concentrate which is leached with cyanide in a conventional CIL circuit to recover the remaining gold as doré.

The gold-copper concentrate is trucked to Port Hedland for shipping to smelters, primarily in the East Asia region.

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**SUMMARY AUDIT REPORT  
AUDITORS FINDINGS**

The Telfer Gold Mine is:

in full compliance with

in substantial compliance with

not in compliance with

**The International  
Cyanide Management  
Code**

A number of cyanide incidents (not releases) were noted as occurring during the audit period. Details are provided within this report.

**Audit Company:** Golder Associates  
**Audit Team Leader:** Ed Clerk, Exemplar Global (105995)  
**Email:** eclerk@golder.com.au

**Name and Signatures of Other Auditors:**

Name	Position	Signature	Date
Ed Clerk	Lead Auditor and Technical Specialist		20 April 2016
Mike Woods	Auditor		20 April 2016

**Dates of Audit:**

The Recertification Audit was undertaken over three (3) days between 15 and 18 September 2015.

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

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Important Information



## **PRINCIPLE 1 – PRODUCTION**

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

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

in full compliance with

The operation is

in substantial compliance with

**Standard of Practice 1.1**

not in compliance with

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


Telfer is in FULL COMPLIANCE with Standard of Practice 1.1, requiring the operation 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.

Telfer purchases its cyanide from Orica Australia Pty Ltd (Orica) under a Goods Contract that requires Orica to provide cyanide that has produced at a production facility that has been certified as being in compliance with the Code.

Orica was recertified as being fully compliant with the Code on 29 October 2013.

A review of delivery documents provided no evidence to suggest that Telfer receives bulk delivery of cyanide from any other producer.

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## PRINCIPLE 2 – TRANSPORTATION

### Protect Communities and the Environment During Cyanide Transport

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

in full compliance with

The operation is

in substantial compliance with

**Standard of Practice 2.1**

not in compliance with

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

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

Telfer's Goods Contract with its cyanide producer (and transporter) designates responsibility for the transportation-related responsibilities identified by the Code.

The text of the Goods Contract does not specifically document all of the transportation responsibilities (a to l) listed in Standard of Practice 2.1 (question 1 and 2) in the Gold Mining Verification Protocol. Despite this the Australian Supply Chain of Orica, the cyanide transporter, was certified under the Code on 26 January 2015. The Certification Audit of the cyanide transport activities assures that the designation of responsibilities during transport has been adequately addressed.

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

in full compliance with

The operation is

in substantial compliance with

**Standard of Practice 2.2**

not in compliance with


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

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

Telfer's Goods Contract with its cyanide producer (and transporter) requires that the transporter be certified under the Code. The Australian Supply Chain of Orica, the cyanide transporter, was recertified under the Code on 26 January 2015.

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

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**PRINCIPLE 3 – HANDLING AND STORAGE**

**Design and Construct Unloading, Storage and Mixing Facilities Consistent with Sound, Accepted Engineering Practices, Quality Control/Quality Assurance Procedures, Spill Prevention and Spill Containment Measures**

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

in full compliance with

The operation is  **in substantial compliance with Standard of Practice 3.1**

not in compliance with

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

Telfer is in SUBSTANTIAL COMPLIANCE with Standard of Practice 3.1, requiring that the design and construction of unloading, storage and mixing facilities is consistent with sound, accepted engineering practices, quality control/quality assurance procedures, spill prevention and spill containment measures.

Facilities for unloading and storing cyanide have been designed and constructed in accordance with sound and accepted engineering practices for these facilities. A signed As-built Drawing for Dump Leach 5 was provided as evidence indicating that the cyanide unloading and storing facilities have been designed and constructed in accordance with sound and accepted engineering practices.

Telfer commissioned Como Engineers Pty Ltd (Como Engineers) during the Certification Audit to conduct a Fit For Service Review Report for Cyanide Storage and Handling Facilities. The scope of the report included the cyanide unloading, mixing and storage facilities at Stage 7 sparging facility and Dump Leach 5. The cyanide producer (Orica) also conducts annual audits of the Dump Leach 237 and Stage 7 facilities to confirm that they meet the producer’s expectations and are safe for the receipt of cyanide.


Unloading and Storage Areas are located away from people and surface waters. Telfer has assessed the distances from the three facilities to the nearest permanent surface water body (Oakover River), nearest residential location (Telfer Village) and nearest work office. Based on the distances recorded, it was advised that the operation has not considered it necessary to evaluate the potential for releases to surface water and/or human exposure.

Liquid cyanide at Dump Leach 237 and Stage 7 sparging facility areas is unloaded from the sparge isocontainer on a concrete surface that can minimise seepage to the subsurface. Liquid cyanide is not unloaded at Dump Leach 5.

The unloading, storing and mixing facilities at the Dump Leach 237 and Stage 7 sparging facility areas are designed and constructed to contain, and recover any leakage from the isocontainer. The surface has also been designed and constructed to drain any unplanned spillage or hose up solution to the secondary containment bund which serves cyanide mixing and storage.

Telfer 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. In addition the dual sensors at the process plant allow a visual calibration prior to unloading.

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Cyanide mixing, dissolution and storage tanks at all facilities are located on a concrete surface that can prevent seepage to the subsurface. The mixing and storage tanks at Dump Leach 5 and Stage 7 have been designed and constructed to sit on concrete slab footings. The dissolution tank and storage tanks at Dump Leach 237 are elevated bullet tanks located within the concrete secondary containment.

An inspection of the secondary containments for cyanide storage and mixing tanks indicated that they were partly constructed of materials that provide a competent barrier to leakage. Telfer is considered to be in Substantial Compliance with this Standard of Practice due to the condition of the Dump Leach 5 containment facility. In making this determination it was noted that:

- Telfer had shown a good faith effort to comply by:
  - Implementing a Code compliance programme that included self-assessments and third party assessments.
  - Promptly assessing and commencing the rectification works.
  - Issuing a purchase order to complete the remainder of the identified rectification works.
- The deficiency is minor and readily correctable within one year.
- The deficiency does not represent an immediate risk to personnel or the environment as the operation has processes and procedures to prevent tank spillages. The depth to groundwater is significant and groundwater monitoring has not indicated elevated cyanide levels.

The storage tanks at Dump Leach 5, 237 and Stage 7 sparging facility are installed in the open and are vented to atmosphere at elevated locations away from occupied areas. Solid cyanide contained within sparge isocontainers for the Stage 7 and Dump Leach 237 sparging facilities are stored in an open air locked compound. Solid cyanide contained within sea containers for the Dump Leach 5 facility is stored in the open within the locked compound for the facility. HCN gas accumulates within the containers whilst they are locked closed. A procedure is in place to vent the containers before entry to remove boxes.


Cyanide boxes are stored within locked shipping containers and sparge isocontainers that prevent contact with water.

Access to the Stage 7 and Dump Leach 237 sparging facilities is prevented though storing the sparge isocontainers in both a fenced compound; by the wire seals fitted to the valves by Orica; and on the security of the filling port (manhole) closures, which require tools and equipment to open them.

Access to Dump Leach 5 is prevented by storage in wooden boxes within sea containers. Liquid reagent is stored in a storage tank. Both the sea containers and the storage tank are located within a fenced compound that is locked when personnel are not in attendance.

Cyanide sparge containers are stored separate from all other materials in a secured enclosure before they are placed in the standby positions adjoining the bunded area. The standby positions are hydraulically separate from areas where incompatible materials are handled. The cyanide mixing and storage tanks are located within bunding that keeps them separate from other facilities.

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**Standard of Practice 3.2: Operate unloading, storage and mixing facilities using inspections, preventive maintenance and contingency plans to prevent or contain releases and control and respond to worker exposures.**

in full compliance with

The operation is

in substantial compliance with

**Standard of Practice 3.2**

not in compliance with

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

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

Telfer prevents the empty cyanide containers from being used for any purpose other than holding cyanide. Empty sparge containers are returned to Orica for reuse and empty cyanide boxes are disposed of at landfill licensed to accept the waste.

The procedure for Dump Leach 5 notes that following cyanide mixing activities, plastic bags and liners are to be rinsed with water three times. The effluent is collected in the mixing tank containment sump and pumped to the intermediate pond. Rinsed bags placed back into the empty cyanide boxes for transportation to landfill. The procedures for sparging at Dump Leach 237 and Stage 7 require the isocontainers connection points to be washed down and spills washed to the sumps upon completion.

Procedures have been developed covering the destuffing of the container and mixing and storing cyanide. They detail the steps necessary to safely and correctly destuff a cyanide container, transport cyanide boxes and mix a batch of sodium cyanide solution.

Procedures have been developed that detail the operation of all valves and couplings for unloading isocontainers and mixing solid cyanide.


Rupturing or puncturing of containers is avoided at the box mixing area by transporting one box at a time. Isocontainers are designed to withstand damage through transportation activities. The isocontainers are moved into position via container handlers which are also designed to minimise damage to the units moved.

Cyanide boxes are staked two high within locked shipping containers. The Cyanide boxes were placed in the container by the cyanide supplier. Isocontainers are not stacked.

Procedures are in place to promptly clean up spills during the mixing process at all three facilities.

Procedures require the presence of an observer during the mixing or sparging process. The observer is however, only required for the coupling and decoupling of the isocontainer.

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**PRINCIPLE 4 – OPERATIONS**

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

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

in full compliance with

The operation is

**in substantial compliance with Standard of Practice 4.1**

not in compliance with

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

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

Written management and operating plans or procedures have been developed for areas of the operation that involve cyanide solutions greater than 0.5 mg/L WAD cyanide.

The operation has developed Safe Working Procedures (SWPs) for common tasks and uses Job Safety and Environmental Analysis (JSEA) tool for assessing and documenting steps and controls for non-routine activities. The JSEA process is also used as an assessment tool to evaluate low level changes in the management of change process.

The operation has plans and procedures that identify the assumptions and parameters on which the facility design was based and applicable regulatory requirements as necessary to prevent or control cyanide releases and exposures consistent with applicable requirements. These are documented and explained in key SWPs, Cyanide Management Plans, training manuals, operator log sheets and operating manuals.


The operation has plans or procedures that describe the standard practices necessary for the safe and environmentally sound operation of the facility including the specific measures needed for compliance with the Code, such as inspections and preventative maintenance activities. Key SWPs, Cyanide Management Plans, training manuals, operator log sheets and operating manuals outline the specific measures for Code compliance including sound operation of the facility including inspections.

All process (including the TSF) pumps, pipes, valves and tanks are registered within SAP. Specific maintenance tasks and associated frequencies have been assigned for each item. The tasks and frequencies were initially set by the Maintenance Planners using the recommendations contained within the equipment manuals. The tasks and frequencies were later adjusted based on observations made when conducting the tasks as well as experience gained during Work Orders raised from Job Notifications.

The operation has a procedure to identify when changes in processing or operating practices may increase the potential for the release of cyanide and to incorporate the necessary release prevention measures.

The *Change Management* procedure outlines the principles and process for use at Telfer to manage proposed temporary, permanent or emergency changes involving administrative, physical, operational or organisational modifications, alterations or substitutions to a system, a process, plant or equipment.

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The purpose of this procedure is to define the processes and/or path to be followed when a change/modification is required. Initially, any proposed change/modification should entail a full scope of the change/modification for relevant Managerial review and approval. A change/modification can be initiated by anyone who has identified a tangible reason for change or modification.

Once the scope has been derived, the change/modification is subject to a review of safety aspects by conducting a Risk Assessment. This is an iterative process that feeds back into the scope.

Following the assessment, the modification proceeds to an approval or review phase, where the responsible persons sign-off or agree on the implementation. This sign-off includes the concerned Department Manager including Environment and OHS.

The operation has developed procedures and plans that outline contingencies for situations when inspections and monitoring identify a deviation from design or standard operating procedures. The operation has developed a Cyanide Emergency Response Plan (CERP) that addresses potential accidental releases of cyanide. This plan is dedicated to responding to cyanide emergencies. The CERP sits beneath the overarching Emergency Management Plan (EMP), which regulates the management of all emergencies involving the site.

Other procedures and plans have been developed to address other contingency plans not covered by the CERP.

The operation does inspect cyanide facilities on an established frequency sufficient to assure and document that they are functioning within design parameters. Documented inspections for cyanide facilities are conducted by maintenance personnel. The inspections are guided by inspection sheets that prompt the inspector to check specific items on specific pumps, valves, pipes and tanks within the area being inspected.


A review of the documented area checks showed they are completed. However, in some circumstances, the observed condition was inconsistent with the recorded condition indicating that staff conducting the inspections were unaware of what the accepted condition should be for some of the items inspected. This was identified through a check of the inspection sheets that did not capture deficiencies identified during the audit; e.g. cracked containments, deficiencies with safety showers and other housekeeping issues.

Telfer is considered to be in Substantial Compliance with this Standard of Practice due to the inaccurate recording of field conditions. In making this determination it was noted that:

- Telfer had shown a good faith effort to comply by:
  - Implementing a Code compliance programme that included self-assessments and third party assessments.
  - Promptly assessing and commencing the rectification works.
- The deficiency is readily correctable within one year.
- The deficiency does not represent an immediate risk to personnel or the environment as the observed deficiencies did not individually result in an increased risk. The deficiencies observed on the safety showers did not prevent their use.

In addition to documented preventative maintenance inspection, operators conduct documented area specific inspections to assure facilities are functioning within specified parameters. Daily inspections are also conducted by plant personnel. These inspections are not documented.

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Evidence was available to demonstrate that the operation inspects all the required items at unloading, storage, mixing and process areas as follows:

- a) Tanks. Telfer has a structure tank monitoring and maintenance programme. In addition to scheduled maintenance inspections, all tanks are checked daily (external) by operators
- b) Secondary containments. Telfer inspects secondary containments for their integrity, the presence of fluids and their available capacity, and to ensure that any drains are closed to prevent accidental releases to the environment. No valves are locked. This is conducted daily as part of routine operator checks. The checks are documented at Dump Leach 5 but not at the Stage 7 facility.
- c) Leak Detection. Included within the operator check is the requirement to walk the Dump Leach solution perimeter drains checking for water beneath the liner indicating leaks.

Groundwater monitoring bores are installed around the perimeter of the Dump Leaches and TSF. These are monitored every three months.

- d) Pipelines, pumps and valves. All process pumps, pipes, valves and tanks are registered within SAP. Specific maintenance tasks and associated frequencies have been assigned for each item. Maintenance personnel undertake weekly documented checks and operators conduct daily checks.
- e) Freeboard. Freeboards for the TSF and polishing ponds are inspected on a daily basis to confirm that they are still within the design limits.

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


Preventive maintenance programmes are implemented and activities documented to ensure that equipment and devices function as necessary for safe cyanide management. Telfer has determined what equipment is critical in preventing releases and exposures. SAP software is used to administer schedules, requirements and records of routine preventive maintenance activities.

The operation does have necessary emergency power resources to operate pumps and other equipment to prevent unintentional releases and exposures in the event its primary source of power is interrupted.

The operation generates sufficient power from gas turbines. Backup emergency power is available from diesel generators in the event that the primary power source is interrupted. The diesel generators can provide power within 15 minutes of the main power source being interrupted and emergency power is preferentially directed to agitators, sump pumps, compressors and blowers.

Maximo software is used to manage power station maintenance.

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

in full compliance with

The operation is

in substantial compliance with

**Standard of Practice 4.2**

not in compliance with

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

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

Telfer conducts a programme to determine appropriate cyanide addition rates and evaluates and adjusts addition rates as necessary when ore types or processing practices change cyanide requirements. A monthly diagnostic leach study is undertaken and reported. Bottle rolls are undertaken weekly.

Telfer has evaluated various control strategies involving the use of bottle roll tests (increased frequency) and greater circuit control through the use of online analysers. Since the Certification Audit, cyanide addition rates in Stage 7 have decreased to 400 due to diagnostic leach studies and bottle roll tests.

Cyanide in the Stage 6 (copper flotation) circuit is managed via an online analyser measuring for mineralogy (copper, iron, inferred sulphur) not cyanide. The aim of the cyanide addition is to suppress pyrite so if the mineral content increases, cyanide addition also increases.

Cyanide in the Stage 7 circuit is measured against set points using potentiometric titrations (every six hours) and an on-line Cyantist analyser. The Cyantist analyser was replaced in Q2 2015 with a TAC online analyser monitoring first and last leach tank.

Telfer has implemented a strategy to control its cyanide addition based on monthly diagnostic leach studies and weekly bottle roll tests. Cyanide addition rates are monitored using online analysers.

**Standard of Practice 4.3: Implement a comprehensive water management program to protect against unintentional releases.**

in full compliance with

The operation is

in substantial compliance with

**Standard of Practice 4.3**


not in compliance with

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

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

A probabilistic water balance (PWB) to prevent unintentional releases to the environment has not been consistently in use during the Recertification Audit Period. As part of the initial ICMC certification, Telfer had developed a probabilistic water balance model to run deterministic and probabilistic scenarios however, it was not used or maintained during the recertification period.

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The Telfer Environmental Superintendent engaged Golder Associates to develop a water storage model to ascertain if Telfer has enough water storage capacity to protect against unintentional releases without the need to develop a full probabilistic site-wide water balance model. The water storage model was developed using the GoldSim software. The probabilistic water storage model developed showed sufficient water storage capacity within the water storage facilities to prevent releases to the environment during the rainfall sequences (which incorporates a 1 in 100 year, 72 hr rainfall event) modelled. This model is sufficient to show that Telfer has enough water storage capacity to protect against unintentional releases without the need to develop a full probabilistic water balance model.

Despite concluding that a PWB is not required, Telfer is considered to be Substantially Compliant with this Standard of Practice as the operation cannot demonstrate that the PWB was implemented for the duration of the Recertification Audit Period as committed. In making this determination it was noted that:

- Telfer had shown a good faith effort to comply by:
  - Implementing a Code compliance programme that included self-assessments and third party assessments.
  - The operation identified the deficiency and implemented a programme to investigate the causes and implement a robust solution.
  - Active monitoring of pond levels.
  - The deficiency in not maintaining a PWB did not directly result in incidents during the Recertification Audit period.
- The deficiency is readily correctable within one year
- The deficiency does not represent an immediate risk to personnel or the environment as Telfer made substantial supplementary efforts to maintain control and prevent overtopping of ponds and impoundments (i.e. TSF) during the Recertification Audit period.

This determination was assessed and supported by an independent Code Auditor.

Operating procedures do incorporate inspection and monitoring activities to prevent overtopping of ponds and impoundments and unplanned discharge of cyanide solutions to the environment.


The Dump Leach 5, 237 and Tailings Storage Facility 7 Cyanide Management Plan requires operators to complete the Dump leach 5 and 237 Operational Log Sheets which require the pond levels to be checked and recorded several times each day. The required freeboard levels are indicated on the log sheet.

Ponds and impoundments are designed and operated with adequate freeboard above the maximum design storage capacity determined by design and regulatory requirements.

The operation does measure precipitation, compare results to design assumptions and revise operating practices as necessary.

Telfer collects climate information from the Bureau of Meteorology (BOM) station located at the mine site. The data was used in the development of the original PWB as well as the recent assessment to confirm the available freeboard to negate the requirement for a PWB.

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

in full compliance with

The operation is

in substantial compliance with

**Standard of Practice 4.4**

not in compliance with

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

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

The operation has implemented measures to restrict access by wildlife to open waters where WAD cyanide exceeds 50 mg/L WAD cyanide:

Dump Leach 5 Pregnant, Intermediate and Barren ponds are netted.

The TSF 7 and Dump Leach 237 Pregnant, Intermediate and Barren ponds are maintained <50 mg/L WAD cyanide.

The return drains for both dump leach facilities are <50 mg/L WAD cyanide.

Telfer can demonstrate through water quality testing that cyanide concentration in all open waters, with the exception of ponding on Dump Leach 237 and 5, does not exceed 50 mg/L WAD cyanide.

Maintaining a WAD cyanide concentration of 50 mg/L or less in open water appears to be effective in preventing significant wildlife mortality. Telfer has not recorded any cyanide wildlife mortalities during 2012 to 2015.

The operation does not consistently apply leach solutions in a manner designed to avoid significant ponding on the heap surface and limit overspray of solution off the heap liner.


The solution irrigated onto both dump leach facilities is >50 mg/L WAD. Ponding and overspray is checked as part of the daily checks and recorded on the logsheets.

The operation has a procedure (*Eliminate Ponding on the Pad Surface*) that details options to eliminate ponding however ponding was observed during the audit and interviews confirmed that the ponding observed was not an isolated event and it was not considered "significant" by Dump Leach Operators. A standard had not been established to inform operators what constitute acceptable levels of ponding and what was considered significant.

Telfer is considered to be Substantially Compliant with this Standard of Practice as the operation could not demonstrate that leach solutions were consistently applied in a manner designed to avoid significant ponding on the heap surface. In making this determination it was noted that:

- Telfer had shown a good faith effort to comply by:
  - Implementing a Code compliance programme that included self-assessments and third party assessments.
  - The operation identified the deficiency and implemented a programme to investigate the causes and implement a robust solution.

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- The deficiency is readily correctable within one year
- The deficiency does not represent an immediate risk to personnel or the environment as leach solutions remained within the pad area and no wildlife mortalities were recorded.

**Standard of Practice 4.5: Implement measures to protect fish and wildlife from direct or indirect discharges of cyanide process solutions to surface water.**

in full compliance with

The operation is  in substantial compliance with **Standard of Practice 4.5**  
 not in compliance with

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

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

Telfer does not have direct or indirect discharges to surface water. The nearest permanent water body to Telfer is the Oakover River, 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 groundwater.**

in full compliance with

The operation is  in substantial compliance with **Standard of Practice 4.6**  
 not in compliance with

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

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

Telfer has implemented preventative maintenance and monitoring measures to manage seepage to protect the beneficial uses of the groundwater beneath and/or immediately downgradient of the operation.

All ponds, Dump Leach 5 and Dump Leach 237 are lined with HDPE liner to prevent seepage, with the exception being TSF7, which is lined with low permeability material. Seepage is also monitored through the groundwater bores surrounding the mine site.


The beneficial uses of groundwater have been established and authorised by the regulatory authority. Telfer has a Licence to Take Water which allows an annual defined abstraction of groundwater.

The operation's *Dump Leach 5, 237 and Tailings Storage Facility 7 Cyanide Management Plan* states that in accordance with DEC Environmental Licence, water samples are collected and analysed on a six monthly basis from key observation and production bores located around the TSF and Dump Leach 5. WAD cyanide concentrations are required to be below 0.5 mg/L. Bores surrounding the process plant are also monitored for cyanide.

The Licence to Take Water states that Telfer shall comply with Telfer's *Water Supply Operating Strategy*. This document limits WAD cyanide levels at compliance points to <0.5 mg/L WAD cyanide.

Results for 2012 to 2015 were below 0.5 mg/L WAD cyanide.

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The operation does not use mill tailings as underground backfill.

Seepage from the operation has not caused cyanide concentrations of groundwater to rise above levels protective of beneficial use.

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

in full compliance with

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

not in compliance with

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

Telfer is in SUBSTANTIAL COMPLIANCE with Standard of Practice 4.7 requiring that the operation provide spill prevention or containment measures for process tanks and pipelines.

Spill prevention or containment measures are provided for all cyanide unloading, storage and mixing tanks, and for the majority of process solution tanks.

At the time of the audit, 22 tanks containing cyanide solution were confirmed to have ring beam foundations:

- Nine CIL tanks
- Five elution tanks
- Three SART tanks
- Five copper circuit (Stage 6) tanks

The tails thickener was also noted as being supported by an engineered earth base that does not secondarily contain the thickener.


Of the 22 ringbeam tanks, 19 were installed with lysimeter-type tank leak detection systems in the ring beam foundations. The design of the leak detection systems was reviewed in the Certification Audit. Telfer did not monitor the leak detection system during the recertification period. Telfer also failed to install installed with leak detection on five tanks in Stage 6 despite an amendment to the Code requiring ring beam tanks within the copper circuit to be included within the scope of the Recertification Audit.

The tails thickener was designed with a leak detection system beneath however weep holes connecting through to the leak collection system were not installed. Telfer engaged Golder Associates to provide a scientific basis that supports an approach to detect leaks from the Tails Thickener to satisfy the requirements of the ICMC. The investigations identified the absence of weep holes on an existing leak detection system. Golder Associates provided some guidance on the installation of weep holes to complete the leak detection design.

The failure to consistently monitor the leak detection systems procedure and the failure to install leak detection systems on the copper concentrate tanks and tails thickener result in the operation being in substantial compliance with this Standard of Practice. In making this determination it was noted that:

- Telfer had shown a good faith effort to maintain compliance with the Code including:
  - Implementing a Code compliance programme that included self-assessments and third party assessments.

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- A comprehensive tank preventative maintenance program has been in operation during the recertification period limiting the potential for tank failures.
- The operation immediately implemented a programme to investigate the causes and implement a robust solution upon becoming aware of the issues.
- The Environmental Department conducted quarterly water monitoring to detect the WAD cyanide level from underground water in the vicinity of the Process Plant.
- The deficiency is readily correctable within one year.
- The deficiency does not represent an immediate risk to personnel or the environment as preventative maintenance and environmental groundwater monitoring in the vicinity do not indicate the presence of leaks. The groundwater is also at considerable depth (70m).

This determination was assessed and supported by an independent Code Auditor.

Secondary containments for cyanide unloading, storage, mixing and process tanks are generally 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.

An inspection of the containments identified significant volumes of slurry within the Stage 6 Cleaner & Copper Rougher containment that appeared to have been present for some time. The slurry had not been cleaned up in the timeframe specified within the operations procedures and had the potential to compromise the containment capacity.


Roadways between bunds were observed to be elevated through the deposition of material resulting in stormwater flows being directed into containment areas from roadways. This had the potential to compromise the containment capacity.

Several cracks were observed within the CCD containment that had the potential to compromise the integrity of the facility. A further inspection of the facility was conducted by Telfer's Senior Reliability Engineer to identify the extent of cracking and whether the cracks compromised the integrity of the containment. The Memorandum produced by the Senior Reliability Engineer confirmed that the floor of the facility was in an acceptable condition, however sections of the containment wall require repairs. Telfer has issued a purchase order to a contractor to complete these works.

Telfer is considered to be in Substantial Compliance with this Standard of Practice due to the condition of the CCD containment facility, redirection of stormwater into containment facilities, and a build-up of slurry within the Stage 6 Cleaner & Copper Rougher containment. In making this determination it was noted that:

- Telfer had shown a good faith effort to comply by:
  - The operation had initiated a Code compliance programme that included a third party assessment prior to the audit although these issues were not identified.
  - The operation immediately implemented a programme to rectify the issues and implement a robust solution upon becoming aware of the deficiencies.
- The deficiencies are minor and readily correctable within one year.
- The deficiencies do not represent an immediate risk to personnel or the environment as the facility has additional secondary containment volumes with a last chance pond and procedures for spills.

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Procedures are partly in place to prevent discharge to the environment of any cyanide solution or cyanide-contaminated water that is collected in the secondary containment area. With the exception of the main drive in sump, all sumps have dedicated pumps and piping to return all water to the production process. No sumps are pumped to the environment or outside of the contained plant (process plant or Dump Leaches).

Observations during the recertification audit identified that slurry collected within the main drive in sump is periodically dug out and placed adjacent to the sump on the ground to dry before being reprocessed. The material, which contains residual cyanide, is not placed within a containment area to prevent seepage to the ground.

The failure to prevent a discharge to the environment of cyanide solution from the main drive in sump results in the operation being substantially compliant with this Standard of Practice. In making this determination it was noted that:

- Telfer had shown a good faith effort to maintain compliance with the Code including:
  - Implementing a Code compliance programme that included self-assessments and third party assessments.
  - The operation immediately implemented a programme to investigate the causes and implement a robust solution upon becoming aware of the issues.
- The deficiency is readily correctable within one year.

The deficiency does not represent an immediate risk to personnel or the environment as cyanide concentrations are low, the activity is done intermittently and environmental groundwater monitoring in the vicinity does not indicate contamination. The groundwater is also at considerable depth (70m).

All process tanks are secondarily contained, however the site does have an unlined Last Chance Pond located down gradient of the process plant. Observations during the recertification audit identified that the last chance pond contained low strength cyanide solutions potentially derived from gland water from the nearby process water pond pumps. Interviews with operational staff confirmed that a small amount of water was often present within Last Chance Pond. The frequent operational (non-emergency) use of the pond without decontamination between uses results in the operation being substantially compliant with this Standard of Practice. In making this determination it was noted that:


- Telfer had shown a good faith effort to maintain compliance with the Code including:
  - The operation had initiated a Code compliance programme that included a third party assessment prior to the audit although the issue of the Last Chance Pond was not identified.
  - The operation immediately implemented a programme to investigate the causes and implement a robust solution upon becoming aware of the issues.
- The deficiency is readily correctable within one year.

The deficiency does not represent an immediate risk to personnel or the environment as cyanide concentrations are low, the activity is done intermittently and environmental groundwater monitoring in the vicinity does not indicate contamination. The groundwater is also at considerable depth (70m).

Spill prevention or containment measures are provided for the majority of cyanide process solution pipelines to collect leaks and prevent releases to the environment.

Two lines were identified without containment; the cyanide reagent line between Stage 6 and 7, and the buried process water line between the process water dam and process plant.

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The cyanide reagent line between Stage 6 and 7 is constructed of HDPE on an elevated pipe rack with no secondary containment. The pipe runs across work areas and access ways. An assessment of the line by Telfer confirmed that it does not present a credible risk to worker exposure due to the absence of joins, connections or weak points over areas where workers may be present. Despite this, the operation has confirmed that secondary containment is required to conform to site standards.

The failure to secondarily contain the reagent line between stage 6 and 7 results in the operation being substantially compliant with this Standard of Practice. In making this determination it was noted that:

- Telfer had shown a good faith effort to maintain compliance with the Code including:
  - Implementing a Code compliance programme that included self-assessments and third party assessments although the issue of the reagent line was not identified.
  - The operation immediately implemented a programme to investigate the causes and implement a robust solution upon becoming aware of the issues.
- The deficiency is readily correctable within one year.
- The deficiency does not represent an immediate risk to personnel or the environment due to the absence of joins, connections or weak points over areas where workers may be present. Procedures are also in place for reagent spills.

The main process water line between the process water dam (low strength cyanide solution) and the grinding circuit is buried for a significant length with no secondary containment. This buried line was not identified during the Certification audit and gap audits conducted by the operation.


Telfer engaged Golder Associates to provide a scientific basis that supports an approach to detect leaks from the buried pipeline to satisfy the requirements of the ICMC. Investigations along the pipeline length provided evidence that minor leaks in the buried pipelines are likely to result in a visually identifiable surface expression, rather than flow downwards and potentially remain undetected. Hydraulic conductivity (permeability) tests were performed at multiple depths within the pipeline corridor and in the surrounding ground to provide an indication of the variation in permeability in the different soil types and with depth. The permeability tests were carried out in accordance with the Talsma-Hallam method.

The results of *in situ* permeability testing of the pipeline corridor indicate that there is a high likelihood that minor leaks will result in a surface expression. However, the presence of the higher permeability sand bedding layer suggests that the leaks may also travel longitudinally along the pipeline corridor, within the sand layer, rather than expressing at the surface locally. To address this, it was recommended that consideration be given to the installation of a shallow piezometer into the sand bedding layer at the topographic low point of the alignment.

The failure to provide spill prevention or containment on the buried process water line results in the operation being substantially compliant with this Standard of Practice. In making this determination it was noted that:

- Telfer had shown a good faith effort to maintain compliance with the Code including:
  - Implementing a Code compliance programme that included self-assessments and third party assessments although the issue of the buried process water line was not identified.
  - The operation immediately implemented a programme to investigate the causes and implement a robust solution upon becoming aware of the issues.

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- The deficiency is readily correctable within one year.
- The deficiency does not represent an immediate risk to personnel or the environment as the cyanide concentrations are low (<15 mg/L WAD cyanide) the depth to groundwater is approximately 70m and environmental groundwater monitoring in the vicinity does not indicate the presence of leaks.

This determination was assessed and supported by an independent Code Auditor.

Telfer has determined that its pipelines do not present a risk to surface water.

Cyanide tanks and pipelines are constructed of materials compatible with cyanide and high pH conditions. Materials used include carbon steel, glass flake epoxy and high-density polyethylene, which are recognised for their suitability.

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

in full compliance with

The operation is  in substantial compliance with **Standard of Practice 4.8**

not in compliance with

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

Telfer is in FULL COMPLIANCE with Standard of Practice 4.8 requiring that operations implement QA/QC procedures to confirm that cyanide facilities are constructed according to accepted engineering standards and specifications.

Quality control and quality assurance programmes (QC/QA) have been implemented during construction of cyanide facilities referenced during the last Certification Audit as well as new cyanide facilities constructed since this period.


New cyanide facilities observed during the Recertification Audit Period were two new lifts on TSF7.

Two three metre embankment raisings were constructed (Stage 5 and Stage 6) on TSF 7. Since the last audit.

Coffey conduct annual audits of the TSF. The Tailings Storage Audit and Review of TSF7 for 2014 was completed by an appropriately qualified engineer. The review assessed construction, tailings properties, stability, groundwater and operating practices. The review concluded that the facility is appropriately designed and managed.

Appropriately qualified personnel have reviewed cyanide facility construction and provided documentation that the facility has been built as proposed and approved records have been retained for cyanide facilities. Relevant records cover construction activities cited in previous ICMC Certification Audit reports as well as works that occurred during the recertification period include Project Completion Reports and Project Files which contain QA/QC documentation.

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

in full compliance with

The operation is

in substantial compliance with

**Standard of Practice 4.9**

not in compliance with

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

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

The operation has written standard procedures for monitoring activities for cyanide sampling, groundwater sampling, wildlife observations and monitoring and soil sampling which were prepared by the previous Environmental Superintendent who had a scientific based university degree.

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. Information relating to species to be sampled, frequency, bottle types, preparation, preservation and transportation of samples, as well as Chain of Custody information and QA/QC are included in the procedures.


Telfer provides a Comments section on the sampling field sheets in which sampling conditions are recorded as necessary.

The operation does not have a direct discharge to surface water. Telfer monitors groundwater surrounding TSF7 and Dump Leach 5 and Dump Leach 237 quarterly. These would also capture any seepage from the plant.

A wildlife monitoring programme has been implemented for the TSF and Heap Leach pads and ponds. The checks are conducted by operators and recorded on the Operator check sheets. Telfer has not experienced any wildlife mortality attributed to cyanide. It was advised that in the event of mortality it is reported to the Environmental Department, who investigates and documents the event.

Monitoring is undertaken at frequencies adequate to characterise the medium being monitored and to identify changes in a timely manner. Monitoring frequencies are relevant to the area being sampled. Groundwater monitoring bores are sampled every three months for WAD cyanide; Decant and tails line are sampled every week for WAD cyanide; TSF decant is monitored every week for WAD cyanide; The Dump Leach 5 and 237 ponds are sampled every month for total cyanide, free cyanide and WAD cyanide samples; Freeboard in TSF7 and Dump Leach 5 and 237 ponds are monitored three times daily; and wildlife mortality observations are undertaken twice daily at the Dump Leach 5 and 237 ponds and pads, and weekly at TSF7.

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**PRINCIPLE 5 – DECOMMISSIONING**

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

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

in full compliance with

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

not in compliance with

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

Telfer is in FULL COMPLIANCE with Standard of Practice 5.1, requiring that a decommissioning plan is developed and implemented for effective closure of cyanide facilities to protect human health, wildlife and livestock.

Newcrest has developed a *Cyanide Facilities Decommissioning Plan* for Telfer.

The *Cyanide Facilities Decommissioning Plan* contains an implementation schedule for decommissioning activities that commences three years prior to closure and concludes 12 months post-closure.

The operation reviews its decommissioning procedures for cyanide facilities during the life of the operation and revises them as needed. The operation undertook a revision of the plan in September 2015. This is the first revision of the plan since initial development in 2011. The *Cyanide Facilities Decommissioning Plan* also provides for review of cost estimates every three years.

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

in full compliance with

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

not in compliance with

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


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

Telfer 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 Schedule of Rates were reviewed by an independent consultant and determined to be suitable for a third party to undertake the works for those rates.

The operation has established a process to review and update the cost estimate at least every five years and when revisions to the plan are made that effect cyanide-related decommissioning activities.

The Government of Western Australia introduced the Mining Rehabilitation Fund (MRF) on 1 July 2013 and became mandatory on 1 July 2014. The MRF provides a pooled fund levied according to the environmental disturbance existing on a tenement at the annual reporting date. This system replaces the previous bond system.

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Telfer has completed the necessary registration for this system and has paid the levy imposed by the regulator. The decommissioning costs were updated in 2014 around the time the MRF became compulsory.

Prior to the MRF, the Western Australian Department of Mines and Petroleum (DMP) had an established a financial assurance for closure in the form of an Unconditional Performance Bond (UPB) system under Section 84 of the *Mining Act 1978*. The UPB is a contract between the minister and a third party of a financial standing acceptable to the Minister providing that third party to pay a sum of money to the Minister on his request following the failure of tenement holders to meet the previously agreed environmental conditions.

UPB were in place on the leases containing cyanide facilities.

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**PRINCIPLE 6 – WORKER SAFETY**

**Protect Workers’ Health and Safety from Exposure to Cyanide**

**Standard of Practice 6.1: Identify potential cyanide exposure scenarios and take measures as necessary to eliminate, reduce and control them.**

**in full compliance with**

The operation is

in substantial compliance with

**Standard of Practice 6.1**

not in compliance with

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

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


The operation has developed procedures describing how cyanide-related tasks such as unloading, mixing, plant operations, entry into confined spaces, and equipment decontamination prior to maintenance should be conducted to minimise worker exposure. The procedures identify the hazards associated with each task and the steps required to complete it safely. These procedures are provided to relevant personnel, who are required to be assessed competent against each procedure before they can undertake them unsupervised.

The operation has procedures to review proposed process and operational changes and modifications for their potential impacts on worker health and safety, and incorporate the necessary worker protection measures. The *Change Management* procedure outlines the principles and process for use within the operation to manage proposed temporary, permanent or emergency changes involving administrative, physical, operational or organisational modifications, alterations or substitutions to a system, a process, plant or equipment.

The operation does solicit and actively considers worker input in developing and evaluating health and safety procedures. The work crews use the JSEA process to provide feedback on the procedures and the SWPs, the comments are reviewed by the processing trainer and the procedures are amended as needed and re-issued. This is the primary mechanism for soliciting and considering worker input for procedures

The Cyanide Code Champion also stated that Newcrest have a policy of encouraging their workforce to comment and provide feedback on their systems, policies, procedures and work environment. This is achieved through daily toolbox meetings, monthly safety committee meetings and daily maintenance, mill and supply meetings.

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

in full compliance with

The operation is

in substantial compliance with

**Standard of Practice 6.2**

not in compliance with

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

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

The operation has adopted a minimum pH of 9.5 based on Orica guidance and SDS. The operations CIL circuit is operated at a pH of 10.5-10.8 which is appropriate for limiting the evolution of HCN gas during mixing and production activities. The operation monitors pH levels regularly including the pH of feedwater. Due to the alkalinity of the water and the nature of the ore, little lime addition is required.

Where the potential exists for significant cyanide exposure, the operation uses both fixed and personal monitoring devices to confirm that controls are adequate to limit worker exposure to HCN gas. However, in order to further reduce the risk of worker exposure to HCN gas, the operation has installed fixed HCN monitors.

The operation has identified activities where the exposure to harmful concentrations of cyanide is possible. For such activities, the operation has operating procedures in place that state the PPE requirements. These identified activities include:


- Sodium cyanide mixing
- Maintenance work in the reagent area
- Replacing the cyanide pump.

These activities require the following PPE:

- Portable HCN monitor
- Full length chemical resistant suit with hood
- Full face mask with canister
- Elbow length rubber gloves
- Gumboots.

Portable and fixed HCN monitors are maintained, tested and calibrated as per manufacturer requirements. All fixed monitors are calibrated annually by and external provider to the manufacturer's Service Manuals, Calibration Procedures and Quality Procedures Manual. One year's worth of calibration certificates was sighted by the Auditor.

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Warning signs in English have been placed where cyanide is used, advising workers that cyanide is present and the necessary suitable PPE that must be worn. No smoking signs are posted throughout the mill area. In addition, the Mill Plant Induction, which is given to all personnel required to work unescorted in the area, states the requirements.

Showers, low-pressure eyewash stations and dry-powder fire extinguishers are strategically located throughout the operation in the cyanide areas. The fire extinguishers are inspected monthly and the showers weekly.

The operations labelled cyanide tanks and lines and clearly indicated by strategically placed signage that cyanide is present. The Ore Processing Induction training highlights to inductees that:

*“All slurry materials and water from the grinding circuit to the detoxification and Gold room contains a certain amount of cyanide.”*

Safety Data Sheets (SDS), first aid procedures and informational materials on cyanide safety were available in the language of the workforce in areas where cyanide is managed. SDS are located in the mill control room, mixing area and available on the intranet.

Procedures are in place to investigate and evaluate cyanide exposure incidents to determine if the operations programmes and procedures to protect worker health and safety, and to respond to cyanide exposures, are adequate or need revising. Telfer has an incident reporting and investigation procedure used for all incidents and an electronic database for recording the incidents and investigations.

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

**in full compliance with**

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

not in compliance with

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


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

The operation has the necessary response and communication equipment readily available for use at cyanide unloading, storage and mixing locations.

The operation has the following response equipment available to respond to worker exposures:

- Oxygen – located in the mill control room, site clinic, ERT kit and Ambulance
- Cyanokits – located in the site medical clinic
- Two ambulances
- Personal protection and response equipment
- Safety showers located throughout the mill
- HAZMAT trailer (spill response/decontamination)
- Firefighting equipment and hydrants
- Responder bags.

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Safety showers are located throughout the mill.

Evidence was observed to show that the operation does inspect its first aid equipment regularly to ensure that it is available when needed, and materials are stored and/or tested as directed by their manufacturer. The operation has cyanokits securely stored at the medical centre and available in an emergency.

The operation has developed specific written emergency response plans or procedures to respond to cyanide exposures.

The Cyanide Emergency Response Plan has the following response information regarding exposures, which is utilised by the ERT:

- PPE requirements
- Cyanide Poisoning Procedure
- Decontamination.


The operation does have its own on-site capability to provide first aid or medical assistance to workers exposed to cyanide.

The operation has a fully stocked medical centre with defibrillator, oxygen, cyanokits and two ambulances. The clinic is staffed with professional nurses and paramedic staff with support of off-site doctors via video or phone conferencing.

The operation has on-site capabilities to treat all cyanide exposures. As such, patients are unlikely to require transfer off site to other medical facilities. However, in the event that this is required, it is coordinated by the medical centre using the Royal Flying Doctor Service (RFDS).

The operation has developed a site specific cyanide emergency response plan (CERP) that is part of the overall emergency response plan for the site. The operation has conducted a number of worker exposure exercises throughout the audit period and has an established process for reviewing the performance on drills through a documented debrief.

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**PRINCIPLE 7 – EMERGENCY RESPONSE**

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

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

**in full compliance with**

The operation is

in substantial compliance with

**Standard of Practice 7.1**

not in compliance with

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

Telfer is in FULL COMPLIANCE with Standard of Practice 7.1 requiring an operation develop and implement emergency response plans and procedures to respond to worker exposure to cyanide.

The operation has developed a CERP that addresses potential accidental releases of cyanide.

This plan is dedicated to responding to cyanide emergencies. The CERP sits beneath the overarching EMP, which regulates the management of all emergencies involving the site.


The CERP does consider the potential cyanide failure scenarios appropriate for its site-specific environmental and operating circumstances. The CERP outlines general responses to cyanide releases and also has specific response information, including flow diagrams for different scenarios.

The information provided details the response actions of ERT personnel and considers on-site transportation emergencies. The CERP does describe specific response actions (as appropriate for the anticipated emergency situations) such as clearing site personnel and potentially affected communities from the area of exposure, use of cyanide antidotes and first aid measures.

Appendix A of the CERP outlines how the alarm for a cyanide emergency is raised internally. Appendix A then refers to the Evacuation Procedure for the evacuation of site personnel.

The site is remote 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 the plausible scenario review does not anticipate emergencies affecting off site communities. The CERP does link with the Emergency Management Plan and the Emergency management Team (EMT) leader assesses the need to escalate the event to Crisis Status which involves wider communication.

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**Standard of Practice 7.2: Involve site personnel and stakeholders in the planning process.**

in full compliance with

The operation is  in substantial compliance with **Standard of Practice 7.2**

not in compliance with

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

Telfer is in FULL COMPLIANCE with Standard of Practice 7.2 requiring an operation develop and implement emergency response plans and procedures to respond to worker exposure to cyanide.

The operation workforce and local communities in the initial development of the emergency response plan and they plan has not materially changes since inception. 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.

The operation does engage in consultation or communication with stakeholders to keep the Emergency Response Plan current. The main stakeholder for the operation is its workforce and the operation engages through mock exercises and through safety meetings where revisions to procedures and plans are discussed.

The operation has made contract with the RFDS in relation to patient transfer should a cyanide exposure occur. RFDS would provide medical evacuation of the patient to the nearest regional hospital (Port Headland). There are no external responders with a designated role in the CERP other than the RFDS for medical evacuation.

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

in full compliance with

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

not in compliance with


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

Telfer is in FULL COMPLIANCE with Standard of Practice 7.3 requiring an operation develop and implement emergency response plans and procedures to respond to worker exposure to cyanide.

The elements of the CERP and procedures do:

- Designate primary and alternate emergency response coordinators who have explicit authority to commit the resources necessary to implement the plan. The EMP designates the General Manager as the EMT Leader or a suitable/appointed Department Head as an alternate if the General Manager is unavailable.
- Identify emergency response teams. The CERP identifies several teams that would be involved with potential emergencies. The Crisis Management Team, EMT and the ERT under the control of the On Scene Commander.
- Require appropriate training for emergency responders. Table 4 in Section 4.2 of the CERP details the training requirements for medical personnel and EMT and ERT members.

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- Include call-out procedures and 24-hour contact information for the coordinators and response team members. The CERP and EMP include emergency call-out procedures and contact information.
- Specify the duties and responsibilities of the coordinators and team members. Duties and responsibilities are outlined in Section 4.0 of the EMP for all EMT members and Section 1.4 of the CERP for the ERT members and ERT Captain.
- List emergency response equipment, including personal protection gear, available along transportation routes and/or on site. Section 4.3 of the CERP lists the equipment that should be available for emergency response.
- Include procedures to inspect emergency response equipment to ensure its availability. ERT equipment inspection frequencies have been entered into the site's event management software (Cintellate).
- Describe the role of outside responders, medical facilities and communities in the emergency response procedures. The only external responder detailed within the plan is the RFDS to provide medical evacuation by air. Due to the remote location, no other response actions by external parties are envisaged.

The only external responder detailed within the plan is the RFDS to provide medical evacuation by air. Due to the remote location, no other response actions by external parties are envisaged. The operation has made contact with the RFDS by email to confirm response for medical evacuation if needed.

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

in full compliance with

The operation is

in substantial compliance with

**Standard of Practice 7.4**

not in compliance with

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


Telfer is in FULL COMPLIANCE with Standard of Practice 7.4 requiring an operation develop and implement emergency response plans and procedures to respond to worker exposure to cyanide.

The operations emergency documentation includes procedures and contact information for notifying management, regulatory agencies, outside response providers and medical facilities of the cyanide emergency.

In the event of an emergency, personnel are instructed to raise the alarm via the emergency radio channel or the emergency phone number. These contact points are manned 24 hours a day by the Control Centre members, who assess what facets of emergency response are required. The ERT Captain is then required to attend the scene and undertake immediate containment and lifesaving actions and serve as the On Scene Commander (OSC) if one has not been appointed. The OSC contacts the EMT Leader (General Manager or appointed Department Head) and provides a briefing on the status of the emergency. A decision will then be made on whether the EMT requires activation. The EMT has personnel responsible for internal and external communication.

The EMT is responsible for internal and external communication. The Telfer operation is a remote location and there are not communities that would need to undertake response actions for the plausible event scenarios investigated for the site.

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The operation has mechanisms in place for communicating with indigenous owners of the area and communication with the media would be managed through the CMT.

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

in full compliance with

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

not in compliance with

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

Telfer is in FULL COMPLIANCE with Standard of Practice 7.5 requiring an operation develop and implement emergency response plans and procedures to respond to worker exposure to cyanide.

The emergency response documentation does describe specific remediation measures for:

- Recovery or neutralisation of solutions and solids
- Decontamination of soils and other contaminated media
- Management and/or disposal of spill clean-up debris
- Provision of an alternate drinking water supply.

The CERP prohibits the use of chemicals to treat cyanide that has been released into surface water. Section 6.3 of the CERP states:

*Do not attempt to treat NaCN spills to any natural water supply. Treatment of cyanide spills to water should not be attempted.*

The CERP allows the use of sodium hypochlorite to neutralise spills to soil. However, it prohibits the use of this chemical or other neutralising agents in surface drainage areas.


The CERP addresses the potential need for environmental monitoring to identify the extent and effects of a cyanide release. Section 8.4 of the CERP states that:

*Reactive environmental monitoring is performed to determine the extent and severity of contamination, where a release to the environment has occurred due to an emergency situation.*

The environmental monitoring procedures provide methodologies and sample preparation, preservation and shipment information for:

- Water sampling
- Sediment (i.e. riverine) sampling
- Bioaccumulation sampling
- Toxicity sampling (including tailings).

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

in full compliance with

The operation is

in substantial compliance with

**Standard of Practice 7.6**

not in compliance with

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


Telfer is in FULL COMPLIANCE with Standard of Practice 7.6 requiring an operation develop and implement emergency response plans and procedures to respond to worker exposure to cyanide.

The operation does review and evaluate the cyanide related elements of its emergency response plan for adequacy on a regular basis. The CERP has been update on a number of occasions and most recently updated in October 2015. In addition to the schedule periodic review process the operation also uses desktop exercises and mock drills as part of the consultation process to keep the plan current. Those involved in the exercises and debriefs provide feedback through the emergency services offices who update the plan.

The operation conducted a number of cyanide exposure drills as part of its emergency response plan evaluation during the audit period including spill response, worker rescue and fire.

Provisions are in place to evaluate and revise the emergency response plan after any cyanide related emergency requiring its implementation. The plan requires members of the operation to conduct a formal investigation of the incident including identification of immediate and root causes, corrective actions and communication of the findings. The operation has not needed to implement the plan during the audit period.

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**PRINCIPLE 8 – TRAINING**

**Train Workers and Emergency Response Personnel to Manage Cyanide in a Safe and Environmentally Protective Manner**

**Standard of Practice 8.1: Train workers to understand the hazards associated with cyanide use.**

**in full compliance with**

The operation is  in substantial compliance with **Standard of Practice 8.1**

not in compliance with

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

Telfer is in FULL COMPLIANCE with Standard of Practice 8.1 requiring an operation develop and implement emergency response plans and procedures to respond to worker exposure to cyanide.

The operation does train all personnel who may encounter cyanide in cyanide hazard recognition. Cyanide awareness is initially covered through the *General Site induction* as part of an overview of reagent and then in further detail in the *Ore Processing Induction* which all personnel need to complete. Short term visitors do not receive Cyanide Awareness Training. However, they cannot enter cyanide areas, such as the mill, unescorted.

In addition to the Induction Material, the operation provides cyanide awareness training for personnel that work in the processing area. The cyanide awareness training provide information on cyanide hazards, locations, exposure, symptoms and response.

Cyanide hazard recognition refresher training is periodically conducted. The operation has established a two year refresher cycle for the Cyanide Awareness Training and Reagent Training Program. The operation has an electronic database for managing training and a review of training records for processing and maintenance personnel indicates training is completed in accordance with the schedule.

Training records have been retained. The operation has an electronic database TRACESS that provides the training profiles for roles and holds training records. A review of training records for personnel across processing and maintenance revealed that records are maintained.

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

**in full compliance with**


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

not in compliance with

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

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

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New starters are complete a general induction that provides information on safety and the environment including hazard and risk assessment tools (JHA, etc.). Personnel that work in the processing plant undertake an area specific induction that includes cyanide awareness and reagent awareness. The inductions provide information on the hazards and controls in place at the operation. This training includes a practical cyanide exposure exercise and orientation tour of the processing plant. Maintenance personnel complete the same induction training and processing personnel.

Once process workers have completed the inductions they are teamed with an experience operator and provided on the job training. The training elements necessary for tasks involving cyanide are identified in training material. Workers are trained and assessed on standard work procedures including unloading, mixing and production tasks.

Along with step by step task information contained within each procedure, each procedure has a corresponding assessment that lists the key training elements that each worker must be found competent in. Shift Supervisors use this list to assess performance before signing off that the worker can complete that task unaccompanied. Formal competency assessment is completed by the Processing Trainers that have workplace assessor qualifications. All personnel undergo Sodium Cyanide Awareness training prior to the commencement of work. They are required to undergo refresher training every two years.

Records 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. Training is based on formal competency training which requires this information to be recorded. The operation has an electronic database TRACCESS that provides the training profiles for roles and holds training records. A review of electronic and paper files confirmed that records are retained.

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

in full compliance with

The operation is

in substantial compliance with

**Standard of Practice 8.3**

not in compliance with

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


Telfer is in FULL COMPLIANCE with Standard of Practice 8.3 requiring an operation develop and implement emergency response plans and procedures to respond to worker exposure to cyanide.

Cyanide unloading, mixing, production and maintenance personnel are trained in the procedures to be followed if cyanide is released. This is conducted during induction and refresher training and includes a practical cyanide exposure exercise.

The operation has developed SWPs for response to cyanide spills and has developed at CERP. All personnel working in the processing area complete the cyanide awareness training which includes information on actions to take if cyanide is released.

All personnel also receive instruction and training on emergency response and raising the alarm. The primary response actions for processing and maintenance personnel are to raise the alarm and evacuate the area.

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The ERT is the main combat team in relation to emergency response with support of experience personnel in the area of the emergency. A training consultant has been engaged to provide training in cyanide emergency response. ERT members also receive frequent skills training through weekly in-house training. This training includes use of emergency equipment, first aid and mock drills using the procedures detailed within the CERP

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.


The operation has made contract with the RFDS in relation to patient transfer should a cyanide exposure occur. RFDS would provide medical evacuation of the patient to the nearest regional hospital (Port Headland).

Simulated cyanide emergency drills are periodically conducted for training purposes. And they cover both worker exposures and environmental releases. A number of mock drills have been conducted that address scenarios including reagent spills, confined space search and rescue and fire.

The mock drills are part of the overall training program for the ERT and involve a debrief process that is documented. The debrief process considers the key strengths and shortcomings from each exercise and the outcomes and required actions. The operation has updated the cyanide emergency response plan on a regular basis and those involved in the drill feed in to the review process. The debrief process considers the key strengths and shortcomings from each exercise and the outcomes and required actions. The operation has updated the cyanide emergency response plan on a regular basis and those involved in the drill feed in to the review process. Training procedures are reviewed and revised if deficiencies are identified through this process.

ERT training attendance sheets, documenting the training, name of trainer and trainee, the date, topics covered and the how an understanding was demonstrated have been kept.

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**PRINCIPLE 9 – DIALOGUE**

**Engage in Public Consultation and Disclosure**

**Standard of Practice 9.1: Provide stakeholders the opportunity to communicate issues of concern.**

**in full compliance with**

The operation is  in substantial compliance with **Standard of Practice 9.1**

not in compliance with

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

Telfer is in FULL COMPLIANCE with Standard of Practice 9.1 requiring an operation to provide opportunity for stakeholders to communicate issues of concern regarding the management of cyanide.

Telfer provides phone numbers, addresses, facsimiles and email addresses on its website, [www.newcrest.com.au](http://www.newcrest.com.au). The Newcrest Sustainability Report contains a name for the Newcrest’s Head of Environment, along with an address and email address.

The *Kujungkarrini* newsletter is distributed to members of the Martu community, which contains a mobile number and email address of the Community Relations Team. The website linked the newsletter, <http://www.kujungkarrini.com.au>, contains a contact page with the phone and facsimile numbers of Telfer’s community relations team.

The *Telfer Tattler* newsletter is distributed to Telfer staff and contains phone numbers of the editorial team, including the Manager – Support Services. The newsletters also provide the web address for the ICMC.

Morning toolbox meetings are held at Telfer in which site personnel can raise issues regarding cyanide.

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

**in full compliance with**

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

not in compliance with

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


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

Telfer has created opportunities for the operation to interact with stakeholders and provide them with information regarding cyanide management practices and procedures.

At an operational level, Telfer has developed the following opportunities to communicate to internal and external stakeholders (as discussed in 9.1.1):

- Cyanide awareness training for employees that may be at risk to exposure.
- Regular toolbox meetings where cyanide issues are discussed and raised by site personnel.
- [www.newcrest.com.au](http://www.newcrest.com.au)

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- *Telfer Tattler* Newsletter
- *Kujungkarrini* Newsletter
- Community Presentation.

The *Kujungkarrini* website provides access to previous editions including information presented by Telfer on what Telfer is doing to reduce the risks of cyanide exposure and how the operation is preventing impacts of cyanide on the environment.

The operation also conducts tours of the mine and processing facilities providing a verbal and visual forum for the discussion of mining processes, controls and activities including the management of cyanide. Subject matter experts at the mine provide information to the visitors.

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

in full compliance with

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

not in compliance with

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

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

Telfer has developed written descriptions of how their activities are conducted and how cyanide is managed. Based on the isolated nature of Telfer, and discussions with the Community Relations Superintendent, it was considered that the illiterate proportion of the local population did not constitute a significant percentage. Consequently, verbal dissemination of material was not considered warranted. However, Telfer do present to local communities, and also provide mine tours from time to time providing a verbal forum for the dissemination of information on cyanide management.

The operation has the mechanisms to make information publicly available on the cyanide release or exposure incidents, where applicable.


Newcrest has an *Incident Reporting and Investigation* procedure that applies to all sites. Newcrest also has a *Community Notification of Cyanide Incident* procedure that details that Telfer must make information public regarding to any confirmed cyanide incidents both on and off the mine site.

The information shall be made available via appropriate methods such as the Newcrest website, *Telfer Tattler*, *Kujungkarrini* newsletter and *Kujungkarrini* website.

Telfer is required by law to report cyanide incidents to the DMP in its Annual Environmental Report, which can be requested by the public from the DMP.

Newcrest produces sustainability reports and this includes spills and incidents that occur at Telfer. The *Newcrest Sustainability Report* lists all companywide incidents as a total figure. This report is available on the Newcrest website.

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## Report Signature Page

**GOLDER ASSOCIATES PTY LTD**

A handwritten signature in black ink, appearing to read 'E. Clerk', written over a light blue horizontal line.

Ed Clerk  
ICMI Lead Auditor/Technical Specialist

JEJ\_EWC/CWC/as

A.B.N. 64 006 107 857

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# **APPENDIX A**

## **Important Information**



## IMPORTANT INFORMATION RELATING TO THIS REPORT

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

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

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

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

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

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

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