SUMMARY
AUDIT REPORT

VISUS CONSULTING GROUP, INC.

INTERNATIONAL CYANIDE MANAGEMENT CODE MINING OPERATION RECERTIFICATION AUDIT

WHARF MINE | LAWRENCE COUNTY, SOUTH DAKOTA, USA

Prepared for

WHARF RESOURCES (USA), INC.

10928 WHARF ROAD

LEAD, SOUTH DAKOTA 57754, USA

COEUR WHARF™

Prepared by

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Submitted to

INTERNATIONAL CYANIDE MANAGEMENT INSTITUTE

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FINAL
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Balancing Your Resources

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UNITS OF MEASURE AND ABBREVIATIONS

%	Percent
ADR	Adsorption, Desorption and Refining
AED	Automated external defibrillator
ARO	Asset Retirement Obligation
CHAPS	Chemical Hazard Awareness Program
Chemours	The Chemours Company
CIC	Carbon-in-column
Code	International Cyanide Management Code (the Code)
Coeur	Coeur Mining, Inc.
CPR	Cardiopulmonary resuscitation
Cyanco	Cyanco Company, LLC
Decommissioning Plan	Wharf Mine Cyanide Facilities Decommissioning Plan

UNITS OF MEASURE AND ABBREVIATIONS (CONTINUED)

DENR	South Dakota Department of Environment and Natural Resources
EPA	Environmental Protection Agency
ERP	Coeur Wharf Emergency Response Plan
ERT	Emergency Response Team
HCN	Hydrogen cyanide
HDPE	High-density polyethylene
ICMC	International Cyanide Management Code
ICMI	International Cyanide Management Institute
LDCRS	Leak Detection, Collection, and Recovery System
LEPC	Local Emergency Planning Committee
mg/L	Milligrams per liter
MSHA	Mine Safety and Health Administration
PLS	Pregnant Leach Solution
PPE	Personal protective equipment
ppm	Parts per million
PVC	Polyvinyl chloride
QA/QC	Quality Assurance and Quality Control
SCBA	Self-contained breathing apparatus
SCMT	Site Crisis Management Team
SDS	Safety Data Sheet(s)
SOP	Standard Operating Procedure
TransWood	TransWood, Inc.
WAD	Weak-acid dissociable
Wharf	Wharf Resources (USA), Inc.

0.0 GENERAL

0.1 Operation Contact Information

Name of Mine:	Wharf Mine
Name of Mine Owner:	Coeur Mining, Inc.
Name of Mine Operator:	Wharf Resources (USA), Inc.
Name of Responsible Manager:	Mr. Ken Nelson, Mine General Manager
Address and Contact Information:	Wharf Resources (USA), Inc. 10928 Wharf Road Lead, South Dakota 57754 Telephone: +1 (605) 584-1441 Email: knelson@coeur.com

0.2 Location and Description of Operation

The Wharf Mine is an open-pit, heap leach, gold operation located in the Northern Black Hills of South Dakota; approximately five miles west of the town of Lead in Lawrence County (see **Figure 1**). Coeur Mining, Inc. ("Coeur") acquired the Wharf Mine from Goldcorp Inc. in February 2015. Wharf Resources (USA), Inc. ("Wharf"), a subsidiary of Coeur, is the operator of the Wharf Mine, which has been under Coeur management over this entire International Cyanide Management Code ("ICMC" or "Code") audit cycle. The property consists of several areas of adjoining gold mineralization, mined as a series of open pits. Access to the property is via good quality paved highways and an unpaved access road.

Haul trucks transport run-of-mine ore to the crushing plant where a three-stage crushing circuit reduces the ore to a nominal size of 80 percent ("%") minus ¾-inch diameter. Granulated lime, added to the ore during crushing, provides control of the pH in the leach solution during processing.

Haul trucks transport crushed ore to one of five on/off heap leach pads for placement in 20-feet high lifts to a maximum height of 150 feet over the pad liner. The five leach pads used for ore processing cover approximately 70 acres with a capacity of nine million tons. The pad design includes double synthetic liners on top of an eight-inch thick layer of compacted clay, with a leak detection system located between the two synthetic liners. Drip emitters placed on the top of each lift and wobbler-type or Rain Bird®-type sprinklers on the sideslopes distribute a dilute, alkaline sodium cyanide solution (i.e., barren process solution) through the crushed ore. Buried drip lines

are the primary solution distribution method, which mitigate potential freezing, reduce evaporation and minimize ponding. As the solution percolates down through the ore, gold leaches from the ore into solution and the gold-bearing (pregnant) process solution gravity flows through pipelines to the Adsorption, Desorption and Refining ("ADR") plant (a.k.a., the Process Plant). The leaching process is usually complete (i.e., full economic recovery of gold from the ore) within approximately 12 to 18 months after the leach pad is completely loaded with ore.

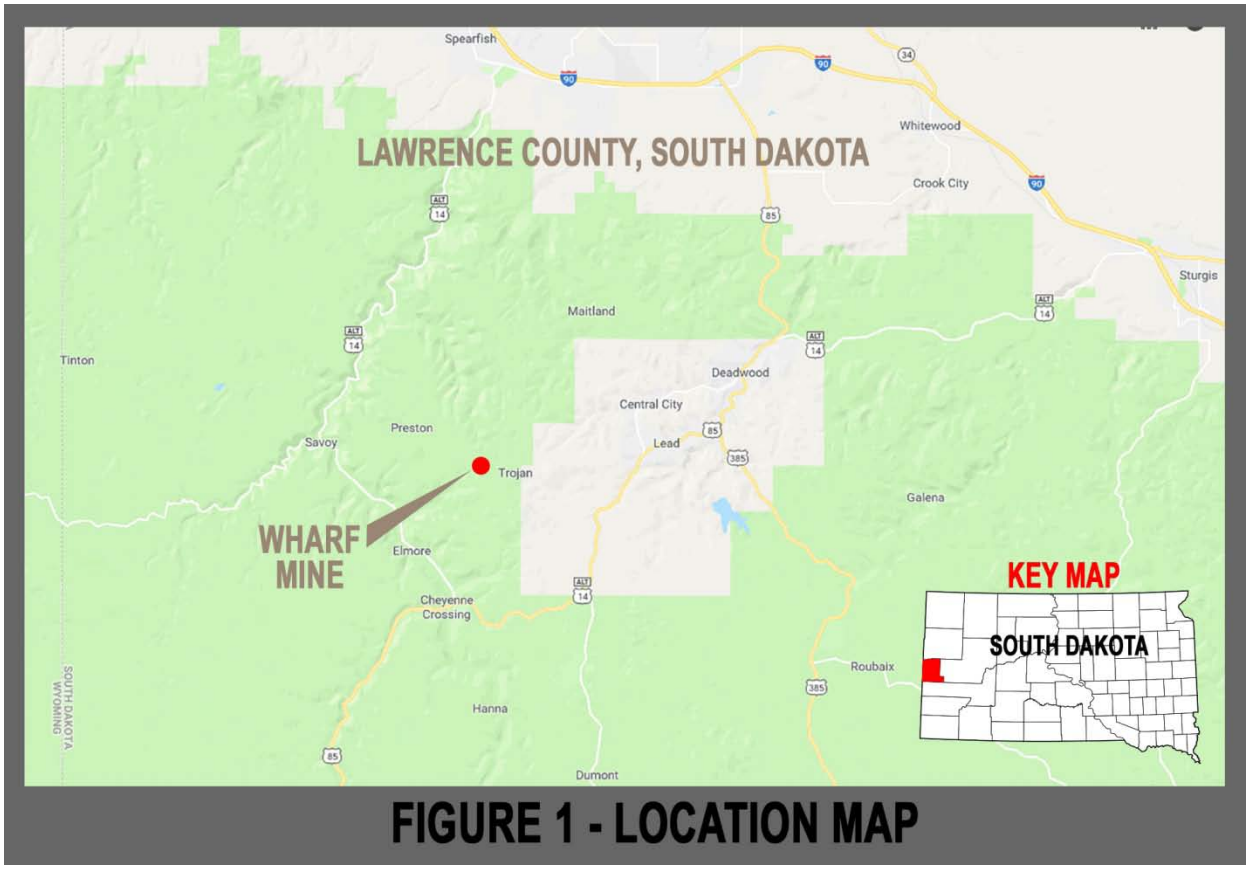

FIGURE 1 - LOCATION MAP

Following completion of active leaching, the pad enters the neutralization/denitrification stage. Pad neutralization utilizes hydrogen peroxide to destroy the sodium cyanide in the pad effluent to target levels required for denitrification plant influent, which is weak-acid dissociable ("WAD") cyanide concentrations below 0.5 milligrams per liter ("mg/L").

Wharf then utilizes a carbon-in-column ("CIC") circuit at the Process Plant to remove metals from the pad effluent to meet surface water quality for discharge. From the CIC circuit, the solution reports to the denitrification circuit for nitrate destruction, comprised of two biological denitrification plants and a heated pond, which acts as a biological reaction cell. The biological denitrification process utilizes bacteria to remove the oxygen from the nitrates and nitrites, chemically reducing them to inert nitrogen gas. Upon completion of nitrate destruction in the solution stream, solution reports back to the leach pads through the same piping network used to convey the

original barren process solution. The five-pad system allows the availability of one pad (at minimum) for each phase of the processing cycle at any given time.

Denitrification continues until the spent ore meets the criteria for off-loading. The State of South Dakota and Wharf both sample the pad effluent solution and verify the results through third party analysis. The spent ore is trucked to an approved spent ore storage area (i.e., the mine pits) when approved for removal from the leach pad, which includes WAD cyanide concentrations below 0.5 mg/L in the draindown solution.

Pregnant Leach Solution ("PLS"), collected in the dams at each leach pad, reports to the PLS Sump located at the Process Plant. From the PLS Sump, the solution reports to the adsorption circuit, which consists of four separate CIC trains (three when neutralization is ongoing) containing activated coconut shell carbon to remove the dissolved metals (primarily gold and silver) from the PLS. Once the metals adsorb onto the carbon, the "loaded" carbon is transferred to the elution circuit where gold and silver are stripped from the loaded carbon using a modified Zadra process. Stripped carbon is then acid washed utilizing concentrated acetic acid, pH adjusted with caustic, reactivated at 1,300 degrees Fahrenheit, and then returned to the CIC process.

The modified Zadra process incorporates a heated sodium hydroxide solution under high pressure, which forces the precious metals back into solution at high concentrations, creating a rich electrolyte solution. The electrolyte solution then passes through a series of electrowinning cells where the precious metals are plated, producing a precious metal sludge. Wharf then ships the sludge to a third party refinery for further processing. Alternatively, Wharf has the capability to produce doré in the on-site refinery using a furnace to smelt the sludge.

Wharf ships carbon fines off site for precious metals removal. Wharf also ships spent environmental carbon, used for either cyanide or mercury collection, off site for approved disposal.

Over this current ICMC audit cycle, Wharf has purchased both solid and liquid (aqueous solution) sodium cyanide, delivered to the site in Solid-to-Solution tanker trucks and in ISO tank containers mounted on trailer chassis, respectively. Currently, the Wharf Mine receives only liquid cyanide. A full load contains approximately 6,000 gallons of 30% aqueous solution. Thus, the WAD cyanide concentration of the solution delivered to the site is 300,000 mg/L or parts per million ("ppm"). Aside from this reagent-grade cyanide, Wharf targets the cyanide concentration of the barren solution in order to maintain WAD cyanide concentrations in the PLS below 50 mg/L in open waters throughout the process circuit.

0.3 Cyanide Facilities

The ICMC defines a ***"cyanide facility"*** as *"a storage, production, waste management or regeneration unit for managing cyanide or cyanide-containing process solution,"* or *"a pollution control device, equipment or installation used to prevent, control or minimize the risk of a cyanide release"*. The Code defines ***"process solution"*** as any solution with a WAD cyanide concentration of 0.5 mg/L or greater. Based on this criterion, the auditor identified the following primary, active cyanide facilities at the Wharf Mine:

Cyanide Offload and Storage Facilities

The cyanide offload and storage facilities consist of the system used to manage reagent-grade cyanide.

- Cyanide offload pad
- Cyanide Storage Tank
- Associated pumps, piping, valves, supports, transfer and handling systems to addition points
- Concrete secondary containments (floors, curbs, stem walls, sumps)

Heap Leach Facilities

The heap leach facilities consist of the facilities that receive and store crushed ore on the heap leach pads for leaching with dilute sodium cyanide solution, and the associated solution management systems. The heap leach pads at the Wharf Mine are on/off facilities with rinsing and treatment to less than 0.5 mg/L WAD cyanide in the draindown solution before offloading to spent ore disposal facilities. Specifically, the heap leach facilities consist of the following key components, all of which are classified as cyanide facilities:

- Heap Leach Pads (1, 2, 3, 4 and 5)
- Process Ponds
  - Pregnant Pond
  - Barren Pond
  - Overflow Pond
  - Contingency Pond
- Process solution pipelines and secondary containment channels
- Associated pumps, piping, and Leak Detection, Collection, and Recovery Systems ("LDCRS")

The 2012 ICMC audit classified the Chicken Pond as a cyanide facility; however, Wharf indicated that the Chicken pond stopped receiving process solution in 2012 and that it has not been a component of the process in any capacity since 2016. The pond currently captures meteoric water and is no longer a cyanide facility.

Cyanide Treatment System

- Neutralization Tank
- Neutralization Pond
- Associated pumps, piping, concrete secondary containment and LDCRS

Process Plant

As discussed below, refineries at gold and silver mines are currently excluded from the Code. Therefore, the primary cyanide facilities at the Process Plant, outside the secured refinery area, include:

- Process tanks;
  - Carbon in Column ("CIC") Tanks
    - New Columns (6)
    - Old Columns (5)
    - Nevada Columns (4)
    - CCIX Columns (4)
  - Elution Tanks
    - Caustic Mix Tank
  - Carbon Transfer Tanks
- Vessels;
  - Barren Sump
  - PLS Sump
  - Enrichment Sump
  - Pressure Strip Vessels (2)
- Pumps;
  - Barren Solution Pumps
  - Enrichment Solution Pumps
  - Pregnant Solution Pumps
  - Elution System Caustic Pumps
  - Various Feed and Transfer Pumps
- Other;
  - Booster Pump Pad
  - Associated piping, valves, supports, transfer and handling systems
  - Concrete secondary containments (floors, curbs, stem walls, sumps)

Wharf uses raw water in the crushing circuit for dust suppression. Thus, the ore conveying, crushing and screening equipment are not cyanide facilities or subject to the Code.

Two uses of cyanide at gold mines not presently evaluated under the Code include management of cyanide in laboratories and management of cyanide in gold refining. Therefore, Wharf's laboratory facilities and on-site refinery are excluded from Code requirements and are not part of this audit. The electrowinning cells associated with the ADR process are located inside the refinery.

0.4 Auditor Information

Audit Company:	Visus Consulting Group, Inc.
Audit Team Leader:	Mark A. Montoya, PE, CEA Lead Auditor and Mining Technical Expert Auditor
Contact Information:	Telephone: 720.301.0892 Email: mmontoya@visuscorp.com
Names and Signatures of other Auditors:	None

Audit Dates: October 22 through 25, 2018

I attest that I meet the criteria for knowledge, experience and conflict of interest for Code Verification Audit Team Leader, established by the International Cyanide Management Institute ("ICMI") and that all members of the audit team meet the applicable criteria established by the ICMI for ICMC Verification Auditors. I further attest that this Summary Audit Report accurately describes the findings of the recertification audit conducted for the Wharf Mine located in Lawrence County, South Dakota and that the audit was conducted in a professional manner in accordance with the ICMC Mining Operations Verification Protocol (dated February 2018) and using standard and accepted practices for health, safety and environmental audits.

FOR VISUS CONSULTING GROUP, INC.

Mark A. Montoya, PE, CEA
President | Principal
Lead Auditor and Mining Technical Expert Auditor

Wharf Mine
NAME OF MINE

SIGNATURE OF LEAD AUDITOR

March 11, 2019
DATE

0.5 Audit Findings

The operation is in	☒ **Full Compliance** ☐ **Substantial Compliance** ☐ **Non-Compliance**	**with the International Cyanide Management Code.**

During this three-year ICMC audit cycle (occurring over the period January 28, 2016 to date), the Wharf Mine has not experienced any *"significant cyanide incidents"* subject to the notification requirements under Item 6 of the ICMC signatory application or any cyanide exposures, which are subject to listing under ICMC Standard of Practice 9.3. The Wharf Mine has experienced small spills (i.e., minor releases of cyanide-bearing solutions to soil) over the audit cycle; however, these incidents do not affect the compliance status.

Additionally, Wharf has demonstrated "continued compliance" over this ICMC audit cycle, which includes proper retention of records required for verification. Accordingly, the findings contained herein do not always restate proper records retention under each ICMC Standard of Practice.

At the time of this recertification audit, Wharf had not begun the practice of using colorant dye in high strength cyanide solutions at the Wharf Mine, as its supplier of liquid cyanide had not yet made dyed solution available to the operation.

0.6 Summary of ICMC Principles and Standards of Practice

For easy reference, **Table 1** below provides a summary of the ICMC Principles and associated Standards of Practice.

Table 1
Summary of ICMC Principles and Standards of Practice for Gold Mining Operations

PRINCIPLE	STANDARDS OF PRACTICE
1. PRODUCTION: Encourage responsible cyanide manufacturing by purchasing from manufacturers who operate in a safe and environmentally protective manner.	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.
2. TRANSPORTATION: Protect communities and the environment during cyanide transport.	2.1 Establish clear lines of responsibility for safety, security, release prevention, training and emergency response in written agreements with producers, distributors and transporters. 2.2 Require that cyanide transporters implement appropriate emergency response plans and capabilities, and employ adequate measures for cyanide management.
3. HANDLING AND STORAGE: Protect workers and the environment during cyanide handling and storage.	3.1 Design and construct unloading, storage and mixing facilities consistent with sound, accepted engineering practices and quality control and quality assurance procedures, spill prevention and spill containment measures. 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.
4. OPERATIONS: Manage cyanide process solutions and waste streams to protect human health and the environment.	4.1 Implement management and operating systems designed to protect human health and the environment including contingency planning and inspection and preventive maintenance procedures. 4.2 Introduce management and operating systems to minimize cyanide use, thereby limiting concentrations of cyanide in mill tailings. 4.3 Implement a comprehensive water management program to protect against unintentional releases. 4.4 Implement measures to protect birds, other wildlife and livestock from adverse effects of cyanide process solutions. 4.5 Implement measures to protect fish and wildlife from direct and indirect discharges of cyanide process solutions to surface water. 4.6 Implement measures designed to manage seepage from cyanide facilities to protect the beneficial uses of ground water. 4.7 Provide spill prevention or containment measures for process tanks and pipelines. 4.8 Implement quality control/quality assurance procedures to confirm that cyanide facilities are constructed according to accepted engineering standards and specifications. 4.9 Implement monitoring programs to evaluate the effects of cyanide use on wildlife, surface and ground water quality.

Table 1 (continued)
Summary of ICMC Principles and Standards of Practice for Gold Mining Operations

PRINCIPLE	STANDARDS OF PRACTICE
5. DECOMMISSIONING: Protect communities and the environment from cyanide through development and implementation of decommissioning plans for cyanide facilities.	5.1 Plan and implement procedures for effective decommissioning of cyanide facilities to protect human health, wildlife and livestock. 5.2 Establish an assurance mechanism capable of fully funding cyanide-related decommissioning activities.
6. WORKER SAFETY: Protect workers' health and safety from exposure to cyanide.	6.1 Identify potential cyanide exposure scenarios and take measures as necessary to eliminate, reduce and control them. 6.2 Operate and monitor cyanide facilities to protect worker health and safety and periodically evaluate the effectiveness of health and safety measures. 6.3 Develop and implement emergency response plans and procedures to respond to worker exposure to cyanide.
7. EMERGENCY RESPONSE: Protect communities and the environment through the development of emergency response strategies and capabilities.	7.1 Prepare detailed emergency response plans for potential cyanide releases. 7.2 Involve site personnel and stakeholders in the planning process. 7.3 Designate appropriate personnel and commit necessary equipment and resources for emergency response. 7.4 Develop procedures for internal and external emergency notification and reporting. 7.5 Incorporate into response plans monitoring elements and remediation measures that account for the additional hazards of using cyanide treatment chemicals. 7.6 Periodically evaluate response procedures and capabilities and revise them as needed.
8. TRAINING: Train workers and emergency response personnel to manage cyanide in a safe and environmentally protective manner.	8.1 Train workers to understand the hazards associated with cyanide use. 8.2 Train appropriate personnel to operate the facility according to systems and procedures that protect human health, the community and the environment. 8.3 Train appropriate workers and personnel to respond to worker exposures and environmental releases of cyanide.
9. DIALOGUE: Engage in public consultation and disclosure.	9.1 Provide stakeholders the opportunity to communicate issues of concern. 9.2 Initiate dialogue describing cyanide management procedures and responsively address identified concerns. 9.3 Make appropriate operational and environmental information regarding cyanide available to stakeholders.

1.0 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**	
	☐ **Substantial Compliance**	**with Standard of Practice 1.1.**
	☐ **Non-Compliance**	

Discussion of the basis for this Finding and any Identified Deficiencies:

Over this current ICMC audit cycle, Wharf purchased cyanide direct from Cyanco Company, LLC ("Cyanco") and from The Chemours Company ("Chemours"), formerly E.I. DuPont de Nemours and Company. From January 13, 2016 until December 30, 2016, Wharf purchased liquid sodium cyanide exclusively from Cyanco, delivered to the site in ISO tank containers mounted on trailer chassis. Subsequently, from January 31, 2017 through June 21, 2018, Wharf purchased solid sodium cyanide exclusively from Chemours, delivered to the site in Solid-to-Solution tanker trucks (i.e., Excel I delivery trailers). Most recently, since July 3, 2018 through completion of the field component of this audit (October 25, 2018), Wharf has purchased liquid sodium cyanide exclusively from Cyanco and is currently receiving approximately 20 loads per month on average.

Cyanide purchased from Cyanco over this audit cycle was manufactured at Cyanco's Winnemucca, Nevada production facility. Cyanco delivers sodium cyanide to the Wharf Mine as a 30% aqueous solution in ISO tank containers mounted on trailer chassis directly from its transloading facility located in Cheyenne, Wyoming. Cyanide purchased from Chemours over this ICMC audit cycle was produced at the Chemours North American Sodium Cyanide Production & Packaging Operations located just outside of Memphis, Tennessee. Chemours repacks the sodium cyanide briquettes from rail hopper cars into bulk packages (i.e., Excel I or Excel II trailers) at its facility located in Carlin, Nevada for shipment to the Wharf Mine.

The initial term of the *Sale and Purchase Agreement* between Wharf and Cyanco is January 1, 2013 to December 31, 2014. Wharf provided documentation demonstrating that it formally renewed and extended the contract for an additional two-year term through December 31, 2016. Wharf executed a new contract with Cyanco following the approximate 18-month interim period that Wharf purchased solid cyanide from Chemours. The initial term of the current *Supply Agreement* is two years from its effective date of July 1, 2018. The *Supply Agreement* requires that the Seller (Cyanco) and Purchaser (Wharf) agree to comply with the ICMC and all applicable laws and regulations with respect to the handling, storing, transporting and disposing of cyanide under the agreement.

The initial term of the contract between Wharf and Chemours is January 1, 2017 through December 31, 2019. The contract requires that Chemours remain a signatory to the Code and that the cyanide purchased from Chemours is manufactured only at facilities certified as being in compliance with the Code. Chemours, its production and transportation personnel, distributors and contract transporters are required to comply with all applicable Code Principles, Standards of Practice, performance goals, audit recommendations and certification requirements applicable to Chemours' production facilities and applicable to transportation to the Wharf Mine, including the specific compliance matters set out in the Code's Cyanide Production Verification Protocol and Cyanide Transportation Verification Protocol.

Review of the ICMC Summary Audit Reports prepared for the Chemours and Cyanco production facilities provided verification that the cyanide purchased by Wharf, over the period between the 2015 ICMC recertification audit for the Wharf Mine and this 2018 ICMC recertification audit, was manufactured at facilities certified as being in full compliance with the Code. As further verification, Wharf provided written confirmation that it has purchased cyanide directly and exclusively from Cyanco and Chemours over this entire ICMC audit cycle.

2.0 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** ☐ **Substantial Compliance** ☐ **Non-Compliance**	**with Standard of Practice 2.1.**

Discussion of the basis for this Finding and any Identified Deficiencies:

As stated under ICMC Standard of Practice 1.1 above, Wharf currently purchases liquid sodium cyanide solution from Cyanco, manufactured at its Winnemucca, Nevada plant. By contract, Cyanco is solely responsible for the production and transport of sodium cyanide to the delivery point at the Wharf Mine. The Wharf *Supply Agreement* with Cyanco specifies that Wharf take ownership of the cyanide at the time of delivery and that Cyanco and Wharf agree to comply with the ICMC and all applicable laws and regulations with respect to the handling, storing, transporting and disposing of cyanide under the agreement.

Cyanco utilized the transport company, TransWood, Inc. ("TransWood"), exclusively to deliver sodium cyanide direct to the Wharf Mine in ISO tank containers mounted on trailer chassis from Cyanco's transloading facility located in Cheyenne, Wyoming. TransWood is a signatory to the Code, currently certified as fully compliant, with established lines of responsibility for safety, security, release prevention, training, and emergency response. Although Wharf's *Supply Agreement* with Cyanco does not specifically define responsibility for the Code Transportation Principles and Standards of Practice, the Cyanco and TransWood ICMC certifications demonstrate that the parties are aware of their responsibilities under the Code.

Over this audit cycle, Wharf also purchased solid sodium cyanide from Chemours, delivered to the site in Solid-to-Solution tanker trucks. By contract, Chemours is solely responsible for the production and transport of sodium cyanide to the delivery point at the Wharf Mine. The contract between Wharf and Chemours specifies that Wharf takes responsibility of the cyanide at the time of delivery. Furthermore, in accordance with the contract, Chemours, its production and transportation personnel, distributors and contract transporters are required to comply with all applicable Code Principles, Standards of Practice, performance goals, audit recommendations and certification requirements applicable to Chemours' production facilities and applicable to transportation to the Wharf Mine, including the specific compliance matters set out in the Code's Cyanide Production Verification Protocol and Cyanide Transportation Verification Protocol.

Wharf Mine
NAME OF MINE

SIGNATURE OF LEAD AUDITOR

March 11, 2019
DATE

Chemours utilized the transport company Quality Carriers (formerly Sentinel Transportation, LLC) exclusively to deliver sodium cyanide direct to the Wharf Mine from its repacking facility located in Carlin, Nevada. Quality Carriers is a signatory to the Code, currently certified as fully compliant, with established lines of responsibility for safety, security, release prevention, training, and emergency response.

Review of the ICMC Summary Audit Reports provided verification that the transportation chains utilized by Cyanco and Chemours to deliver cyanide to the Wharf Mine over the period between the 2015 ICMC recertification audit for the Wharf Mine and this 2018 ICMC recertification audit, were certified as being in full compliance with the Code.

Wharf has not yet begun the practice of using colorant dye in high-strength cyanide solutions at the Wharf Mine, as its supplier of liquid cyanide had not yet made dyed solution available to the operation. Therefore, the current contracts/agreements do not include a requirement for the addition of colorant dye to high-strength liquid cyanide prior to delivery or addition of colorant dye to solid cyanide prior to or at the time of mixing.

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** ☐ **Substantial Compliance** ☐ **Non-Compliance**	**with Standard of Practice 2.2.**

Discussion of the basis for this Finding and any Identified Deficiencies:

The *Supply Agreement* between Wharf and Cyanco requires that Cyanco and Wharf agree to comply with the ICMC and all applicable laws and regulations with respect to the handling, storing, transporting and disposing of cyanide under the agreement. Cyanco and its transporter (TransWood) are certified in full compliance with the Code and Cyanco used TransWood exclusively for transportation-related activities associated with the Wharf Mine over this ICMC audit cycle.

The contract between Wharf and Chemours specifies that Chemours, its production and transportation personnel, distributors and contract transporters are required to comply with all applicable Code Principles, Standards of Practice, performance goals, audit recommendations and certification requirements applicable to Chemours' production facilities and applicable to transportation to the Wharf Mine, including the specific compliance matters set out in the Code's Cyanide Production Verification Protocol and Cyanide Transportation Verification Protocol. Chemours and its transporter (Quality Carriers) are certified in full compliance with the Code and Chemours used Quality Carriers exclusively for transportation-related activities associated with the Wharf Mine over this ICMC audit cycle.

Wharf maintains signed bills of lading demonstrating maintenance of custody by TransWood and Quality Carriers from the point of origin to the Wharf Mine. As further verification, Wharf provided written confirmation that Cyanco has utilized TransWood exclusively and that Chemours has utilized Quality Carriers exclusively.

3.0 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 ☐ Substantial Compliance ☐ Non-Compliance	with Standard of Practice 3.1.

Discussion of the basis for this Finding and any Identified Deficiencies:

As described in the 2012 and 2015 ICMC audit reports, the cyanide offload and storage facilities at the Wharf Mine are designed and constructed in accordance with cyanide producers' guidelines, applicable jurisdictional rules and/or other sound and accepted engineering practices for these types of facilities. Wharf indicated that it has not modified the facilities over this current ICMC audit cycle.

Wharf constructed the cyanide offload and storage facilities in 2011 and 2012 using sound and accepted engineering practices. A full-service design firm, with staff comprised of multi-disciplined professional engineers, designed the facilities. The facilities include an offload pad, storage tank, pump shed, concrete secondary containment, and piping, valves, and appurtenances. Cyanco personnel inspected the facilities following construction and provided clearance for Wharf to receive shipments of liquid cyanide.

The cyanide offload pad and appurtenances (i.e., offload piping and air hose) are located outside on the north side of the Process Plant. The Cyanide Storage Tank is located outside on the west side of the Process Plant. During cyanide offload events, Wharf barricades all access points to the cyanide offload and storage facilities in addition to the man door located near the Cyanide Storage Tank leading into the CCIX room and the rollup door located near the entry to the offload pad. There is no public access near the Process Plant and process ponds; nonetheless, a chain-link fence with a locked gate surrounds the Cyanide Storage Tank and associated Pump Shed for security. Only authorized personnel can enter the Cyanide Storage Tank area.

Concrete secondary containment systems provided for the cyanide offload and storage facilities prevent potential releases from the offload pad and from the Cyanide Storage Tank area. The cyanide offload pad is a reinforced concrete slab placed over a polystyrene barrier and surrounded by reinforced concrete stem walls. Wharf installed the Cyanide Storage Tank on a reinforced concrete slab, and the tank itself rests on several railroad rails to allow detection of leaks from the insulated tank. The concrete secondary containments release in pipe-in-pipe systems via gravity flow to the adjacent Overflow Pond, which provides tertiary containment.

The Cyanide Storage Tank has a telemetry system installed, which Cyanco monitors remotely to schedule cyanide deliveries and prevent dispatching deliveries when the storage tank is too full to accept an entire load. The level sensor links to an audible alarm located inside the Process Plant. The computer monitors located in the control room display a warning when the alarm activates, and there are two high set points, which trigger audible and visual alarms. According to the Cyanco offload procedures, Wharf will not accept a load if the tank level is above a specified "percent full" amount. Cyanco monitors cyanide consumption and compares the consumption rates to the readings provided by the tank level instrumentation in order to verify that the instrumentation is functioning properly.

The cyanide offload and storage facilities are located outside in an open-air environment. Cyanide storage consists of the closed-topped, ventilated and insulated, carbon steel Cyanide Storage Tank located on the west side of the Process Plant. Therefore, adequate ventilation exists to prevent the build-up of hydrogen cyanide ("HCN") gas. The tank sits within an isolated, concrete, secondary containment area. No other materials reside in the containment area. Wharf stores acetic acid and antiscalant in bulk fiberglass tanks located in a separate and isolated area of the Process Plant.

During the field component of this 2018 ICMC recertification audit, the auditor observed the cyanide offload and storage facilities to be in good condition. The concrete containments were properly sealed, the gate to the Cyanide Storage Tank area was locked, and all valves at the tank were secured (via locks and blind flanges) to prevent inadvertent opening and potential exposures.

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**	
	☐ **Substantial Compliance**	**with Standard of Practice 3.2.**
	☐ **Non-Compliance**	

Discussion of the basis for this Finding and any Identified Deficiencies:

Over this current ICMC audit cycle, Wharf received both solid and liquid (aqueous solution) sodium cyanide, delivered to the site in Solid-to-Solution tanker trucks and in ISO tank containers mounted on trailer chassis, respectively. Therefore, there are no empty cyanide containers requiring treatment or disposal.

Currently, Wharf receives liquid cyanide produced by Cyanco and delivered by TransWood, exclusively. Following each offload, the TransWood driver blows the cyanide lines on the delivery truck with compressed air to ensure they are dry and that no residual cyanide solution is present. The Cyanco offload procedure requires that the driver inspect the ISO tank following the offload by walking completely around the tractor-trailer before moving. Although the Cyanco Standard Operating Procedure ("SOP") does not include specific procedures for cleaning any

cyanide residue from the tanker fittings and hoses following the offload, the auditor observed the driver rinse off the fittings after removing the transfer hose. The Wharf offload procedure requires that the Process Operator (spotter) ensure that the offload pad is free of debris and drips, that the ISO tank is not dented or leaking, and that all valves are closed and caps are back in place.

Cyanco's offload SOP provides detailed procedures for operating the valves and couplings, both for routine and emergency situations. The SOP defines procedures for securing the trailer at the offload area, verifying the solution level in the Cyanide Storage Tank and notifying Wharf of the intent to offload before starting the offload process, use of proper Personal Protective Equipment ("PPE"), making proper coupling connections and disconnections, operating valves during startup and shutdown, and procedures for emergency shutdown. The procedure used by Quality Carriers to mix and offload dry cyanide produced by Chemours provides detailed procedures for operating the valves and couplings.

During the period when Chemours was delivering solid cyanide to the Wharf Mine in Solid-to-Solution tanker trucks, Wharf implemented a separate offload procedure, which includes spill response procedures. Wharf currently receives only liquid cyanide, and the SOP implemented by Wharf refers to separate procedures for spill response. Cyanco's offload SOP provides emergency procedures for responding to leaks and overflows as well. The Cyanco and Wharf offload SOPs both address appropriate PPE, including portable HCN gas monitors and a mine radios.

Once the delivery truck is properly located on the offload pad, the Wharf spotter secures the area with barricades and signage. The spotter keeps the truck driver in sight at all times from a safe location until the offload is complete. The spotter uses a checklist to verify proper PPE and key steps in the process. The auditor observed the entire offload event on October 23, 2018 and verified that both Wharf and the TransWood driver followed the written offload procedures. Furthermore, the auditor reviewed the offload documentation (i.e., the checklist and bill of lading) to verify compliance.

During the period when Chemours was delivering solid cyanide to the Wharf Mine in Solid-to-Solution tanker trucks, Wharf implemented a separate offload procedure. Although Wharf is no longer receiving solid cyanide from Chemours, the auditor reviewed the procedure to verify compliance.

Wharf has not begun the practice of using colorant dye in high-strength cyanide solutions at the Wharf Mine, as its supplier of liquid cyanide had not yet made dyed solution available to the operation.

4.0 OPERATIONS

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

Standard of Practice 4.1

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

The operation is in	☒ Full Compliance ☐ Substantial Compliance ☐ Non-Compliance	with Standard of Practice 4.1.

Discussion of the basis for this Finding and any Identified Deficiencies:

Please refer to **Section 0.3** above for a listing of the active cyanide facilities at the Wharf Mine. Wharf implements written plans and procedures related to the operation of its cyanide facilities, which include SOPs, operating plans and operating permits. The plans, procedures and permits provide the framework for operating the process facilities and conducting certain critical tasks and adequately address the protection of human health and the environment. The SOPs identify required PPE and the risks involved with the operating tasks, and adequately describe safe work practices. Additionally, the regulatory permits for the Wharf Mine stipulate environmental monitoring and operating requirements for the entire operation.

Wharf has a strong understanding of the assumptions and operational parameters regarding the heap leach facility, process ponds, and Process Plant. SOPs establish the target of maintaining WAD cyanide concentrations below 50 ppm in open waters and the methods to establish and communicate the target rate for cyanide addition. The process water balance identifies the critical ponds levels (i.e., freeboard) and flows, and includes the state-mandated requirement to maintain available capacity to contain a specified design storm. Regulatory permits and applications with the South Dakota Department of Environment and Natural Resources ("DENR") define the operating and monitoring requirements. Please refer to ICMC Standards of Practice 4.5 and 4.6 below regarding the maximum allowable concentrations of cyanide in groundwater and surface water.

Additionally, Wharf implements routine inspection and maintenance programs for the cyanide facilities, which address proper management of process solutions to maintain the design storage capacities. In accordance with regulatory requirements, Wharf monitors surface water, groundwater and leak detection systems on a regular basis. Wharf checks pond levels daily. In addition to routine monitoring of groundwater and surface water, the Environmental Department conducts routine inspections of the perimeter fencing surrounding the mine site. Process personnel conduct detailed, routine inspections of all process facilities, including tanks, secondary containments, leak detection and collection systems, pipelines, pumps and valves, ponds, and water control structures. Wharf documents these inspections on checklists and inspection forms, which generally include the

date of the inspection, the name of the inspector, any observed deficiencies and the nature and date of corrective actions. In the auditor's professional opinion, the inspection frequencies are sufficient to assure and document that the cyanide facilities are functioning within design parameters.

Wharf implements its *Management of Change* policy to minimize the potential for personal injury, damage to physical assets and negative impacts to production. The policy provides procedures to ensure that specific/certain changes are properly reviewed, approved, communicated, implemented and documented. The policy covers all activities at the Wharf Mine including those involving contractors and vendors. Wharf implements the policy for changes that may include modifications to maintenance, operating or management strategies, structural modifications and equipment. The *Management of Change* policy states that its purpose is to ensure that changes are evaluated for potential environmental, safety and health risks, and that appropriate actions are taken to ensure existing performance levels are not compromised. Wharf provided Change Management documentation for cyanide-related changes that occurred over this current audit cycle.

Wharf has developed written contingency procedures for managing upset conditions, deviations from designs and/or standard procedures, and temporary shutdown. The procedures describe action steps for maintaining the required design storm capacity; evaluating frozen ponds; responding to spills of reagent-grade cyanide, process leach solution, as well as fuel, chemicals, and other reagents; responding to flow into the LDCRS at the ponds and leach pads; and for managing short-term and long-term shutdowns.

Wharf implements a preventative maintenance program that includes preventative (proactive) and corrective (reactive) maintenance, thereby ensuring that equipment functions as necessary for safe cyanide management. The program includes cyanide facilities in all process areas, including the Process Plant, ponds, and leach pads. Wharf manages its preventative maintenance program according to a written procedure and utilizes maintenance management software. In addition to its preventative maintenance program, Wharf has installed redundant (standby) pump systems at the Barren Sump, Enrichment Sump, PLS Sump, CCIX circuit and Neutralization circuit.

Wharf has two diesel-powered generators on site capable of powering the entire solution management system during line power outages. Wharf inspects and maintains the generators on a weekly schedule and performs oil and fuel changes annually.

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 ☐ Substantial Compliance ☐ Non-Compliance	with Standard of Practice 4.2.

Discussion of the basis for this Finding and any Identified Deficiencies:

This Standard of Practice is not applicable, as the Wharf Mine is a heap leach operation and does not currently operate a mill.

Standard of Practice 4.3

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

The operation is in	☒ Full Compliance ☐ Substantial Compliance ☐ Non-Compliance	with Standard of Practice 4.3.

Discussion of the basis for this Finding and any Identified Deficiencies:

Wharf developed a comprehensive and probabilistic water balance ahead of the initial ICMC audit conducted in 2012 and has continued to use the water balance without changes throughout the previous ICMC recertification cycle and this current cycle. The water balance is a site-wide model and considers both cyanide and non-cyanide facilities. The water balance is probabilistic in that it includes extreme events and climate wet cycles. The extreme events include the 100-year, 24-hour storm event and the state-mandated 19.6-inch storm event.

The Wharf water balance model considers factors appropriate for the climatic and topographic setting. The model allows input of separate solution application rates to each of the five pads depending on whether the pads are in the active leaching, treatment, offloading, or reloading mode. The model also includes an ore loading schedule. Wharf measures precipitation data from one rain gauge and three snow-depth monitoring stations located on site. The leach pads, process ponds, and Process Plant are located on a ridge top at the headwaters of several drainages; therefore, there are no upgradient watersheds. The model considers freezing and thawing via incorporating the rain-on-snow event. The model does not include seepage losses, which is reasonable given that the leach pads, ponds, and channels are double-lined and have LDCRS. Discharges to surface water are included via the transfer of treated water from the process ponds to the non-process ponds, from where Wharf may discharge to Annie Creek. Other losses from the non-process ponds include reuse for dust suppression, adsorption

in spent ore, and export of groundwater remediation water to non-cyanide ponds. The model simulates the effects of unplanned power outages by incorporating a 24-hour drain-down volume.

Wharf updates the water balance daily with both precipitation and pond levels specifically to avoid overtopping incidents. During the morning LDCRS inspections, Process Operators record the pond levels using markers painted on the pond liners and document the results on a field form. Operators then input the information into the water balance model and follow a procedure to prevent overtopping of the ponds. Additionally, each process pond is equipped with an automated sensor for monitoring pond levels. Wharf also implements a procedure, which includes measures to keep the ponds from freezing over and to properly measure the pond water levels for daily updates to the water balance if the ponds do freeze.

The process ponds are configured with spillways such that the Pregnant Pond overflows to the Barren Pond, which in turn overflows to the Overflow Pond, which in turn overflows to the Contingency Pond. Additionally, the Neutralization Pond overflows to the Contingency Pond. Wharf pumps water from the Contingency Pond to the Neutralization Pond after destruction of the cyanide in the Contingency Pond. Therefore, the Contingency Pond is the only process pond with the potential to overtop. The spillway elevations for the Pregnant Pond, Barren Pond, the Overflow Pond and the Neutralization Pond are the freeboard elevations for those ponds. The required freeboard for the Contingency Pond is three feet.

Wharf records precipitation and pond levels daily for entry into the water balance, allowing continual comparison of results to design and operation. The model contains a bar graph that compares the actual annual depth to the long-term average depth, thus providing information on wet and dry periods compared to the average conditions.

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** ☐ **Substantial Compliance** ☐ **Non-Compliance**	**with Standard of Practice 4.4.**

Discussion of the basis for this Finding and any Identified Deficiencies:

An eight-foot high, wire-mesh game fence surrounds the perimeter of the Wharf Mine to prevent access by deer and other wildlife. The Environmental Department routinely maintains the fence and inspects it annually. These inspection forms prompt the inspector to comment on any damage, whether gates are open or closed, and any wildlife mortalities. Additionally, Wharf inspects the fencing during other routine inspections (e.g., Planned General Inspections).

Wharf does not implement other wildlife deterrent measures, such as netting or bird balls, as Wharf maintains the WAD cyanide concentrations in open waters at 50 ppm or less. The auditor reviewed daily WAD cyanide concentrations in the five process ponds over this current ICMC audit cycle. WAD cyanide concentrations in the ponds were below 50 ppm over the entire period with one exception.

Wharf reported seven wildlife mortalities during this current ICMC recertification cycle. None of the mortalities were cyanide related. Wharf reports all wildlife mortalities to the South Dakota Game, Fish and Parks.

Wharf applies cyanide solution to the top surface of the leach pads via aboveground distribution headers and buried drip emitters. This approach inherently limits the potential for ponding and eliminates the overspray from the top surface. Wharf applies process solution to the side slopes of the heaps using spray wobblers located on benches. During summer months, Wharf uses wobblers on the top surfaces of the inactive heaps. Nonetheless, Wharf implements a written procedure to manage ponding on the heaps, if it occurs. The auditor observed the leach pads that Wharf was actively leaching during the field component of this 2018 ICMC recertification audit and did not identify any areas of significant ponding or areas of overspray off the leach pad liner.

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**	
	☐ **Substantial Compliance**	**with Standard of Practice 4.5.**
	☐ **Non-Compliance**	

Discussion of the basis for this Finding and any Identified Deficiencies:

Wharf currently operates under a *Surface Water Discharge Permit*, which provides two allowable discharge points. Wharf is permitted to discharge water treated for nitrate removal at the Ross Valley Treatment Plant (not a cyanide facility), as needed to maintain the site-wide water balance. Wharf samples surface water biweekly and submits online Discharge Monitoring Reports monthly. The auditor reviewed biweekly WAD cyanide data collected at the active discharge point, which showed all results were below the detection limit of 0.010 mg/L over the period January 11, 2016 to October 10, 2018.

Wharf obtained regulatory approval from DENR on four occasions over this ICMC audit cycle to land apply water from non-process holding ponds to the Portland Spray System (sprinkler system) located at the old Deep Portland Pit. Wharf uses the Portland Spray System for high volume discharges when large volumes of treated water must be released. Wharf cannot execute high volume discharges at the surface water discharge points regulated under the *Surface Water Discharge Permit*. Historically, periods most likely to warrant discharge via sprays have been in the fall to ensure system capacity is maximized prior to snow accumulation and frozen ground conditions, and in the spring when both snowmelt and high rainfall events, which can quickly diminish system capacity, are expected.

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Wharf's *Surface Water Discharge Permit* does not include any established mixing zones. The State of South Dakota does not have a surface water standard for Free cyanide; however, the acute (daily maximum) and chronic (30-day average) surface water standards for WAD cyanide are 0.022 mg/L and 0.0052 mg/L, respectively. In accordance with its permit, Wharf monitors surface water at points potentially related to cyanide facilities. The auditor reviewed biweekly WAD cyanide data that showed all results were non-detect (i.e., less than 0.010 mg/L) over the period January 11, 2016 to October 10, 2018. DENR does not require analysis of free cyanide; therefore, these data do not exist. However, the Free cyanide component in a sample cannot be greater than the WAD cyanide component; therefore, the water quality data demonstrate that cyanide concentrations in surface water at these monitoring points do not exceed the ICMC surface water quality standard for cyanide (0.022 mg/L Free).

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** ☐ **Substantial Compliance** ☐ **Non-Compliance**	**with Standard of Practice 4.6.**

Discussion of the basis for this Finding and any Identified Deficiencies:

Wharf implements measures to protect groundwater including low permeability barriers, seepage collection systems, monitoring, and maintenance.

The five on/off leach pads are constructed with a double liner and an LDCRS wherein collected solutions are pumped from the underdrain system to the process ponds. Pipes associated with the heap leach pads are contained within high-density polyethylene ("HDPE")-lined secondary containment channels that flow back to the process ponds in the event of leakage. These channels are also double-lined and have an LDCRS. The process ponds are triple-lined with an LDCRS consisting of a primary (upper) and secondary (lower) layer. Wharf pumps solutions from both layers back to the process ponds. Wharf operates the LDCRS for the leach pads and ponds according to permit-required action plans and the pumps activate automatically. The entire leach pad, channel, and pond areas are an integral liner and leak detection system.

The Process Plant and the cyanide offload and storage facilities have concrete secondary containments for tanks and pipelines. The concrete secondary containments all ultimately drain to the process ponds, thus providing tertiary containment and further protection of groundwater.

Wharf conducts regular inspections and monitoring of all process facilities to ensure that the operating criteria are met. Wharf performs routine visual inspections of the concrete secondary containments at the cyanide offload and storage facilities and Process Plant and of the liner systems in pipeline containment channels and at pads and ponds to ensure physical integrity of these protective systems. Additionally, Wharf routinely monitors the LDCRS

at the leach pads and ponds, and surface water and groundwater both upgradient and downgradient of the process facilities.

Wharf's facilities are located within the Madison aquifer, which has a designated use of drinking water. DENR has established a standard of 0.75 mg/L for WAD cyanide in groundwater. The standard for free cyanide in drinking water at the point of use is 0.2 mg/L. There is no standard established for total cyanide.

Wharf monitors groundwater at the cyanide facilities in accordance with a state-approved remediation plan for elevated nitrate. Wharf monitors groundwater at other non-cyanide facilities in accordance with four state-issued groundwater permits. There are nine monitoring wells surrounding the leach pads, ponds, and Process Plant that are points of compliance. There are also three wells further downgradient of the pad and spent ore disposal facilities (non-cyanide facilities) that could potentially be on a groundwater flow path related to cyanide. The auditor reviewed WAD cyanide data that showed results for all the wells were less than the detection limit of 0.010 mg/L during this current ICMC audit cycle.

Wharf has neither tailings nor underground workings. However, Wharf operates the heap leach pads as on/off facilities. The regulatory standard for off-loading a leach pad is 0.5 mg/L WAD cyanide. The offload process starts with rinsing of the pad. Upon collection of a series of nine samples within 72 hours showing WAD cyanide less than 0.5 mg/L, Wharf then requests permission to offload the pad to the spent ore disposal facilities (non-cyanide facilities). This procedure for disposal of spent ore is protective of groundwater beneficial uses.

The Wharf Mine has not experienced seepage since operation began that has caused cyanide concentrations in groundwater to rise above the protective standard.

Standard of Practice 4.7

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

The operation is in	☒ **Full Compliance** ☐ **Substantial Compliance** ☐ **Non-Compliance**	**with Standard of Practice 4.7.**

Discussion of the basis for this Finding and any Identified Deficiencies:

Wharf provides spill prevention or containment measures for the process solution tanks, vessels and columns. The Cyanide Storage Tank resides within concrete secondary containment and rests on steel rails placed on the reinforced concrete floor slab, allowing visual inspection of the tank bottom. The secondary containment has a pipe outlet to the adjacent Overflow Pond, which provides tertiary containment. The process tanks, vessels and carbon columns located inside the Process Plant building also reside within secondary containment provided by the building's reinforced concrete floor and stem walls.

The Cyanide Storage Tank resides in an isolated secondary containment structure with no other tanks, and the available containment volume is approximately 138% of the tank volume. The secondary containment provided by Process Plant floors and stem walls was not designed with a specific containment capacity; however, spilled process solution would ultimately drain by gravity to the adjacent Overflow Pond, which provides adequate containment capacity for all of the process tanks, vessels and columns. Therefore, procedures are not required to manage discharge to the environment. Nonetheless, Wharf implements a procedure, which provides measures for characterizing the spilled solution and pumping it back into primary containment. The auditor observed the concrete at the Cyanide Storage Tank and within the Process Plant to be in good condition with joints and cracks properly sealed.

All reagent-grade cyanide pipelines are either located over concrete containment or constructed as pipe-in-pipe systems when placed over natural ground. All leach solution pipelines reside within HDPE-lined containment channels that report to the Pregnant Pond. The leach pads, containment channels, and process ponds form an integral liner system without long runs of process pipelines. Additionally, the pipelines running between the Process Plant and leach pads are equipped with spill prevention in the form of high/low flow alarms linked to the Process Plant control room. The flow alarms also have an audible warning that sounds in the general Process Plant area. There are no areas where cyanide pipelines present a risk to surface water, which require special protection measures. Pipelines reside within concrete or HDPE-lined secondary containment or are pipe-in-pipe containment systems.

The cyanide tanks and pipelines are mild steel, stainless steel, HDPE and polyvinyl chloride ("PVC"). These materials are compatible with cyanide and high pH conditions. The PVC is the Yelomine type, which is chemically compatible with high pH and cyanide, and structurally stronger and more resistant to ultraviolet light than other types of PVC. The green flexible PVC hoses for carbon transfer are chemically compatible with cyanide and high pH, and are physically compatible with their service conditions given that they are used intermittently and operate under a vacuum.

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**	
	☐ **Substantial Compliance**	**with Standard of Practice 4.8.**
	☐ **Non-Compliance**	

Discussion of the basis for this Finding and any Identified Deficiencies:

Please refer to **Section 0.3** above for a list of the active cyanide facilities at the Wharf Mine.

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During the 2012 initial ICMC verification audit, Wharf provided a combination of construction quality assurance/quality control ("QA/QC") evidence and alternative demonstrations to verify compliance with this ICMC Standard of Practice. The findings of the initial audit report are still valid for the cyanide facilities in operation at that time. During the 2015 ICMC recertification audit, Wharf provided QA/QC documentation for the cyanide facilities modified during that recertification period, which included relining of the on/off leach pads. Please refer to the November 2012 and November 2015 ICMC audit reports for discussion regarding the QA/QC programs and associated documentation for the cyanide facilities in operation during those audits.

Wharf indicated that it has not constructed any cyanide facilities; i.e., major installations such as the heap leach pad and pond liner construction, process buildings and equipment, reagent-strength cyanide tanks, and the concrete containments, supports/foundations and piping related to these facilities. Wharf completed smaller projects within the Process Plant that included replacement in kind and relocation and re-routing of existing equipment.

Wharf has retained the QA/QC records identified in the initial ICMC verification audit report, as well as the QA/QC records for the facilities modified during the previous ICMC recertification period. Wharf maintains a master spreadsheet, developed during the initial ICMC audit, referencing QA/QC documentation, which it continues to update. The electronic version of this table contains links to the electronic files for all QA/QC evidence.

Wharf conducts QA/QC with qualified in-house staff. Wharf provided a certificate of training for the lead QA/QC inspector and a letter from DENR that pre-qualifies 10 Wharf staff members to oversee liner installation projects. Additionally, Wharf submits QA/QC documentation for review by the DENR.

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** ☐ **Substantial Compliance** ☐ **Non-Compliance**	**with Standard of Practice 4.9.**

Discussion of the basis for this Finding and any Identified Deficiencies:

Wharf has developed written procedures for collection of groundwater and surface water samples, as well as for preservation, storage, handling, and documentation. Wharf has also developed procedures for wildlife mortality monitoring, retrieval, and reporting. The preceding Wharf Environmental Manager, an appropriately qualified person, developed the procedures for groundwater, surface water, and wildlife monitoring using Environmental Protection Agency ("EPA") guidance. Wharf uses a certified laboratory for cyanide analysis.

The water monitoring SOP provides methods for collecting groundwater and surface water samples and for measuring field parameters, including sample containerization, preservation, handling, shipping, and chain-of-custody procedures. A water sampling schedule lists the surface water and groundwater sampling locations, the frequency for sampling, and the required parameter lists, which include WAD and total cyanide as the required species for analysis. Wharf also provided an annotated aerial photograph depicting locations of the monitoring wells and surface water sampling stations.

As discussed under Standards of Practice 4.5 and 4.6 above, Wharf monitors for cyanide in both groundwater and surface water downgradient of the cyanide facilities. Wharf records sampling conditions that may affect sample quality, such as weather conditions, turbidity, conductivity, pH, water temperature and dissolved oxygen. Wharf also records any unusual conditions; however, the auditor did not observe any field notes that mentioned wildlife activity or anthropogenic influences. Wharf records observations in a logbook for groundwater samples and in a field notebook containing formatted forms for surface water samples.

Wharf conducts daily wildlife inspections at the five on/off pads and process ponds. The primary wildlife inspection conducted each shift by Process Operators; covers ponds, leach pads, pad dams and wildlife. Operators are trained to look for evidence of wildlife and wildlife mortalities. For each area, the inspection checklist includes a column to record wildlife mortalities. When discovering wildlife mortalities, the inspector is prompted to describe the species and any follow-up actions. As discussed under ICMC Standard of Practice 4.4 above, no cyanide-related mortalities have occurred over this current audit cycle. In the auditor's professional opinion, daily monitoring of wildlife is adequate.

The water monitoring frequency targets the spring snowmelt period (frechette) when streams run high. Wharf samples select groundwater monitoring wells on the "frechette" quarterly schedule, consisting of four samples annually in January, April, May, and August. All other groundwater monitoring wells are sampled monthly. Wharf samples surface water points of compliance biweekly, and all other surface water locations on the "frechette" schedule. Process Operators inspect the leak detection systems daily at the ponds and weekly at the leach pads. In the auditor's professional opinion, Wharf's monitoring program is designed to adequately characterize surface water and groundwater and to identify changes in a timely fashion.

5.0 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 cyanide facilities to protect human health, wildlife and livestock.

The operation is in	☒ Full Compliance	
	☐ Substantial Compliance	with Standard of Practice 5.1.
	☐ Non-Compliance	

Discussion of the basis for this Finding and any Identified Deficiencies:

The Wharf Mine Cyanide Facilities Decommissioning Plan ("Decommissioning Plan") provides the written procedures that Wharf will employ to decommission the cyanide facilities at the cessation of operations. The Plan provides decommissioning procedures for the heap leach facilities (leach pads and process ponds), Process Plant (tanks, plant components and piping), cyanide offload and storage facilities, concrete foundations and structures.

The *Decommissioning Plan* provides a written description of the implementation schedule for decommissioning the Wharf cyanide facilities. According to the plan, Wharf will commence draindown and offload of the heaps and closure of the cyanide offload and storage facilities once ore processing ceases, to be completed in the first two years of closure. During the three years following, Wharf will conduct process solution denitrification treatment and discharge.

Coeur requires all closure plans to be reviewed internally and updated, as needed, every year. Wharf updates the closure plan and costs to incorporate any modification or cost variance identified during its Asset Retirement Obligation ("ARO") cost review as well as changes in facilities or the development of new decommissioning technologies. Wharf has updated the closure costs annually over this ICMC audit cycle; however, the *Decommissioning Plan* has been updated only once since the last ICMC audit. Wharf indicated that it has not made any substantial changes in operations, constructed any new facilities or implemented new technical parameters that justify a plan update.

Standard of Practice 5.2

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

The operation is in	☒ Full Compliance	
	☐ Substantial Compliance	with Standard of Practice 5.2.
	☐ Non-Compliance	

Discussion of the basis for this Finding and any Identified Deficiencies:

Wharf calculates detailed costs for fully funding third party implementation of the cyanide-related decommissioning activities identified in its *Decommissioning Plan* using a cost model (*BONDCALC Program*) developed by the State of South Dakota. The *BONDCALC Program* is an independent, state-accepted reclamation cost estimation method developed in South Dakota for mining regulatory agencies. Wharf indicated that the State controls the model and works with Wharf to make updates. The September 2015 estimate is the last updated/approved version of the model.

The cost model includes third party costs for the closure of all cyanide facilities. The main concepts considered in the costs include heap drain neutralization and offload; pond neutralization and reclamation; process facilities cyanide decontamination and dismantlement; and foundation demolition and process facility reclamation.

As part of its ARO policy, the corporate financial accounting procedures require an external reevaluation of mine closure liabilities annually. The *Decommissioning Plan* states that an independent review of the plan and the associated closure costs will be performed annually along with updates as required during the Coeur ARO cost review. Wharf updates the closure plan and costs to incorporate any modification or cost variance identified during the ARO review as well as changes in facilities or the development of new decommissioning technologies. Additionally, Coeur policy requires internal reviews and updates (as needed) annually.

The Wharf mine operates under three separate closure and reclamation bonds, held by the State of South Dakota (i.e., DENR), as follows: Reclamation Bond; Post Closure Bond and Cyanide Bond. Currently, the Reclamation Bond has a total obligation of $37.38 million, which covers the $7.58 million estimated cost for decommissioning the Wharf cyanide-related facilities. The Cyanide Bond provides funding to cover response to a cyanide-related incident (i.e., spill response and remediation); and accordingly, this bond does not cover decommissioning costs associated with cyanide facilities. The Post Closure Bond is required for a 50-year water treatment program following closure, and thus not related to decommissioning.

The State of South Dakota (i.e., the DENR) is the applicable jurisdiction. Wharf provided copies of four bond instruments approved by the State and covering the Reclamation Bond obligation. Wharf also provided a copy of the instrument secured for the Cyanide Bond.

6.0 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** ☐ **Substantial Compliance** ☐ **Non-Compliance**	**with Standard of Practice 6.1.**

Discussion of the basis for this Finding and any Identified Deficiencies:

Wharf has developed procedures describing how cyanide-related tasks are to be conducted (see also ICMC Standard of Practice 4.1 above). The SOPs cover cyanide-related tasks such as, but not limited to, offloading cyanide; plant, leach pad and pond operations; and maintenance activities that involve the cyanide solution circuits. The SOPs address pre-work inspections, detail the risks involved with each task (including unloading, storage, plant operations, entry into confined spaces, and equipment decontamination) and adequately describe safe work practices. Each SOP details task specific procedures including PPE requirements.

Prior to each cyanide offload event, Wharf performs an inspection, which includes secondary containment, cyanide antidote kits, shower/eyewash stations, PPE, condition of delivery tanker, HCN gas levels, pH levels and solution level in the Cyanide Storage Tank. Wharf conducts inspections at the beginning of each shift covering all process areas and facilities.

Wharf implements a *Management of Change* policy to ensure that changes are evaluated for any potential environmental, safety and health risks, and that appropriate actions are taken to ensure existing performance levels are not compromised. The policy addresses the requirements for managing planned and unplanned changes or emergency changes. Please refer to ICMC Standard of Practice 4.1 above for additional detail.

Wharf solicits worker input in developing and evaluating health and safety procedures via a number of methods, which include direct communication between Supervisors and Operators, Weekly Safety Meetings, Job Safety Analyses, Risk Assessments, *Take2* forms, Safety Teamwork Program (a.k.a., Safe Behavior Cards) and Near Miss Reports. Additionally in 2017, Wharf implemented the *WHY Train* program, whereby crewmembers serve as champions for safe work procedures and workers are encouraged to bring forward new ideas for consideration by Management. Each month, Management reviews the ideas logged into the *WHY Train* Task Force file. Finally, each department conducts a Weekly Safety Meeting to discuss various policies and procedures, including but not limited to health and safety, first aid, incidents and training.

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** ☐ **Substantial Compliance** ☐ **Non-Compliance**	**with Standard of Practice 6.2.**

Discussion of the basis for this Finding and any Identified Deficiencies:

Wharf has determined the appropriate pH for limiting the evolution of HCN gas during unloading and production activities. The *Cyanide Delivery Unload* procedure recommends an operating pH range of 9.5 – 13.2 during the cyanide offload process, as recommended by Cyanco. The Cyanco bills of lading document the pH of the delivered solution and Wharf checks the bills of lading to verify the pH prior authorizing each offload. The auditor reviewed a representative number of Cyanco bills of lading over this current ICMC audit cycle and all pH values were above 12.4 standard units.

Wharf adds lime at the crushing plant to control pH in the pregnant solution and barren solution. The *Daily Plant Report* lists the targeted pH value as greater than 10.25 for the leach pad effluent (pregnant solution). Wharf provided a spreadsheet, which includes a history of pH values for influent and effluent at each leach pad. The auditor reviewed the spreadsheet for the period 2016 through 2018 and verified that Wharf generally maintains pH levels at the targeted level. The spreadsheet also includes a time series graph for the period 2016 through February 2018, which shows pH values in the Barren Pond generally ranging between 9.5 and 12 with the majority of values above 10.25.

Wharf maintains nine fixed HCN gas monitors. Seven monitors are located inside the plant within the various process circuits, one monitor is located in the Metallurgical Laboratory, and one monitor is located inside the Cyanide Pump Shed. Wharf located the fixed monitors based on monthly HCN gas surveys conducted up until September of 2016. In addition to the fixed HCN monitors, Wharf currently maintains portable HCN monitors used by personnel to conduct certain cyanide-related tasks. These units reside in the Process Plant, Assay Laboratory, Safety Coordinator's Office, Pit Foreman's office and Mine Rescue Truck. The fixed HCN monitors alarm at 4.7 ppm. The portable units alarm at 4.7 ppm and 10 ppm. Both alarm settings trigger a MAYDAY event and required evacuation. Wharf calibrates the fixed and portable HCN monitors every 90 days.

Wharf has installed signs advising workers that cyanide is present and of the associated dangers. During the field component of this 2018 ICMC recertification audit, the auditor observed the placement of warning signage to be generally good. Cyanide warning signs are posted at the Process Plant and cyanide offload and storage facilities, including on doors, walls, fences, piping, tanks and vessels and at strategic locations on roads leading to the heap leach pads and process ponds.

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Signs placed on the entrances to the Process Plant and cyanide storage area warn of cyanide (and Class 6 Poison) and prohibit eating, drinking and smoking. At entrances to the leach pads and ponds, Wharf has placed a caution sign warning that all solution beyond the access point may contain cyanide. Therefore, Wharf has not placed additional signage at the leach pads and process ponds or along the pipeline containment channels connecting the heap leach facilities with the Process Plant. In addition to signage, the cyanide-related SOPs address proper PPE requirements. Wharf provides cyanide awareness and task training to all workers and contractors working in process areas. Annual refresher training also addresses the requirement for no eating, drinking or smoking in cyanide use areas.

Emergency shower/eyewash stations, portable eyewash stations, and dry powder fire extinguishers are located at strategic locations throughout the operation and are maintained, inspected and tested on a regular basis. Shower/eyewash stations are located at the cyanide offload and storage areas and throughout the Process Plant. Process personnel perform daily inspections of showers/eyewash stations and fire extinguishers. Additionally, Safety personnel inspect the extinguishers monthly and an outside contractor performs annual maintenance and recharge of the fire extinguishers annually, or as needed.

The Cyanide Storage Tank, located within the secured fenced area has labels indicating “Cyanide Bulk Storage Tank” and “Concentrated Sodium Cyanide”. Additionally, the entrance gate to the cyanide storage area has a “Danger Sodium Cyanide” sign. As discussed above, Wharf signs the entrances to the Process Plant; therefore, process tanks inside the plant have labels to identify the tank/circuit, but not to warn of cyanide. Signs located at entrances to the Process Plant display the color code system utilized by Wharf to identify the solutions in the pipes within the plant and include a description of each type of solution (e.g., high-grade cyanide, low-grade cyanide, caustic solution, neutralization solution, acid, etc.). In addition to the color-coding, cyanide pipes at the cyanide offload and storage areas and within the Process Plant have abundant and highly visible labels warning of cyanide and indicating flow directions.

During the field component of this 2018 ICMC recertification audit, labeling on process pipelines to alert workers of cyanide and flow directions was not apparent at heap leach pads and ponds. Therefore, considering Wharf’s robust safety and training programs and cyanide-related procedures, the auditor requested that, at minimum, Wharf post flow direction labels on pipes at junctions, valves and other locations where releases are most likely and/or where frequent maintenance occurs. Wharf subsequently labeled both pad influent manifolds, the pad effluent manifold, and the PLS pump lines at the Process Plant. Wharf provided photographs depicting the new pipe labels warning of cyanide and indicating flow directions.

Wharf maintains Safety Data Sheet (“SDS”) information electronically using a chemical management software application (MSDSonline®). SDS information for on-site chemicals is available to all employees site wide, 24-hours per day, via the Wharf intranet. Additionally, hardcopy SDS, specific to the work area, is available in every department and in the Process Plant control room. SDS information is in English, the language of the workforce. Wharf also distributes cards, developed by Cyanco, containing cyanide-related first aid procedures to all employees.

Wharf implements a formal procedure for investigating and evaluating all incidents, including cyanide exposures and releases, with the intent to determine if the operation's policies and programs to prevent such incidents are adequate or whether they require revision. Currently, the incident investigation procedure is framed through Intelex™ software. This electronic data management program provides a variety of avenues to identify the root cause(s) of incidents, identify corrective actions, and identify actions to prevent reoccurrence. The auditor reviewed three, actual cyanide-related incidents occurring in 2016.

Wharf has not begun the practice of using colorant dye in high-strength cyanide solutions at the Wharf Mine.

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 ☐ Substantial Compliance ☐ Non-Compliance	with Standard of Practice 6.3.

Discussion of the basis for this Finding and any Identified Deficiencies:

Wharf maintains the equipment, antidotes and communication systems necessary for responding to cyanide incidents. Wharf provides fresh water via the emergency showers and eyewashes located throughout the Process Plant and at the cyanide offload and storage areas. The primary means of communication while on site is the radio system. Additionally, there are landline telephones available at the Process Plant and administration building, and approved personnel carry cellular telephones.

Wharf maintains six amyl nitrite antidote kits with medical oxygen and resuscitators located in the Process Plant lunchroom (a.k.a., Pad Shack), Process Plant control room, Metallurgical Laboratory, First Aid Room, Mine Rescue Truck and Assay Laboratory. Additionally, Wharf maintains three Cyanokits located in the Process Plant control room, Assay Laboratory and the Safety Coordinator's office. The administration of the Cyanokit is limited to paramedics and professional medical staff only and the Cyanokit travels with the exposed victim to the local hospital. Additional medical oxygen is located at various locations inside the Process Plant and automated external defibrillators ("AEDs") reside in the Mine Rescue Truck, administration building and the Process Plant control room.

Wharf Safety personnel inspect the cyanide antidote kits (amyl nitrite and oxygen) monthly and the Cyanokits annually since they reside in secure areas and the dates on the medical supplies carry out further than one year. Wharf has replaced the antidotes as specified by the manufacturer's expiration date. Wharf stores the amyl nitrite inside refrigerators within the temperature range specified by the manufacturer. Thermometers placed inside the refrigerators provide a means to verify the temperature.

Although Wharf is storing the amyl nitrite within the recommended temperature range, the boxes containing the amyl nitrite ampoules, stored inside the refrigerators located at the Pad Shack and the Process Plant control room, were damp during the auditor's inspection. Because amyl nitrite should be stored away from moisture, the auditor requested that Wharf investigate the cause of the dampness and provide the results of the investigation and evidence of the remedy implemented to eliminate the moisture. Following the field component of this audit, Wharf cleaned and dried out the two refrigerators and placed the amyl nitrite boxes inside clear plastic containers (i.e., Tupperware-type containers) to prevent reoccurrence. Additionally, along with photographs demonstrating the modified storage, Wharf provided literature from the amyl nitrite manufacturer indicating that the antidote ampoules are sealed in crushable glass. Although the boxes storing the amyl nitrite were damp during the field inspection, the ampoules inside the boxes were dry.

Wharf has developed specific written emergency response procedures to respond to cyanide exposures. Please refer to ICMC Standard of Practice 7.1 below for additional detail regarding these procedures. Wharf has its own on-site capability to provide first aid assistance to workers exposed to cyanide. Wharf has an Emergency Response Team ("ERT") trained to provide first aid to workers exposed to cyanide. Two Wharf employees are state-certified paramedics and qualified/authorized to administer the Cyanokit antidote in an emergency. Wharf also has a fully equipped Mine Rescue Truck (a Class 3 ambulance) equipped with amyl nitrite antidote, medical oxygen and AED to facilitate the administration of first aid and medical treatment during cyanide exposure incidents.

Wharf has developed procedures to transport workers exposed to cyanide to local hospitals for further treatment, if needed. Wharf relies on outside ambulance services for transport of cyanide exposure victims to local hospitals. Victims are transported via ground ambulance to the Lead/Deadwood Regional Hospital or via air ambulance (Black Hills Life Flight and Medical Air Rescue) to the Rapid City Regional Hospital. Wharf uses its Mine Rescue Truck to transport victims to the on-site helipad or other designated rendezvous location, either on-site or off-site. Wharf provides a Cyanokit to the ambulance paramedics for transport with the exposure victim.

Wharf has made formalized arrangements with three local hospitals, the Rapid City Regional Hospital, the Lead/Deadwood Regional Hospital and the Spearfish Regional Hospital. Wharf sent letters to inform the hospitals of the use of liquid sodium cyanide at the Wharf Mine, verify that the hospital staff is qualified to treat cyanide exposure patients, and ask that the hospitals maintain a cyanide antidote kit. The Rapid City Regional Hospital and the Lead/Deadwood Regional Hospital signed the letters and returned them to Wharf, verifying that the hospital staff understands the potential for cyanide exposure incidents at the Wharf Mine and that the staff is available to respond to cyanide poisoning incidents. Additionally, Wharf indicated that the ground ambulance service out of Lead/Deadwood and the air ambulance services (Black Hills Life Flight and Medical Air Rescue) are aware of the potential need to treat cyanide exposure victims.

Wharf implements a program to conduct mock drills to test its emergency response procedures for cyanide-related worker exposures in order to determine if the procedures are adequate. As part of this program, Wharf conducted four cyanide-related mock drills over this current ICMC audit cycle. The drill reports list lessons learned and corrective actions.

7.0 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 ☐ Substantial Compliance ☐ Non-Compliance	with Standard of Practice 7.1.

Discussion of the basis for this Finding and any Identified Deficiencies:

Wharf developed the Coeur Wharf Emergency Response Plan ("ERP") in 2012. Additionally, Wharf implements its *Spill Contingency Plan* (a.k.a., Spill Prevention Control and Countermeasure Plan) and in early 2016, adopted and began implementing a *Site Crisis Management Plan*, designed to complement the ERP. The objective of the *Site Crisis Management Plan* is to clarify the structure and process by which actions and decisions are made at the Wharf Mine in response to a crisis situation. Coeur defines a crisis as an extraordinary event, often with little or no warning, that may endanger the lives of employees or the community at large, disrupt operations, harm the environment or seriously impact the financial or public image of the company.

The Wharf ERP, *Spill Contingency Plan* and supplemental protocols provide systematic procedures for responding to emergency scenarios that may reasonably be expected to occur at the operation, including cyanide releases and exposure incidents. The plans address procedures for responding to elevated levels of HCN gas, cyanide spills and leaks inside and outside of secondary containment, fires near hazardous chemicals, incidents resulting from pipe, valve and tank ruptures, rising water levels in the process ponds, power outages and pump failures, prolonged excessive leakage in the LDCRS and leakage parameters detected in the monitoring wells, and failure of the leach pad facilities including containment of contaminated material, neutralization of contaminated soil and remediation of the affected area. Additionally, the plans and procedures address cyanide first aid including administration of amyl nitrite, rescue and recovery procedures, emergency transportation (e.g., ambulance services), decontamination, and evacuation procedures. The ERP provides emergency contact information along with incident investigation and cyanide spill sampling and reporting requirements.

Wharf utilizes a hydrogen peroxide system to destruct cyanide at the Contingency Pond and, if necessary, in the Neutralization Pond and transfers the neutralized solution to the leach pads to rinse the heaps. Wharf implements an internal permit procedure to transfer neutralized solution out of these two ponds, which requires sampling and analysis to demonstrate that WAD cyanide concentrations are less than 0.5 ppm prior to the transfer. Therefore, if the hydrogen peroxide system fails, the procedure would not allow a transfer to begin.

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By contract, Cyanco and Chemours are responsible for all aspects of the transport operations, including emergency response and cleanup/remediation, up to the delivery point at the Wharf Mine. Nonetheless, Wharf would provide assistance if an accident occurred nearby the mine or on mine property. The ERP describes actions for transportation incidents occurring on the mine access road.

The Wharf ERP and *Spill Contingency Plan* provide procedures for containing and controlling cyanide releases at their source, and for assessing, mitigating and preventing future releases under various emergency scenarios applicable to the Wharf operation. The ERP provides procedures for investigating incidents, which include communicating the results for use in safety meetings, reviewing work procedures, job safety analyses and task/safety training.

Standard of Practice 7.2

Involve site personnel and stakeholders in the planning process.

The operation is in	☒ **Full Compliance** ☐ **Substantial Compliance** ☐ **Non-Compliance**	**with Standard of Practice 7.2.**

Discussion of the basis for this Finding and any Identified Deficiencies:

Wharf involves its workforce and stakeholders in the cyanide emergency response planning process. Methods implemented include Weekly Safety Meetings, involvement in the Local Emergency Planning Committee ("LEPC"), mock drills and training.

Each department conducts a Weekly Safety Meeting to discuss various policies and procedures, including but not limited to health and safety, first aid, incidents and training. The auditor verified that the meetings conducted over this ICMC audit cycle included cyanide-related topics.

Wharf provides regular emergency response training to ERT members and provided training records for years 2016, 2017 and 2018 as verification. The records demonstrate training regarding cyanide exposure scenarios. Additionally, Wharf conducted four cyanide-related mock drills over this ICMC audit cycle involving the Wharf ERT (please refer to ICMC Standard of Practice 6.3 above). The Lawrence County Emergency Response Director and the Lead/Deadwood Regional Hospital participated in a 2016 drill and Medical Air Rescue participated in a 2018 drill.

The primary involvement of outside stakeholders in cyanide-related emergencies is ambulance response and administration of the Cyanokit antidote by trained medical professionals. Wharf (via Cyanco and Chemours) provides periodic training to outside responders and medical facilities regarding cyanide exposure. Chemours presented the most recent training seminar in June 2017, which included representatives from Lead/Deadwood Regional Hospital, Black Hills Life Flight, Deadwood Volunteer Fire Department, Spearfish Ambulance, and

Spearfish Regional Hospital. Cyanco provided training to the Deadwood Volunteer Fire Department and Lawrence County Search and Rescue in September 2016.

Wharf's Safety Coordinator is a member of the LEPC and is actively involved, attending meetings on a regular basis. Other LEPC members include representatives from Lawrence County Emergency Management, Lawrence County Search and Rescue, Spearfish Police Department, Lawrence County Sherriff, South Dakota Highway Patrol, local Fire Departments (Deadwood, Lead, Spearfish and Whitwood), Lead/Deadwood Regional Hospital, Spearfish Regional Hospital, Spearfish Ambulance Service, Black Hills Life Flight, local schools, and others. During these meetings, the committee discusses emergency response procedures.

Wharf also attends annual meetings with the Terry Valley Landowners Association, representing the residential community located closest to the Wharf Mine. During the meetings, Wharf presents updates regarding the mining operation and discusses the presence of cyanide on site.

The ERP and *Spill Contingency Plan* provide current contact information for outside responders, medical facilities, agencies and response consultants. These entities include, but are not limited to, Lead/Deadwood Regional Hospital, Cyanco, Hazardous Materials Officer, Lawrence County Emergency Management, Lawrence County Sherriff's Office, National Poison Control, Chemtrec, National Response Center and state and federal regulatory agencies.

Standard of Practice 7.3

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

The operation is in	☒ **Full Compliance** ☐ **Substantial Compliance** ☐ **Non-Compliance**	**with Standard of Practice 7.3.**

Discussion of the basis for this Finding and any Identified Deficiencies:

Wharf's *Site Crisis Management Plan* outlines membership, roles and responsibilities of the Site Crisis Management Team ("SCMT") and details specific action steps the SCMT should take during crisis situations in order to minimize the impact on people, the environment, assets and reputation. The SCMT consists of the Team Leader, Incident Coordinator, Health Safety & Loss Control, Human Resources, Community Relations, Environment, Information Technology and Operations. The ERP also identifies the Incident Commander, which is a member of the ERT and is in charge at the scene of the incident. The Incident Commander is the point of contact for the SCMT's Incident Coordinator.

Wharf provided a current copy of the *Emergency Response Team Contact List*, which lists the ERT members by crew and their cell phone numbers. Wharf emails an updated version to all Supervisors, as needed, and keeps the

updated version with each hard copy of the ERP. Wharf also posts the contact list in the First Aid Room and Mine Rescue Truck.

The ERT training program includes training in First Aid, cardiopulmonary resuscitation ("CPR"), self-contained breathing apparatus ("SCBA"), confined space, use of ropes, HCN gas, equipment extraction, man down, man in pond, HazMat and spill response.

The *Site Crisis Management Plan* provides contact details for the SCMT by function. Each week, Wharf posts contact information for the managers on duty over the weekend and all managers receive training regarding the incident reporting protocols. The ERP provides the procedures for initiating and releasing a MAYDAY. Throughout the ERP, under the various emergency response scenarios, telephone numbers are listed for outside response entities, including regulatory agencies. Additionally, the *Spill Contingency Plan* includes an Emergency Contact List with telephone numbers for the Wharf ERT (one common number), Wharf personnel (home/cell numbers), outside responders, agencies and response consultants. The *Emergency Response Team Contact List* provides 24-hour contact information for the ERT members. During emergencies, the primary means of communication with the ERT is via radio.

Wharf has identified its emergency response equipment in various inspection checklists covering cyanide antidote kits, medical oxygen, the spill response kit, fire extinguishers, SCBA, shower and eyewash stations, HCN gas monitors, and the Mine Rescue Truck. Wharf uses the checklists to document inspections of the emergency response equipment. Wharf uses an inventory list for the trauma and oxygen kits kept in the First Aid Room and Mine Rescue Truck. The ERP also lists the locations of the fixed HCN gas monitors and the cyanide antidote kits.

Wharf Process and Safety personnel and ERT members inspect emergency equipment and supplies monthly with the exception of the SCBA units, which receive annual testing. The SCBA units reside in the Mine Rescue Truck along with extra oxygen bottles.

Wharf has on-site response capability for cyanide first aid, evacuation and spill control, including the use of the SCBA. Thus, Wharf relies on outside medical services (ambulance and hospital) for transport and treatment of cyanide exposure victims and local response agencies for Hazmat response and structure fires. The response plans do not detail the roles of outside responders in the emergency response procedures; however, based on the outside response entities listed in the plans, the responder roles are self-explanatory. Additionally, these responders participate in routine cyanide and emergency response training provided by Wharf.

Standard of Practice 7.4

Develop procedures for internal and external emergency notification and reporting.

The operation is in	☒ Full Compliance ☐ Substantial Compliance ☐ Non-Compliance	with Standard of Practice 7.4.

Discussion of the basis for this Finding and any Identified Deficiencies:

Ad discussed under ICMC Standard of Practice 7.2, the ERP and *Spill Contingency Plan* provide contact information for outside responders, medical facilities, agencies and response consultants. Procedures describe actions and notification requirements for responding to prolonged excessive leakage into the LDCRS at the process ponds and leach pads and leakage parameters detected in the monitoring wells.

The Wharf ERP identifies the release of HCN gas as a potential emergency scenario that may require contacting neighboring communities. The ERP provides procedures for responding to elevated levels of HCN gas. In the event that Wharf detects HCN gas outside of the Process Plant perimeter, mine personnel would immediately call 911 to get assistance from local emergency responders to evacuate neighboring stakeholders. Additionally, the ERP states that in the event of a cyanide emergency, the community of Lead would be notified if deemed necessary. There are also private property owners (Terry Valley) in proximity to the mine site that would be notified if deemed necessary. The SCMT would contact the Lawrence County Emergency Management Coordinator to make the necessary notifications.

The ERP indicates that, for all spills, the Wharf SCMT will evaluate the area to determine if the surrounding areas require evacuation. In accordance with the ERP, the LEPC Coordinator, DENR and Cyanco would assist with the evaluation, as necessary.

The *Site Crisis Management Plan* provides procedures for notifying affected communities during a crisis. The Corporate Crisis Management Team, comprised of Coeur's corporate leaders, is responsible for communicating with the media during a crisis with approval by the SCMT Team Leader. The ERP states that the SCMT will be responsible for notification of family, local authorities and news media and that all inquiries from the media must be referred to the Mine General Manager, or his designee.

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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** ☐ **Substantial Compliance** ☐ **Non-Compliance**	**with Standard of Practice 7.5.**

Discussion of the basis for this Finding and any Identified Deficiencies:

The ERP and the *Spill Contingency Plan* include procedures to contain, recover and clean up liquid cyanide spills. Spilled cyanide solutions within the Process Plant are returned to the process circuit. Emergency containment structures would be constructed, if necessary and possible, to minimize the extent of the release. Procedures for decontaminating spilled cyanide solutions include diluting the cyanide spill with caustic solution or water, then neutralizing the spill with sodium hypochlorite (a.k.a., bleach).

The *Spill Contingency Plan* includes procedures to decontaminate the soils as necessary with sodium hypochlorite. The procedure describes how the chemical solution is to be prepared to the appropriate concentration. The ERP and *Spill Contingency Plan* require monitoring of the affected area after cleanup and describe the final cyanide concentration allowed in residual soil as evidence that the release is adequately remediated. In accordance with the ERP and *Spill Contingency Plan*, Wharf will dispose of contaminated soil and other material on the leach pad. Neutralized solutions will be disposed of in the Pregnant Pond or pumped to the leach pad.

The water supply well used by Wharf is located upgradient of the cyanide facilities. Wharf indicated that there are no other drinking water wells located in the immediate vicinity that could potentially be impacted by a cyanide release. Nonetheless, the ERP and the *Spill Contingency Plan* discuss the distribution of bottled water, as required, in the event Wharf detects cyanide in water supplies.

The *Spill Contingency Plan* states that sodium hypochlorite, hydrogen peroxide, ferrous sulfate or any other treatment chemical is not to be used to treat a cyanide release to surface water. This also applies to dry drainages located downstream of the process ponds.

The *Spill Contingency Plan* requires monitoring of contaminated water and/or soils, as necessary following a cyanide release. In accordance with the plan, Wharf will consult with DENR regarding the frequency and duration of surface and groundwater monitoring in the event of a spill. Sampling and analysis of water and/or soil will follow proper EPA protocols. Wharf would generate a written report immediately following termination of spill response operations, which would include the locations of neutralization sites and monitoring sites.

Standard of Practice 7.6

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

The operation is in	☒ Full Compliance ☐ Substantial Compliance ☐ Non-Compliance	with Standard of Practice 7.6.

Discussion of the basis for this Finding and any Identified Deficiencies:

The ERP contains a table listing the history of the document. For each revision, the table lists the Revision Number, date revised, person that performed the revision and a description of the changes made. The revision table indicates that Wharf updated the ERP four times in 2012, twice in 2015, twice in 2016, once in 2017 and twice in 2018. The current version of the ERP is dated November 15, 2018. Wharf updates the *Spill Contingency Plan* annually. The title page of the plan lists annual revision dates from 1996 through 2018. The current version of the *Spill Contingency Plan* is July 10, 2018. Wharf indicated that Coeur reviews, and modifies as necessary, the *Site Crisis Management Plan* during the first half of every year at the corporate and site levels. The Wharf Mine first implemented the plan in early 2016 and updated it in September 2018.

Wharf conducted four cyanide-related mock drills over this current ICMC audit cycle to evaluate emergency response procedures. The drill scenarios involved both cyanide exposure and release incidents. Please refer to ICMC Standard of Practice 6.3 above for additional detail.

Wharf implements written procedures for investigating and evaluating all incidents, including cyanide exposures and releases, with the intent of determining whether the operation's policies and programs to prevent such incidents are adequate or whether they require revision (please refer to ICMC Standard of Practice 6.2 above).

The *Site Crisis Management Plan* includes procedures for conducting a post-incident evaluation. Wharf uses the experiences (both positive and negative) to refine the plan and associated procedures in order to improve future capabilities. The SCMT uses the evaluation to capture lessons learned and corrective actions, and according to the plan, where appropriate, critical findings should be developed into tasks that can be implemented and measured, and training and exercise sessions should be updated with necessary changes.

The ERP also provides procedures for conducting an investigation following an incident. The procedures include steps for determining the facts, determining the causes, making recommendations and communicating the results. Wharf uses the investigation results for Weekly Safety Meetings discussions, reviewing work procedures, job safety analyses and task/safety training. The goal of the investigation is to prevent future incidents from occurring.

The Intelex™ incident reports described under ICMC Standard of Practice 6.2 above are the only reports that Wharf provided for the three actual cyanide-related incidents occurring in 2016. The Intelex™ reports provide the incident details (i.e., location, date, type, description and immediate corrective action), investigation results, root cause analysis, corrective actions, department review details and approval details.

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8.0 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** ☐ **Substantial Compliance** ☐ **Non-Compliance**	**with Standard of Practice 8.1.**

Discussion of the basis for this Finding and any Identified Deficiencies:

Wharf provides Cyanide Awareness training to all personnel entering the mine site (i.e., employees, contractors, vendors and visitors). This site-specific hazard training includes a video, which provides an overview of cyanide. Topics include its use for leaching, signage around the site, antidotes, storage and spill reporting. The video also covers the MAYDAY procedure and provides an overview of first aid and emergency response. There are two versions of the video, a short version and a long version. Wharf presents the short version to short-term visitors and tour groups and the long version to contractors and all employees. The video mentions that employees and contractors working in Process Areas receive further cyanide-related training. Following the video, each trainee receives a handout (created by Cyanco), which provides emergency response, first aid and amyl nitrite procedures.

All new employees receive further Cyanide Awareness training via viewing videos produced by Cyanco and instruction using a PowerPoint presentation also developed by Cyanco. Wharf administers a written quiz following the videos and following the training presentation. Additionally, the Environmental Department provides spill prevention training to site personnel. This training includes spill prevention, control, handling and reporting for both low-strength and high-strength cyanide solutions.

Wharf provides annual refresher training, regarding Cyanide Awareness, to all on-site employees in conjunction with required Mine Safety and Health Administration ("MSHA") annual eight-hour refresher training. Wharf splits the training into two, four-hour sessions; i.e., one held in the spring and one in the fall each year. Additionally, the Environmental Department provides annual refresher training regarding spill prevention. Furthermore, Wharf provides refresher training regarding cyanide safety topics during Weekly Safety Meetings.

Wharf uses sign-in sheets with agendas, written exams/quizzes and MSHA Form 5000-23 as documentation of cyanide awareness, first aid and refresher training. During this 2018 ICMC audit, the auditor reviewed these various forms of documentation to verify that Wharf retains training records.

Additionally, the auditor interviewed several Process Operators and Supervisors during the field component of this ICMC audit. All personnel interviewed demonstrated a strong understanding of cyanide hazard recognition, exposure symptoms and first aid and emergency response procedures.

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**	
	☐ **Substantial Compliance**	**with Standard of Practice 8.2.**
	☐ **Non-Compliance**	

Discussion of the basis for this Finding and any Identified Deficiencies:

All personnel in job positions that involve the use of cyanide and cyanide management receive task-specific training prior to working with cyanide. Wharf provides training on each cyanide-related SOP that Process personnel perform. Training consists of observing and learning the procedures as well as hands-on performance. The SOPs serve as the training materials and include the purpose, required PPE, safety considerations and the individual task-specific procedures. Each worker has a unique checklist registering each SOP and the training completion date for each SOP.

Additionally, regardless of position or assigned tasks, all employees and contractors working in the Process Plant receive *Wharf Plant Site Specific* training. This training covers the location of emergency equipment (e.g., eyewashes, oxygen, antidotes and fire extinguishers), muster points, communication systems, alarm systems and familiarizes workers with the different areas within the Process Plant building.

Senior Process personnel (e.g., Supervisors and Foremen) provide task-specific training to Operators. Additionally, Wharf uses qualified trainers under its approved MSHA Training Plan (e.g. the Training Coordinator and Safety Coordinator). Following task-specific training, Operators work with a group of experienced personnel for several weeks. Supervisors observe and evaluate job performance at the end of this period before allowing Operators to work with cyanide independently.

Wharf ensures that employees continuously perform their cyanide-related activities safely by providing refresher training on cyanide management via annual Cyanide Awareness training, Chemical Hazardous Awareness Program ("CHAPS"), annual Spill Prevention Training, Weekly Safety Meetings, and the *Take2* Program. Additionally, Wharf provides task-specific refresher training when it updates or revises SOPs.

Wharf's job classification program provides the means to evaluate the effectiveness of cyanide task training. Process workers must demonstrate an understanding of their skills when applying to graduate to a higher job classification level. The worker participates in an oral interview with Wharf's "Tech Review Board" and must pass a

written exam (e.g., Process Plant Tech II Exam) demonstrating knowledge required for the job classification. The Tech Review Board is comprised of representatives from Human Resources, Safety, Plant Management and Process personnel.

Wharf retains training records, including written exams, throughout an individual's employment. Each worker has a unique checklist registering each SOP and documenting the training completion date for each SOP along with the signatures of the instructor and trainee. The forms include an Acknowledgment of Training, signed by the Trainee, Supervisor and Training Coordinator; whereby the Trainee acknowledges receiving the training from an experienced task-trained person and the capability to perform the required tasks independently. Wharf also retains records of the *Wharf Plant Site Specific* training documented on a form that includes the date of training, acknowledgment of topics covered, and signatures of the Trainee and Trainer.

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** ☐ **Substantial Compliance** ☐ **Non-Compliance**	**with Standard of Practice 8.3.**

Discussion of the basis for this Finding and any Identified Deficiencies:

Wharf provides training regarding cyanide spill response procedures to personnel responsible for cyanide unloading, processing, heap leach operations and maintenance as a component of the annual refreshers in CHAPS, Cyanide Awareness, and Spill Prevention. Personnel also receive task training on cyanide spill-related SOPs, which include procedures for spill containment, neutralization, decontamination and cleanup. Wharf indicated that all cyanide spills trigger the MAYDAY procedure, regardless of quantity or concentration, and that all Process Plant personnel are First Responder certified.

As discussed under ICMC Standard of Practice 7.3 above, the ERT training program includes training in First Aid, CPR, SCBA, confined space, use of ropes, HCN gas, equipment extraction, man down, man in pond, HazMat and spill response. Additionally, Wharf conducted four cyanide-related mock drills over this ICMC audit cycle involving the Wharf ERT (please refer to ICMC Standard of Practice 6.3 above). Workers participate in the drills to ensure they are able to perform these tasks when required. The drills conducted over this audit cycle included cyanide spill and exposure incidents covering decontamination and first aid procedures. Furthermore, as discussed under ICMC Standard of Practice 8.1 above, all employees receive new-hire and refresher training regarding Cyanide Awareness. This training covers cyanide first aid and decontamination procedures.

ERT members, including the ERT Incident Commander, receive regular training in the procedures described in the ERP, Site Crisis Management Plan and the Spill Contingency Plan. These plans address several cyanide exposure

scenarios and describe procedures for cyanide exposure (through inhalation, absorption, skin contact and ingestion), decontamination, evacuation, emergency transportation, emergency contact information, spill containment, cleanup measures, and reporting requirements.

Wharf has familiarized local response agencies with the cyanide-related elements of its ERP through training sessions, mock drills, meetings and formalized arrangements. Additionally, please refer to ICMC Standard of Practice 7.2 regarding Wharf's involvement in the LEPC and regarding training provided by Wharf (via Cyanco and Chemours) to outside responders and medical facilities related to cyanide exposure incidents.

Wharf uses sign-in sheets and mock drill reports to document emergency response training. The sign-in sheets include the names of the employees and trainers, the date of training, and the topics covered. The drill reports list the drill scenarios and participants. The mock drills serve to evaluate emergency response procedures and the effectiveness of the response training provided. The report for a drill conducted in 2016 includes continued ERT training (general training and training specific to use of portable HCN gas monitors) as a corrective action. Wharf demonstrated that it retained emergency response training records over this current ICMC audit cycle.

9.0 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**	
	☐ **Substantial Compliance**	**with Standard of Practice 9.1.**
	☐ **Non-Compliance**	

Discussion of the basis for this Finding and any Identified Deficiencies:

Wharf provides several means for stakeholders to communicate issues of concern regarding cyanide use and management at the Wharf Mine. Those reviewed during this 2018 ICMC audit include:

- open-door policy for responding to inquiries;
- open house events;
- community meetings and presentations (private, state and county entities);
- public tours of the Wharf Mine;
- regulatory Public Meetings and Notices associated with ongoing permitting and development of the mine;
- annual on-site audits conducted by DENR; and
- the Coeur corporate website.

In 2016, Wharf began hosting community open house events each summer. Wharf advertises this event in the local newspaper and throughout Lead. Wharf management also volunteers in the community on a regular basis.

Wharf staff is available to interact with stakeholders at various community meetings. Wharf provides annual mining update presentations to the DENR Board of Minerals and Environment and to the Lawrence County Commissioners, which are open to the public. As discussed under ICMC Standard of Practice 7.2 above, Wharf attends regular LEPC meetings as well as annual meetings with the Terry Valley Landowners Association, representing the residential community located closest to the Wharf Mine. Additionally, Wharf's Mine Manager sits on the Black Hills Chairlift Board, the Process Manager sits on the Trojan Water District Board, and the Administrative Assistant attends monthly Lead Chamber of Commerce meetings.

Wharf provides public tours on a regular basis and requires tour members to watch a safety induction video, which contains cyanide-related information. Tours conducted in 2018 include students from the South Dakota School of Mines, members of the Mining History Association, government and industry representatives from the Republic of Columbia and Congo sponsored by the US State Department. The purpose of the tours sponsored by the US State

Department was to share information on community interaction with mines as well as environmental compliance and pollution control.

The public review process offered by federal, state and county permitting processes solicits input from affected communities and stakeholders regarding all aspects of the operation. The Wharf Mine has not had any public meetings regarding permitting over this current ICMC audit cycle; however, DENR publishes each permit renewal for a 30-day public comment period and sends an email each week summarizing the items out for public comment (DENR Updates to Public Notice Page). Wharf has not received any public comments during this audit cycle. Additionally, the DENR conducts annual on-site environmental audits over two days each summer, which provide an opportunity for regulators to communicate issues of concern regarding the management of cyanide. The audits include a tour of the mining and processing facilities and the review of mining plans, the reclamation plan, water balance, monitoring data and other compliance elements.

The Coeur corporate website provides a telephone number for the corporate office. Wharf routes all calls from the public voicing concerns about the operation to the Wharf Environmental Manager or Mine Manager. Wharf indicated that it has not received any calls regarding cyanide within this current ICMC audit cycle.

Standard of Practice 9.2

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

The operation is in	☒ **Full Compliance**	
	☐ **Substantial Compliance**	**with Standard of Practice 9.2.**
	☐ **Non-Compliance**	

Discussion of the basis for this Finding and any Identified Deficiencies:

Please see ICMC Standard of Practice 9.1 above. The forums discussed, provide various opportunities for Wharf personnel to interact with stakeholders and provide them with information regarding cyanide management practices and procedures.

Wharf Mine
NAME OF MINE

SIGNATURE OF LEAD AUDITOR

March 11, 2019
DATE

Standard of Practice 9.3

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

The operation is in	☒ Full Compliance	
	☐ Substantial Compliance	with Standard of Practice 9.3.
	☐ Non-Compliance	

Discussion of the basis for this Finding and any Identified Deficiencies:

The written regulatory permits and permit applications associated with the Wharf Mine provide detailed descriptions of all aspects of the operation and are public record and accessible via county, state and federal regulatory agencies. Additionally, as a signatory company to the ICMC, the Wharf Mine was initially certified under the Code in January 2013 and recertified in January 2016. The summary reports for these two audits are available to the public via the ICMC website. Wharf indicated that, during training provided to outside responders, it also presents written materials regarding cyanide management at the Wharf Mine.

According to the National Center for Educational Statistics, as of 2003, approximately 6% of Lawrence County residents lacked basic prose literacy skills, which includes "those who could not be tested due to language barriers" (https://nces.ed.gov/naal/estimates/StateEstimates.aspx). According to the U.S. Census Bureau, as of July 2017, approximately 94% of the people in Lawrence County have a high school education or higher (https://www.census.gov/quickfacts/fact/table/lawrencecountysouthdakota,US/PST045217). These statistics indicate that the population is largely literate. Nonetheless, Wharf disseminates information in verbal form via open meetings, presentations and tours, as discussed under ICMC Standard of Practice 9.1 above.

Federal regulations require that Wharf report accidents and fatalities to MSHA within certain time limits depending on the nature of incident, which would include cyanide hospitalizations and fatalities. This information would be available to the public via the MSHA website. Wharf indicated that no cyanide-related exposures requiring hospitalization or fatalities occurred during this current ICMC recertification period.

Wharf personnel indicated that DENR requires reporting of process solution off containment, regardless of the amount. This information is available to the public via the DENR's website. Wharf personnel indicated that during this ICMC recertification period there were no releases off the mine site requiring response or remediation; that there were no cyanide releases on or off the mine site resulting in significant adverse effects to health or the environment; and that there were no releases that caused applicable limits for cyanide to be exceeded. However, over this recertification period, the Wharf Mine experienced four process solution spills outside of containment. Wharf provided the spill reports for these incidents.

Written reports submitted to regulatory agencies become public information. Contact information for the agencies and other sources referenced above, where the public can access information regarding cyanide releases or exposure incidents that may occur at the Wharf Mine, is provided below for easy reference:

Wharf Mine
NAME OF MINE


SIGNATURE OF LEAD AUDITOR

March 11, 2019
DATE

Mine Safety and Health Administration
201 12th St S, Suite 401
Arlington, VA 22202-5450
Phone: (202) 693-9400
Website: www.msha.gov

Department of Environment and Natural Resources
Joe Foss Building
523 East Capitol Avenue
Pierre, SD 57501
Phone: (605) 773-3153
Website: www.denr.sd.gov

10.0 REFERENCES

Golder Associates Inc. (Golder). 2012. "ICMC Recertification Detailed Audit Report". November

Golder Associates Inc. (Golder). 2015. "ICMC Recertification Detailed Audit Report". November

WEBSITE REFERENCES

International Cyanide Management Code (ICMC). 2018. www.cyanidecode.org

National Center for Educational Statistics. 2018. www.nces.ed.gov

U.S. Census Bureau. www.census.gov

Coeur Mining, Inc. www.coeur.com