



Sustainability Pty Ltd

+61 8 9246 6666

+61 8 9246 6660

info@sustainability.net.au

sustainability.net.au

ABN 55 093 725 118

SUITE 3, 118 Flora Terrace

North Beach

WA 6020 Australia

PO BOX 73

North Beach

WA 6920 Australia

**International Cyanide Management Code
Gold Mining Operations
Recertification Audit**

**Newcrest Mining Ltd: Telfer Gold Copper
Mine**

Summary Audit Report

November 2019

Document Control

Revision	Author	Reviewer	Approver	Date
A	JN, JM	CD, TB	CD	08/11/19
0	JN, JM	CD, TB	CD	21/11/19
1	JN, JM	JN	JN	07/02/20



CONTENTS

Abbreviations	V
Summary Audit Report.....	1
Name of Mine.....	1
Name of Mine Owner	1
Name of Mine Operator	1
Name of Responsible Manager	1
Address	1
Contact.....	1
Location and Description of Operation	2
Newcrest Mining Limited	2
Telfer Gold Mine.....	2
Auditors' Finding	3
Audit Company.....	3
Date(s) of Audit	3
Names and Signatures of Auditors	3
Auditor's Endorsement.....	4
Principal 1 - Production	5
Standard of Practice 1.1	5
Principal 2 – Transportation	6
Standard of Practice 2.1	6
Standard of Practice 2.2	6
Principal 3 – Handling and Storage.....	8
Standard of Practice 3.1	8
Standard of Practice 3.2	9
Principal 4 – Operations.....	10
Standard of Practice 4.1	10
Standard of Practice 4.2	11
Standard of Practice 4.3	12
Standard of Practice 4.4	14



Standard of Practice 4.5	15
Standard of Practice 4.6	15
Standard of Practice 4.7	16
Standard of Practice 4.8	17
Standard of Practice 4.9	18
Principal 5 – Decommissioning	20
Standard of Practice 5.1	20
Standard of Practice 5.2	21
Principal 6 – Worker Safety	22
Standard of practice 6.1	22
Standard of Practice 6.2	22
Standard of Practice 6.3	24
Principal 7 – Emergency Response	26
Standard of Practice 7.1	26
Standard of Practice 7.2	27
Standard of Practice 7.3	27
Standard of Practice 7.4	29
Standard of Practice 7.5	30
Standard of Principal 7.6	31
Principal 8 – Training	33
Standard of Practice 8.1	33
Standard of Practice 8.2	33
Standard of Practice 8.3	34
Principal 9 – Dialogue	37
Standard of Practice 9.1	37
Standard of Practice 9.2	37
Standard of Practice 9.3	38



Abbreviations

AEP	Annual Exceedance Probability
AER	Annual Environmental Report
AUD	Australian Dollars
CERP	Cyanide Emergency Response Plan
CHES	Comprehensive Health, Environment and Safety System
CN	Cyanide
CIL	Carbon in Leach
CoC	Chain of Custody
DCS	Distributed Control System
DES	Donato Environmental Services
DMIRS	Department of Mines, Industry Regulation and Safety
DWER	Department of Water and Environmental Regulation
EMP	Emergency Management Plan
EMT	Emergency Management Team
ERT	Emergency Response Team
ESO	Emergency Services Officer
FC	Full Compliance
GM	General Manager
HAZMAT	Hazardous Materials
HCN	Hydrogen cyanide
HDPE	High Density Polyethylene
IBC	Intermediate Bulk Container
JSEA	Job Safety and Environmental Analysis
LMS	Learning Management System
MoC	Management of Change
MRF	Mine Rehabilitation Fund
NaCN	Sodium Cyanide
NC	Not in Compliance
PPE	Personal Protection Equipment
PWB	Probabilistic Water Balance
QA/QC	Quality Assurance /Quality Control
OCCC	Operator Critical Control Checks
RFDS	Royal Flying Doctor Service
SAG	Semi-Autogenous Grinding
SART	Sulfidisation Acidification Recycle Thickening process
SC	Substantial Compliance
SCBA	Self-Contained Breathing Apparatus
SDS	Safety Data Sheet
SWL	Standing Water Level
SWP	Standard Work Procedure
TO	Traditional Owners
TSF	Tailings Storage Facility
WAD CN	Weak Acid Dissociable Cyanide

Summary Audit Report

Name of Mine

Telfer Gold Copper Mine

Name of Mine Owner

Newcrest Mining Ltd (100%)

Name of Mine Operator

Newcrest Mining Ltd

Name of Responsible Manager

Tracey Beck, Ore Treatment Manager

Address

Level 1, 1 Centro Ave

Subiaco, WA, 6008

Australia

Contact

Telephone: +61 8 9270 7070

Email: tracey.beck@newcrest.com.au



Location and Description of Operation

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: Cadia Valley, New South Wales; and Telfer, in the Pilbara region of Western Australia. Newcrest also has the Lihir Operations in Papua New Guinea, Gosowong in Indonesia and the Red Chris operation in British Columbia, Canada.

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, and
- 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.

Auditors' Finding

This operation is:

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

with the International Cyanide Management Code.

A number of cyanide incidents were noted as occurring during the audit period (refer to Sections 4.1 and 7.6).

Audit Company

Sustainability Pty Ltd
Suite 3, 118 Flora Terrace
North Beach, WA, 6020
AUSTRALIA

Telephone: +61 8 9246 6666



Facsimile: +61 8 9246 6660

www.sustainability.net.au

Date(s) of Audit

Inclusive of the period from 26th – 29th August 2019.

Names and Signatures of Auditors

Name	Position	Signature	Date
John Nielsen	Lead Auditor		22 November 2019
John Miragliotta	Technical Specialist		22 November 2019

Auditor's Endorsement

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

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



Signature of Lead Auditor: John Nielsen

22 November 2019



Principal 1 - Production

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

Standard of Practice 1.1

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

The operation is in full compliance with
 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 is 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 22/2/17.

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



Principal 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.

The operation is in full compliance with
 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 Australian Supply Chain of Orica, the cyanide transporter, was certified under the Code on 17/4/2018. 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.

The operation is in full compliance with
 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.

The contract with Orica Australia for the supply and transportation of cyanide to Telfer Gold Mine requires that the transport be undertaken using inly transporters or supply chains that are certified as compliant with the Code. Orica's Australian Supply Chain is certified as compliant with the Code. The cyanide delivery and chain of custody records identify all elements of the supply chain from supplier to delivery to Telfer.



Principal 3 – Handling and Storage

Protect workers and the environment during cyanide handling and storage.

Standard of Practice 3.1

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

The operation is in full compliance with
 in substantial compliance with Standard of Practice 3.1
 not in compliance with

Summarise the basis for this Finding/Deficiencies Identified:

The operation is in FULL COMPLIANCE with Standard of Practice 3.1 requiring that 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.

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

The cyanide sparge facilities are designed such that the unloading from the sparge iso-tainers to the dissolution tank occurs on a concrete surface that drains to a collection sump. The concrete is designed and maintained to prevent seepage to subsurface of any spills or leaks. The unloading, storing and mixing facilities areas are designed and constructed to contain, and recover any leakage. The surface has been designed and constructed to drain any unplanned spillage or hose up solution to the secondary containment bund. The concrete condition of the cyanide unloading surface is regularly inspected and repairs are undertaken as required.

The operation uses level indicators and high-level alarms to prevent the overfilling of cyanide storage tanks. No overflows have been recorded or observed during the audit period. The level sensors at all facilities are inspected on a six monthly basis. All cyanide mixing and storage tanks are located on a concrete surface that prevents seepage to sub surface. Maintenance personnel have an ongoing concrete inspection and repair program for the cyanide storage and secondary containment facilities.

Cyanide is stored with adequate ventilation to prevent the build-up of hydrogen cyanide gas. Ventilation procedures are in place and are being implemented for solid sodium cyanide boxes stored in sealed shipping containers. The solid sodium cyanide boxes are stored within sealed and weatherproof shipping containers on a drained surface to ensure no contact with water.

Solid cyanide is stored within locked sparge iso-containers that prevent contact with water at sparging facilities. All cyanide storage areas are within fully fenced and locked compounds. In addition, solid sodium cyanide boxes at Dump Leach 5 are stored within locked shipping containers. All cyanide storage areas are dedicated for cyanide storage only. There are no other reagents stored within the dedicated cyanide storage areas and no incompatible chemicals stored nearby.

Standard of Practice 3.2

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

The operation is in full compliance with
 in substantial compliance with Standard of Practice 3.2
 not in compliance with

Summarise the basis for this Finding/Deficiencies Identified:

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

Used cyanide boxes are crushed and disposed of in the licensed Telfer landfill in accordance with procedures. . All boxes are logged and signed off by the operators on disposal to the landfill. The landfill is fenced and locked to prevent unauthorised access. Emptied sparge isocontainers are returned to Orica for reuse.

Procedures are implemented for cyanide mixing activities to ensure plastic bags and liners are appropriately rinsed prior to disposal. Rinsed bags placed back into the empty cyanide boxes for transportation to the Telfer landfill. Procedures are in place and are being implemented to ensure sparge iso-containers are flushed, washed down prior to return to the producer. Procedures have been implemented for unpacking the cyanide boxes from the sea containers and to ensure the safe placement of sparge iso-containers and operation of sparging and unloading facilities including the operation of valves and couplings.

The Telfer procedures do not allow any stacking of solid cyanide storage containers or sparge iso-containers. The cyanide mixing procedures for mixing from boxed solid cyanide for sparging both require the immediate clean up of spills during mixing. Procedures are in place and implemented to ensure that the personal protective equipment for cyanide mixing is used and to ensure that a spotter observes mixing from a safe distance at all times. The cyanide delivered to the operation in sparge units and boxes includes the addition of colorant dye.

Principal 4 – Operations

Manage cyanide process solutions and waste streams to protect human health and the environment.

Standard of Practice 4.1

Implement management and operating systems designed to protect human health and the environment utilizing contingency planning and inspection and preventive maintenance procedures.

The operation is in full compliance with
 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 the Standard of Practice 4.1 requiring the operation to implement management and operating systems to protect human health and the environment including contingency planning and inspection and preventative maintenance procedures. Telfer has well developed procedures for operating and maintaining all cyanide facilities throughout the operation. The Telfer plans and procedures identify the assumptions and parameters on which the facility was based regulatory requirements as necessary to prevent or control cyanide releases and exposures. These include contingency measures within operating procedures for maintaining adequate freeboard on tailings facility and managing the capacity of storage ponds during seasonal cyclone rain events and measures to be implemented in case of permanent or temporary cessation of operations.

The Telfer Cyanide Management Plan describes the overarching framework for managing cyanide and references the various plans, manuals and procedures that are in place for the safe and environmentally sound operation. The Cyanide Management Plan includes the specific measures needed for compliance with the Code including inspections and preventative maintenance activities. Telfer has systems in place to describe and guide the Management of Change process for changes to equipment and process which includes the assessment of cyanide related risks to the environment and human health prior to the changes being implemented. Changes are authorised by environment and safety personnel prior to implementation.

A range of inspections are undertaken at Telfer at a sufficient frequency to ensure that cyanide facilities are functioning within design parameters. All cyanide facilities are inspected as appropriate for structural integrity, deterioration and signs of corrosion, presence of fluids and leakage. Ponds and impoundments, and associated diversion drains, are inspected to ensure sufficient freeboard, integrity and other relevant parameters critical for their function according to design. The inspections are guided by standard work procedures or detailed inspection sheets that prompt the inspector to check specific items on specific pumps, valves, pipes and tanks within the area being inspected.

Telfer was found to have missed key inspections of leak detection systems on cyanide process tanks that do not have secondary containment due to the ring beam construction method. The records indicate a 23 month period of missed inspections over the 3 year period subject to audit. During this time, Telfer continued to implement other key controls and inspections to ensure tank integrity and containment and there was no evidence of tank failure from the tank inspection program. Telfer immediately re-commenced the monthly leak detection inspections on becoming aware of the deficiency. It is considered that Telfer has demonstrated a good faith effort to ensure tank containment integrity over the certification period and made immediate measures to rectify the leak detection inspections. The risk of potential loss of containment during the period is low. The failure to undertake monthly leak detection inspections on the 22 cyanide process tanks on ring beams therefore constitutes a substantial compliance finding.

Inspection records are being managed on either Telfer’s maintenance or records management systems. Inspection records include the date of the inspection, the name of the inspector, any observed deficiencies, and any immediate corrective actions undertaken. Preventive maintenance programmes are implemented, and activities documented to ensure that equipment and devices function as necessary for safe cyanide management. The cyanide equipment included in the preventative maintenance system includes cyanide tanks, pipelines, pumps, HCN monitors, dosing systems and tank level sensors. Telfer has determined what equipment is critical in preventing releases and exposures through a risk assessment process.

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

Standard of Practice 4.2

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

The operation is in full compliance with
 in substantial compliance with Standard of Practice 4.2
 not in compliance with

Summarise the basis for this Finding/Deficiencies Identified:

Cyanide optimisation is undertaken at Telfer through a cyanide addition control strategy which is focused upon optimal economic gold recovery with minimum cyanide concentrations in the tailings solution reporting to the TSF. Weekly bottle roll tests are undertaken to verify the addition rates to the CIL circuit, and this data is used to adjust addition rates accordingly. Telfer has evaluated various strategies for cyanide addition and has implemented the strategy for cyanide addition based on improved monitoring and the outcomes of continuous evaluation of the cyanide addition at both Stage 7 CIL and Stage 6 copper flotation circuit.

Standard of Practice 4.3

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

The operation is in full compliance with
 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 was not 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.

In 2016, 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 (Golder 2016b) showed sufficient water storage capacity within the water storage facilities to prevent releases to the environment during the rainfall sequences (which incorporated a 1-in-100 year, 72 hr rainfall event) modelled. Golder (2016b) advised that the model was sufficient to show that Telfer had enough water storage capacity to protect against unintentional releases without the need to develop a full probabilistic water balance model.

During 2018, the Ore Treatment Manager became Telfer's Cyanide Code Champion and initiated an internal review of Code compliance by an independent Code auditor during May-June 2018 (Veritas Metallica 2019). The independent Code auditor identified the prevailing interpretation of requirements relating to a full probabilistic water balance model to be a risk to Code compliance.

The Ore Treatment Manager subsequently engaged Engeny Water Management (Engeny) to prepare a PWB model for Telfer (Engeny 2019). The Scope of Works required the PWB to address the requirements of the Cyanide Code. The PWB was implemented in May 2019, with refinements made during July and August 2019. Training in the use of the Telfer Mine Water Balance Model was undertaken by Processing and Environmental personnel in May 2019.

Although the PWB was not operated during the Recertification Audit Period, Telfer maintains a comprehensive water management program to protect against unintentional releases, including daily inspections of TSF7, DL5, DL237 and other water storages, and proactive draw-down of water levels in stormwater ponds in advance of the wet season.

During 2019, Telfer commissioned Engeny to prepare a revised Telfer Mine Water Balance Model. The revised Telfer Mine Water Balance Model addresses the requirements of Standard of Practice 4.3.2 relevant to Telfer. The model:

- Considers the rates at which solutions are applied to leach pads and tailings that are deposited into tailings storage facilities;
- Provides for modelling a range of design storm durations and storm return intervals;
- Incorporates precipitation and evaporation data measured at the Telfer weather station location on site;
- Provides for modelling surface water runoff, accounting for differential surface elevations and infiltration rates;
- Considers solution losses due to evaporation and/or seepage;
- Considers the effects of potential power outages; and
- Other aspects of facility design and operation that can affect the water balance e.g. infiltration from the TSF and transfers between water storages.

Telfer is considered to be in SUBSTANTIAL COMPLIANCE Standard of Practice 4.3.1 as it cannot demonstrate that the PWB was implemented for the duration of the Recertification Audit Period. 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 independent third-party assessments; and
 - Identifying the deficiency and implementing the development of a new PWB model;
- The deficiency of not maintaining a PWB did not result in incidents during the Recertification Audit period;
- The deficiency was readily correctable within one year; and
- The deficiency did 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.

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 Golders (2016) assessment of available storage capacity and the development of the Telfer Mine Water Balance Model by Engeny (2019).

Standard of Practice 4.4

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

The operation is in full compliance with
 in substantial compliance with Standard of Practice 4.4
 not in compliance with

Summarise the basis for this Finding/Deficiencies Identified:

Telfer is in FULL 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 2016 to 2019.

Significant ponding was observed during the 2016 recertification audit. In response, Telfer commissioned a study to assess the risks of dump leach ponding and recommend strategies to minimise the potential for fauna, particularly migratory birds, to come in contact with irrigation solution is >50 mg/L WAD cyanide. Telfer has amended its procedure (700-391-SA-SWP-0042 Eliminate Ponding on the Pad Surface) to include guidance for operators on acceptable and unacceptable ponding. Telfer has also implemented a recommendation by DES (2019) to dumping scats at the periphery of the irrigation area to avoid open ponds in this area. No significant ponding was observed on DL5 and DL237 during the site inspection. The placement of scats at the periphery of the irrigation area to eliminate ponding and potential contact by wildlife was observed during the site inspection. Telfer's fauna monitoring data and independent monitoring undertaken by DES (2019) has not recorded any fauna mortalities on the dump leach pads.

Standard of Practice 4.5

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

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

Summarise the basis for this Finding/Deficiencies Identified:

Telfer has neither a direct nor indirect discharge to surface water. The nearest permanent surface water is the Oakover River located approximately 140 km to the west.

Standard of Practice 4.6

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

The operation is in full compliance with
 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.

Telfer's Dump Leach 5, 237 and Tailings Storage Facility 7 Cyanide Management Plan states that in accordance with Environmental Licence L6079, water samples are collected and analysed on a six-monthly basis from key observation and production bores located around the TSF and Dump Leaches. Telfer's Water Management Plan establishes a groundwater WAD cyanide concentration trigger criterion of 0.5 mg/L. Groundwater quality monitoring indicates that groundwater cyanide is consistently below 0.5mg/L. The results of Telfer's cyanide monitoring program are reported to DWER in the Annual Environmental Reports for Operating Licence L6079.

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.

The operation is in full compliance with
 in substantial compliance with Standard of Practice 4.7
 not in compliance with

Summarise the basis for this Finding/Deficiencies Identified:

Telfer was found to be in SUBSTANTIAL COMPLIANCE with Standard of Practice 4.7. Spill prevention or containment measures are provided for all cyanide unloading, storage and mixing tanks, and for the majority of process solution tanks. Secondary containments for cyanide unloading, storage, mixing and process tanks are sized to hold a volume greater than that of the largest tank within the containment and any piping draining back to the tank, and with additional capacity for the design storm event. Secondary containments are inspected and in place for all except those tanks with ring beam or similar non contained construction.

The 22 cyanide containing tanks are constructed on a ring beam and compacted fill with a 1.5mm thick HDPE liner. The tank bases were designed and constructed with a HDPE drainpipe each to detect any leakage from the tank base which could result in a cyanide release to the subsurface. Due to this design there is no secondary containment to prevent potential leaks from the tank floor from entering the soil undetected. To mitigate the risk of contamination of the surrounding earth a tank leak detection system has been installed in the ring beam foundations. The operations were found not to have completed all monthly leak detection inspections on the 22 cyanide tanks that do not have secondary containment due to the ring beam construction method. There are no records of the monthly leak detection inspections for the 23-month period from August 2017 to August 2019.

Telfer immediately re-commenced the monthly inspections on becoming aware of the failure. Telfer continued to undertake monthly area inspections which required visual inspection of leaks for all cyanide process areas and tanks. In addition, the ongoing structural integrity test program was continued and there were no observed failures of tank floors from inspected tanks during the period. Telfer’s overall inspection program for tank leakage, corrosion and structural integrity was maintained even though the leak detection inspections were amiss. It is considered that Telfer has demonstrated a good faith effort to ensure tank containment integrity over the certification period and made immediate measures to rectify the leak detection inspections. The risk of potential loss of containment during the period is low. The failure to undertake monthly leak detection inspections on the 22 cyanide process tanks on ring beams therefore constitutes a substantial compliance finding.

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

Standard of Practice 4.8

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

The operation is in full compliance with
 in substantial compliance with Standard of Practice 4.8
 not in compliance with

Summarise the basis for this Finding/Deficiencies Identified:

The operation is in full compliance with Standard of Practice 4.8. Quality control and quality assurance programmes (QC/QA) have been implemented during construction of cyanide facilities referenced during the Certification Audit as well as changes to cyanide facilities constructed since this period. The QA/QC documentation for the modification works undertaken since the last re-certification were reviewed and found to be sufficient.

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

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

Standard of Practice 4.9

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

The operation is in full compliance with
 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 six monthly. These would also capture any seepage from the plant. Groundwater quality monitoring indicates that groundwater cyanide is consistently below 0.5mg/L. The results of Telfer's cyanide monitoring program are reported to DWER in the Annual Environmental Reports for Operating Licence L6079.

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.

Fauna interactions are maintained in a Fauna Interaction Register. Fauna mortalities are recorded as incidents in CHES. The Register and CHES records indicate that one potential CN-related bird death has occurred over the recertification audit period. One individual bird of unknown species was observed dead in CN mixing and storage containment bund. An investigation found that a leaking tap created a small pool of water, which may have attracted the bird. However, the exact cause of death, either due to cyanide or some other cause, is unknown. CHES records indicate that the leaking tap was repaired to prevent a pool of water forming in the area.

Monitoring is conducted at frequencies adequate to characterise the medium being monitored and to identify changes in a timely manner. Monitoring frequencies are:

- Groundwater monitoring bores are sampled every six months for WAD cyanide.
- Tailings discharge and decant are sampled daily for WAD cyanide.
- The Dump Leach 5 and 237 ponds are sampled twice per week for free cyanide and WAD cyanide samples.
- Freeboard in TSF7, Dump Leach 5 and 237 ponds are monitored three times daily.
- Observations of wildlife mortality are undertaken twice daily at the Dump Leach 5 and 237 ponds and pads, and at TSF7.



Principal 5 – Decommissioning

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

Standard of Practice 5.1

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

The operation is in full compliance with
 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. Telfer Gold Mine’s Mine Closure Plan provides the overarching framework for mine closure activities, including the decommissioning of cyanide facilities. Under the Western Australian Mining Act 1978, Mine Closure Plans are required to be updated every three years, which includes the review of all closure assumptions including costings. Telfer Gold Mine’s Mine Closure Plan was updated in March 2018. Telfer Gold Mine’s updated 2018 Mine Closure Plan is currently under assessment by the Department of Mines, Industry Regulation and Safety (DMIRS). The Cyanide Facilities Decommissioning Plan provides for review of cost estimates every three years. The costings were revised in July 2018 through an update to the Fixed Plant and Infrastructure Decommissioning Study.

Standard of Practice 5.2

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

The operation is in full compliance with
 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 *Cyanide Facilities Decommissioning Plan* states that a review and update of decommissioning cost estimates every three years. Newcrest commissioned an update to its demolition costs for cyanide infrastructure through the *Demolition of Telfer Goldmine Fixed Plant and Infrastructure Decommissioning Study*, which was completed in 2018.

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. Telfer Gold Mine completed the necessary registration for this system and has paid the annual MRF levy imposed by the regulator, DMIRS.

Principal 6 – Worker Safety

Protect workers' health and safety from exposure to cyanide

Standard of practice 6.1

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

The operation is in full compliance with
 in substantial compliance with Standard of Practice 6.1
 not in compliance with

Summarise the basis for this Finding/Deficiencies Identified:

The Telfer operation is in full compliance with Standard of Practice 6.1 requiring the mine to identify cyanide exposure scenarios and take measures as necessary to eliminate, reduce and control them. Telfer has developed procedures for all cyanide related tasks including operational and maintenance tasks to ensure the health and safety of workers and minimise worker exposure to cyanide. Detailed procedures and permits to work are in place to ensure job specific hazards are identified and effective mitigation measures are in place for confined space entry associated with entry to cyanide tanks for inspection and maintenance. Procedures require plant operators undertake the cyanide equipment isolation and decontamination process prior to maintenance.

A full Job Safety and Environmental Analysis (JSEA) is required prior to maintenance work on CN facilities in addition to standard operating procedures being in place. Procedures for operations and maintenance include minimum Personal Protective Equipment requirements. Process changes are assessed through a formal Management of Change Process (MoC). Safety specialist inputs to the Management of Change Process are required where worker health and safety risks are identified. In these cases, a health and safety risk assessment process is used to identify the appropriate control measures. Workers have direct input to the changes in procedures through the process of revisions to operating manuals and training materials.

Standard of Practice 6.2

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

The operation is in full compliance with
 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 to operate and monitor cyanide facilities to protect worker health and safety and periodically evaluate the effectiveness of health and safety measures. Telfer has determined that the pH is to be maintained above 9.5 for the leaching circuit solutions to limit the evolution of HCN gas during mixing and production activities. Telfer has identified areas where potential exists for significant cyanide exposure and has positioned static HCN monitors accordingly. These areas require mandatory PPE and is clearly marked with signs. All personal who enter the cyanide process areas, both leach circuit and dump leach, are required to wear personal HCN monitors. The static and personal monitors have alarm levels set at 4.7 ppm, low level alarm and 10ppm for a high-level alarm. A low-level alarm requires operators to vacate the area which has alarmed until the HCN levels have returned below 4.7 ppm. The second alarm occurs at 10ppm which triggers operators to immediately put on respirators, close the access gates to the process area entry points and evacuate to a muster point. Re-entry to the area can only occur following a full gas clearance permit process.

Portable HCN monitors are maintained, tested and calibrated as per manufacturer requirements and there is on-site calibration capacity via a docking station. Portable monitoring units are bump tested and checked at a minimum frequency of two weeks with records of calibration maintained online by Telfer for all monitors. Static Monitors are calibrated and maintained according to a standing monthly maintenance program as part of the operations preventative maintenance system and calibrated annually by an external provider in accordance with manufacturers specifications.

Warning signs are located where cyanide is used advising workers that smoking, open flames, eating and drinking are prohibited in those areas. Showers, eye wash stations and dry powder fire extinguishers are in place throughout the Telfer processing plant, at the dump leach areas and at reagent storage and mixing areas. Safety showers and eye wash stations are checked by maintenance personnel on a weekly basis and managed within the preventative maintenance system. Fire extinguishers and fire hose reels are checked monthly. Maintenance of the fire extinguishers is undertaken by the security department in accordance with manufacturers specifications.

Colourant dye is in the premixed cyanide provided by the supplier for sparge units and solid NaCN in boxes. Unloading, storage, mixing and process pipelines that may hold cyanide solutions are clearly marked with cyanide labels that have arrows showing direction of flow. Process, mixing and storage tanks are labelled to show cyanide contents.

Safety Data Sheets (SDS) are maintained in hard copies in reagent areas and are available electronically to all personnel. Telfer procedures require that all cyanide incidents and safety hazards are investigated and documented in accordance with procedures. Investigations of incidents include a review of documented procedures and training materials to determine if these are adequate or require review.

Standard of Practice 6.3

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

The operation is in full compliance with
 in substantial compliance with Standard of Practice 6.3
 not in compliance with

Summarise the basis for this Finding/Deficiencies Identified:

Telfer is in SUBSTANTIAL COMPLIANCE with Standard of Practice 6.3 requiring the operation to develop and implement emergency response plans and procedures to respond to worker exposure to cyanide. The site has fresh water and OxyViva resuscitators at locations the cyanide unloading, storage mixing locations at the Stage 7 process area, Dump Leach 237 and Dump Leach 5 and are checked monthly by the Emergency Services Officer (ESO). Cyanide antidote kits and OxyViva resuscitators are kept at the medical clinic. The Telfer process department operators and safety representatives inspect the first aid equipment, safety shower, potable water supply and OxyViva resuscitators as part of the scheduled monthly operational area inspections. .

The operational personnel use two-way radio's, fixed line telephones and mobile telephones to communicate with the control room and raise the alarm in case of emergency. The Telfer first aid clinic has capability to respond to cyanide incidents through provision of oxygen through OxyViva resuscitation units, the administering of cyanide antidote kits and has access to two site-based ambulances. The Telfer Cyanide Emergency Response Plan (CEMP) includes written procedures for response to cyanide exposures including first aid and decontamination. The operation has its own on-site capability to provide first aid or medical assistance to workers exposed to cyanide in the form of an onsite First Aid clinic. Telfer has a Medical Response and Evacuation Plan in the event that cyanide poisoning results in the need to evacuate workers to an external medical facility and maintains agreements with external medical providers who have capacity to respond to cyanide exposure incidents..

The operation has its own medical clinic staffed by Registered Nurses (RN). Telfer obtains medical support from OccuMed. Onsite treatment would be carried out in consultation with OccuMed. Any requirement for offsite medical evacuation would be triggered by the RN in direct consultation with the Royal Flying Doctor Service (RFDS). Medivac could be to a regional hospital or Perth depending on circumstances.

Telfer has entered into Mutual Aid Agreements with other mining operations in the region. The purpose of the Mutual Aid Agreements is to provide aid to one-another in the event of a mine site emergency. Triggering of the Mutual Aid Agreements is be made by escalation through the Emergency Management Team (EMT), through a designated decision making and communications role within the EMT.

Telfer is considered to be in SUBSTANTIAL COMPLIANCE with this Standard of Practice as although mock emergency response drills and post-drill reviews were undertaken, areas identified for improvement did not always appear to result in actions that are entered into Cintellate for implementation tracking and close-out. Consequently, it was not clear if the post-drill review process was consistently used to amend the EMP, CERP and associated scenario-specific response procedures to achieve improvements in emergency response.

In making this determination it was noted that:

- Telfer had shown a good faith effort to comply by undertaking the emergency response drills and post-drill debriefings;
- The deficiency is readily correctable within one year; and
- The deficiency does not represent an immediate risk to personnel or the environment.



Principal 7 – Emergency Response

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

Standard of Practice 7.1

Prepare detailed emergency response plans for potential cyanide releases.

The operation is in full compliance with
 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 an Emergency Management Plan (EMP) that provides the overarching framework for preparing for and responding to emergencies across the site. The EMP references the Cyanide Emergency Response Plan (CERP) that deals specifically with cyanide-related emergencies.

The CERP considers 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 describes specific response actions (as appropriate for the anticipated emergency situations) such as clearing site personnel 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 in Appendix C for the evacuation of site personnel.

The site is over 140km from the nearest established community and the processing plant is several kilometres from the accommodation village which is the closest residential use to the mine site. The local Martu community have been consulted but there are no plausible emergency scenarios that would affect these off-site communities.

The plan links 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.

Standard of Practice 7.2

Involve site personnel and stakeholders in the planning process.

Prepare detailed emergency response plans for potential cyanide releases.

The operation is in full compliance with
 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.

Telfer obtains medical support from OccuMed. Onsite treatment would be carried out in consultation with OccuMed. Any requirement for offsite medical evacuation would be triggered by the RN in direct consultation with the Royal Flying Doctor Service (RFDS). Medivac could be to a regional hospital or Perth depending on circumstances. 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.

The operation is in full compliance with
 in substantial compliance with Standard of Practice 7.3
 not in compliance with

Summarise the basis for this Finding/Deficiencies Identified:

Telfer is in SUBSTANTIAL 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. The CERP presents an organisation chart of the EMT. ERT members are identified in the ERT Training Matrix and the individual ERT members rostered on at any given time are identified in “Roster by Position” report prepared by the ESO at the start of each swing.
- 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). A sample of the inspection checklists and review of the Equipment Register indicates that these inspections are being carried out as stipulated.
- 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 operation has its own medical clinic staffed by Registered Nurses (RN). Telfer obtains medical support from OccuMed. Onsite treatment would be carried out in consultation with OccuMed. Any requirement for offsite medical evacuation would be triggered by the RN in direct consultation with the Royal Flying Doctor Service (RFDS). Medivac could be to a regional hospital or Perth depending on circumstances.

Telfer is considered to be in SUBSTANTIAL COMPLIANCE with this Standard of Practice as the EMP and CERP do not provide details of specific training requirements and do not provide guidance on what constitutes “Core ERT Training” or what is considered to be “appropriate” training. Furthermore, Telfer cannot demonstrate that all ERT members have undertaken all “Core ERT Training” or attended a minimum of 12 hours of site-based training per month.

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;
 - Identifying deficiencies in ERT manning levels, training implementation and record-keeping and consequently moving the management of these into the LMS training database; and
 - Implementing a recruitment drive to increase the number of ERT members.
- The deficiency is readily correctable within one year.
- The deficiency does not represent an immediate risk to personnel or the environment as Telfer has maintained its key EMT and ERT functionality through the Emergency Service Officers and medical facility, and the maintenance of its emergency response procedures and equipment.

Standard of Practice 7.4

Develop procedures for internal and external emergency notification and reporting.

The operation is in full compliance with
 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 ERT 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 life saving actions and serve as the On Scene Commander (OSC) if one has not been appointed. The OSC contacts the EMT Leader (GM 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 includes the role of External Liaison Officer, who retains responsibility as the site contact for all media communications. Contact information is provided in the Appendices to the CERP.

There are no external responders with a designated role in the CERP other than the RFDS for medical evacuation. The operation has its own medical clinic staffed by Registered Nurses (RN). Telfer obtains medical support from OccuMed. Onsite treatment would be carried out in consultation with OccuMed. Any requirement for offsite medical evacuation would be triggered by the RN in direct consultation with the Royal Flying Doctor Service (RFDS). Medivac could be to a regional hospital or Perth depending on circumstances.

Telfer has recently completed a risk review to identify plausible cyanide emergencies relating to cyanide use at the Telfer Gold Mine that could affect off-site communities. Telfer is located over 140km from the nearest off-site community. Telfer's review concluded that there were no plausible cyanide emergencies cyanide use at the Telfer Gold Mine that could affect off-site communities. Thus, Telfer concluded that offsite communities did not meet the definition of "potentially-affected" communities.

Standard of Practice 7.5

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

The operation is in full compliance with
 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; and
- Management and/or disposal of spill clean-up debris

The operation is located in a remote arid region and the site drinking water is bottled and potable water for washing is source from bores remote from site cyanide facilities. There are not drinking water supplies in proximity to the operation and as such, there are no provisions for an alternative drinking water supply on site.

The CERP prohibits the use of chemicals to treat cyanide that has been released into surface water. Section 7.3.4 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. Section 5.3.3 of the CERP identifies CN treatment chemicals to be used, where they are stored and treatment concentrations. Section 7.3.3 of the CERP identifies a residual soil CNWAD of <0.5mg/L as the criterion for soil decontamination. Soil decontamination must continue until this criterion is achieved.

The CERP addresses the potential need for environmental monitoring to identify the extent and effects of a cyanide release. Section 9.4 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).

Standard of Principal 7.6

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

The operation is in full compliance with
 in substantial compliance with Standard of Practice 7.6
 not in compliance with

Summarise the basis for this Finding/Deficiencies Identified:

Telfer is in SUBSTANTIAL COMPLIANCE with Standard of Practice 7.6 requiring an operation to periodically evaluate response procedures and capabilities and revise them as needed.

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 2019. In addition to the scheduled 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. The mock drills are conducted at varying scales and debrief reports are compiled following each exercise.

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.

During the audit period, the emergency response plan was implemented in relation to two cyanide exposures (Cintellate record INC21666, dated 09/06/2016; and INC28052, dated 20/12/2017). Emergency and Security Services Turnout reports indicate that post-response reviews are prompted as part of the report template and that such reviews were carried out.

Telfer is considered to be in SUBSTANTIAL COMPLIANCE with this Standard of Practice as although mock emergency response drills and post-drill reviews were undertaken, areas identified for improvement did not always appear to result in actions that are entered into Cintellate for implementation tracking and close-out. Consequently, it was not clear if the post-drill review process was consistently used to amend the EMP, CERP and associated scenario-specific response procedures to achieve improvements in emergency response.

In making this determination it was noted that:

- Telfer had shown a good faith effort to comply by undertaking the emergency response drills and post-drill debriefings;
- The deficiency is readily correctable within one year; and
- The deficiency does not represent an immediate risk to personnel or the environment.

Principal 8 – Training

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

Standard of Practice 8.1

Train workers to understand the hazards associated with cyanide use.

The operation is in full compliance with
 in substantial compliance with Standard of Practice 8.1
 not in compliance with

Summarise the basis for this Finding/Deficiencies Identified:

The operation is in FULL COMPLIANCE with Standard of Practice 8.1 requiring that workers be trained to understand the hazards associated with cyanide use. All personnel are provided basic cyanide awareness information prior to commencement of work. Detailed cyanide awareness training is provided to all personnel at Telfer who work in or near cyanide areas. The mandatory cyanide awareness training is undertaken every two years for those personnel who work in areas where cyanide may be encountered. The process plant area cyanide induction training is carried out annually for process plant personnel. Records are retained for completed training for all Telfer personnel and includes the various cyanide awareness training, inductions and area inductions.

Standard of Practice 8.2

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

The operation is in full compliance with
 in substantial compliance with Standard of Practice 8.2
 not in compliance with

Summarise the basis for this Finding/Deficiencies Identified:

The operation is in FULL COMPLIANCE with standard of practice 8.2 requiring that appropriate personnel are trained to operate the facility according to systems and procedures that protect human health, the community and the environment. The operational and maintenance workforce at Telfer who are involved with cyanide facilities are trained to undertake their role in a manner that minimises risks to worker health and safety and prevents unplanned cyanide release. The training is formalised and includes both theory and practical assessments for specific defined job roles. The training addresses the key competencies to ensure that the Safe Work Instructions and Procedures are implemented for each operational or maintenance task and include training on the application of management controls, or use of equipment, as defined in the work instructions, that minimise health, safety and environmental risks associated with cyanide.

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

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

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

Standard of Practice 8.3

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

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

Summarise the basis for this Finding/Deficiencies Identified:

Telfer is in SUBSTANTIAL 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.

Workers involved in cyanide unloading, mixing, production and maintenance personnel are provided with training on cyanide emergencies including the use of personal protective equipment, first aid, decontamination and spill response through the Cyanide Safe Handling and Awareness training which is refreshed annually or every two years depending on work area.

Training is also provided for workers in cyanide unloading, mixing, CIL, dump leach and process area maintenance on response to spills outside secondary containments, use of first aid equipment, decontamination and hazardous materials handling during emergencies through the work area inductions and job specific training. All personnel who work in cyanide related work areas participate in mock drills which test the readiness for response to cyanide related emergencies.

Training records are retained for completed training at Telfer through the Learning Management System (LMS). The records include details of the date of training, who was trained, the trainer, the training objectives/topics and the outcomes of the training assessments. Where training is provided by external providers, then certificates of training completion are scanned into the LMS.

The EMP and CERP do not provide details of specific training requirements for ERT members. The EMP and CERP state: ERT members are required to complete a minimum of 12 hours training per month and attend accredited training courses as appropriate. Neither the EMP nor the CERP specify was site-based or accredited training is mandatory for ERT members, nor provide guidance on what constitutes “appropriate” training.

The ERT Training Matrix and Attendance records indicate that the percent completed of “Core ERT Requirements” is between 0% and 50% across all training disciplines e.g. 0% for Certificate II Emergency First Responder; between 5% and 30% for HAZMAT-related training. Similarly, records of attendance of site-based training does not indicate that the minimum of 12 hours training by each ERT member is being undertaken.

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. The mock drills are conducted at varying scales and debrief reports are compiled following each exercise. A review of selected post-drill reports indicated a number of areas for improvement (e.g. refer to Cyanide Spill Exercise 214, 8 July 2017; and Cyanide Confined Space Rescue Exercise, 20 December 2017). Typically, deficiencies or areas for improvement would result in actions that would be entered into Cintellate, tracked and closed-out. However, for the examples referenced above, corresponding actions to implement identified improvements were not evident in Cintellate records. Consequently, it was not clear how the post-drill review process was used to amend the EMP, CERP and associated scenario-specific response procedures to achieve improvements in emergency response.

Telfer is considered to be Substantially Compliant with this Standard of Practice as the EMP and CERP do not provide details of specific training requirements and do not provide guidance on what constitutes “Core ERT Training” or is considered to be “appropriate” training. Furthermore, Telfer cannot demonstrate that all ERT members have undertaken all “Core ERT Training” or attended a minimum of 12 hours of site-based training per month.

It is noted that there has recently been a high level of staff turnover, which has affected the number of ERT personnel and a recruitment drive has been implemented to address this deficiency. It is also noted that Telfer has recently migrated its management of ERT training and record-keeping across to its Learning Management System (LMS).

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;
 - Identifying deficiencies in ERT manning levels, training implementation and record-keeping and consequently moving the management of these into the LMS training database; and
 - Implementing a recruitment drive to increase the number of ERT members.
- The deficiency is readily correctable within one year.
- The deficiency does not represent an immediate risk to personnel or the environment as Telfer has maintained its key EMT and ERT functionality through the Emergency Service Officers and medical facility, and the maintenance of its emergency response procedures and equipment.



Principal 9 – Dialogue

Engage in public consultation and disclosure.

Standard of Practice 9.1

Provide stakeholders the opportunity to communicate issues of concern.

The operation is in full compliance with
 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. The Newcrest Sustainability Report contains a name for the Newcrest's Head of Environment, along with an address and email address.

The Kujungkarrini website provides information to local communities on the Telfer operations and contains a contact page with the phone and facsimile numbers of Telfer's community relations team.

The Telfer Red Dirt newsletter is distributed to Telfer staff and contains phone numbers of the editorial team, including the Manager – Support Services.

Telfer holds morning toolbox meetings in which site personnel can raise issues regarding cyanide.

Telfer has also established a Relationship Committee with the representatives of the Traditional Owners (TO). The Relationship Committee meets formally twice a year to discuss matters of the Telfer operations of interest to the TO. Matters relating to cyanide can be raised during Relationship Committee meetings.

Standard of Practice 9.2

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

The operation is in full compliance with
 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:

- 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
- Kujungkarrini website
- Telfer Red Dirt Newsletter
- Relationship Committee meetings held twice per year with TO representatives.

Standard of Practice 9.3

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

The operation is in full compliance with
 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.

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 and identifies triggers for external reporting of cyanide incidents to regulators. Telfer is required by its Operating Licence to report on breaches of specified cyanide limits by way of “N1” reports and its Annual Environmental Reports”.



Newcrest produces sustainability reports, which includes information on spills and incidents that occur across all of its sites, including Telfer. Information on spills is broken down by type (e.g. diesel, coolant, tailings, process water and so on) and operation (e.g. Telfer, Lihir, Cadia and so on). No cyanide spills were reported in the Newcrest Sustainability Report during the audit period. The Newcrest Sustainability Reports are prepared each year and are available on the Newcrest website.

