

# **International Cyanide Management Code Mining Operation Recertification Audit - Summary Audit Report**

**Report Prepared for**

## **Marigold Mine, Nevada USA**

MARIGOLD MINING COMPANY  
(A SSR MINING INC. COMPANY)  
PO BOX 160  
Valmy Nevada 89438



**Report Prepared by**



**Mountain Valley Professionals, LLC**

MVP Project No. P-MMC2021.9

December 3, 2021

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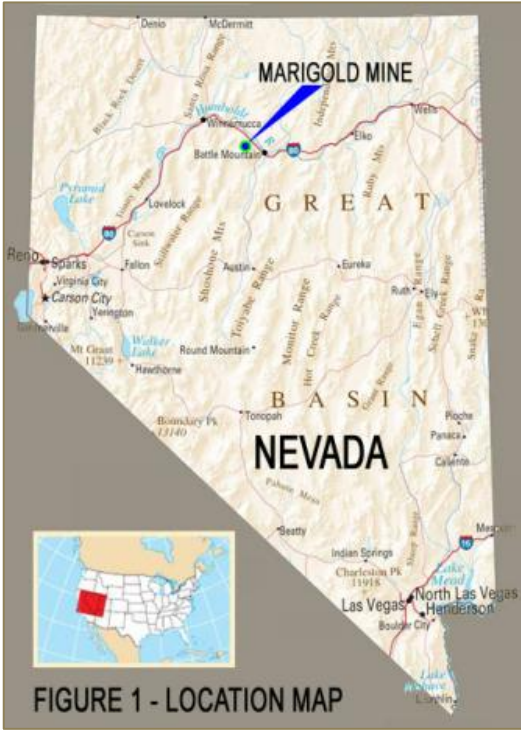
# Summary Audit Report for Mining Operations

**Mine Operations:** Marigold Mine  
**Mine Owner:** SSR Mining Inc.  
**Name of Operator:** Marigold Mining Company  
**Name of Responsible Manager:** Don Dwyer  
**Address and Contact information:** Marigold Mining Company  
PO Box 160  
Valmy, Nevada 89438  
Telephone: 775.502.4800  
Facsimile: 775.635.2551  
Email: don.dwyer@ssrmining.com

## Location Detail and Description of Operation

Marigold Mining Company (“Marigold”), a SSR Mining Inc. (“SSR”) company, currently operates the Marigold Mine, an open-pit, heap leach operation utilizing an adsorption, desorption and regeneration (“ADR”) process. The mine is located approximately three miles south of Valmy in the southeastern portion of Humboldt County, Nevada (see **Figure 1**). In 2014, Silver Standard Resources Inc. (“Silver Standard”) acquired Marigold from Goldcorp Inc. and Barrick Gold Corporation (“Barrick”), a joint venture. On August 1, 2017 “Silver Standard” announced that they would officially become known as SSR Mining Inc., after more than 70 years in business as “Silver Standard”.

The mining operation consists of multiple open pits and precious metal processing facilities encompassing approximately 41.3 square miles (26,447 acres) of private and public land. This acreage includes the August 2015 purchase of 6,720 acres of public and private land previously held by Newmont Mining Corporation – Valmy Project. In June 2016,



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*Shirley S. [Signature]*  
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Marigold received authorization from the Nevada Division of Environmental Protection (NDEP) to increase the stacking rate from 25 million tons of ore annually to 40 million tons utilizing conventional cyanidation technology. Run-of-mine ore is hauled from the open pits to the heap leach pad. Presently, crushing operations are only conducted for producing "overliner" material for heap leach pad construction, aggregate for road maintenance and construction, stemming material for blasting operations. The facility is designed, constructed and operated to prevent release or discharge of process solution from the "fluid management system" except for exceptional meteorological events that exceed the design criteria for storm events.

The fluid management system for the heap leach facility consists of pregnant and barren solution ponds, a stormwater collection pond, ADR processing and chemical storage facilities, a lean solution recirculation system, a lined heap leach pad with multiple cells, and appurtenant structures. The liners for cells 1, 2, and 8 are a 24-inch compacted clay. These cells were built in 1989-1990, before the NDEP required synthetic liners. These cells are inactive and in draindown. All other cells have a synthetic liner system. The system is designed to contain stormwater flows and draindown from the heap leach cells during simultaneous 100-year, 24-hour storm and 24-hour power outage events. The former mill ceased operations in 1999 and has since been decommissioned and dismantled. With closure of the milling circuit, the existing 180-acre tailings storage facility ("TSF") was taken out of service, reclaimed, and closed and will not be used for further deposition of tailings or impoundment of process solutions.

Construction of two new leach pad cells (19, 22 and 24) has been completed since the 2018 audit. There have been several changes to flow rates and facilities since the 2018 audit cycle.

The leach pad currently consists of 27 cells, of which 16 cells are currently active. The leach pad cells were constructed in the following sequence: 1, 2, 8, 7, 6, 5a, 5b, 4, 3, 2/3 Infill, 9, 10, East Heap Leach Pad Extension, 11, 12, 14, 13, 15R, 16, 17, 18, 20, 21, 19, 22, 24, and 19b. Cell 19b was approved for and under construction during the time of this audit, with expected completion of construction in the fall of 2021. The heap leach cells are stacked with run-of-mine ore, which is trucked to one of the active heap leach cells and end-dumped in 15- to 50-foot lifts. Once a lift or portion of a lift is complete, the surface is cross ripped to an average depth of approximately nine feet to enhance solution percolation. Solution distribution lines are then placed on top of the ore, and barren solution is applied using either drip emitters or sprays at a rate of up to 20,000 gallons per minute.

The barren solution percolates through the ore collecting precious metals and exits the heap material at one of several collection areas as pregnant solution. The pregnant solution is conveyed, by gravity flow, to the pregnant solution pond or the recirculation

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system via high-density polyethylene (“HDPE”) pipelines located in synthetic lined ditches. Upon exiting the heap, the pregnant solution is routed to either the recirculation system or the pregnant solution pond depending upon the precious metal content of the solution. If the precious metal content is low, the solution (lean solution) is routed to the recirculation system to report to the top of the heap for extraction of additional precious metal. If the precious metal content is high enough, the pregnant solution is routed to the pregnant pond. At the time of the audit Marigold was in the process of decommissioning the recirculation system and going to single-pass solution operations. Marigold currently operates Seven (7) carbon column trains in parallel. Solution reporting to the pregnant pond is pumped through carbon columns to recover the precious metal. Upon exiting the carbon columns, the solution is barren and contains low levels of precious metal and flows by gravity to the barren solution pond. The barren solution is recirculated, using pumps, back to the top of the heap to continue the leaching process.

Carbon from the various carbon column trains is transferred to the Carbon Strip Circuit and processed to recover gold. Within the Carbon Strip Circuit, a hot alkaline solution (approximately 285 degrees Fahrenheit with a pH of 13 or greater) under pressure is used to strip the precious metals from the loaded carbon. The solution eluate is then passed through an electrowinning circuit (located inside the Refinery within the Process Building) where the metals are electroplated. The resultant gold-bearing material is retorted for drying and mercury removal prior to being placed in the crucible furnace located inside the Refinery, mixed with a flux, and smelted to produce doré. The stripped carbon is washed with acid and then reactivated by heating in a rotary kiln. A schematic of the process circuit is illustrated in Figure - 2.

There are a total of six pregnant solution ponds (Pregnant Ponds 1, 2, 3, 4, 5 and 6) and two barren solution ponds (Barren Ponds 1 and 2), interconnected with synthetic-lined channels, which cumulatively make up the “pond system.” The ponds are constructed with primary and secondary HDPE liners over a compacted clay base. A leak collection and recovery system (“LCRS”) is installed between the primary liner and the secondary HDPE liner system designed to capture any solution before it reaches the compacted clay base of each pond and is designed to meet federal and state standards. During 2003, Pregnant Pond 1 was removed from service and remains inactive. The maximum ore stacking rate remained at 40 MTY (Million Tons per Year) since the 2018 audit cycle.

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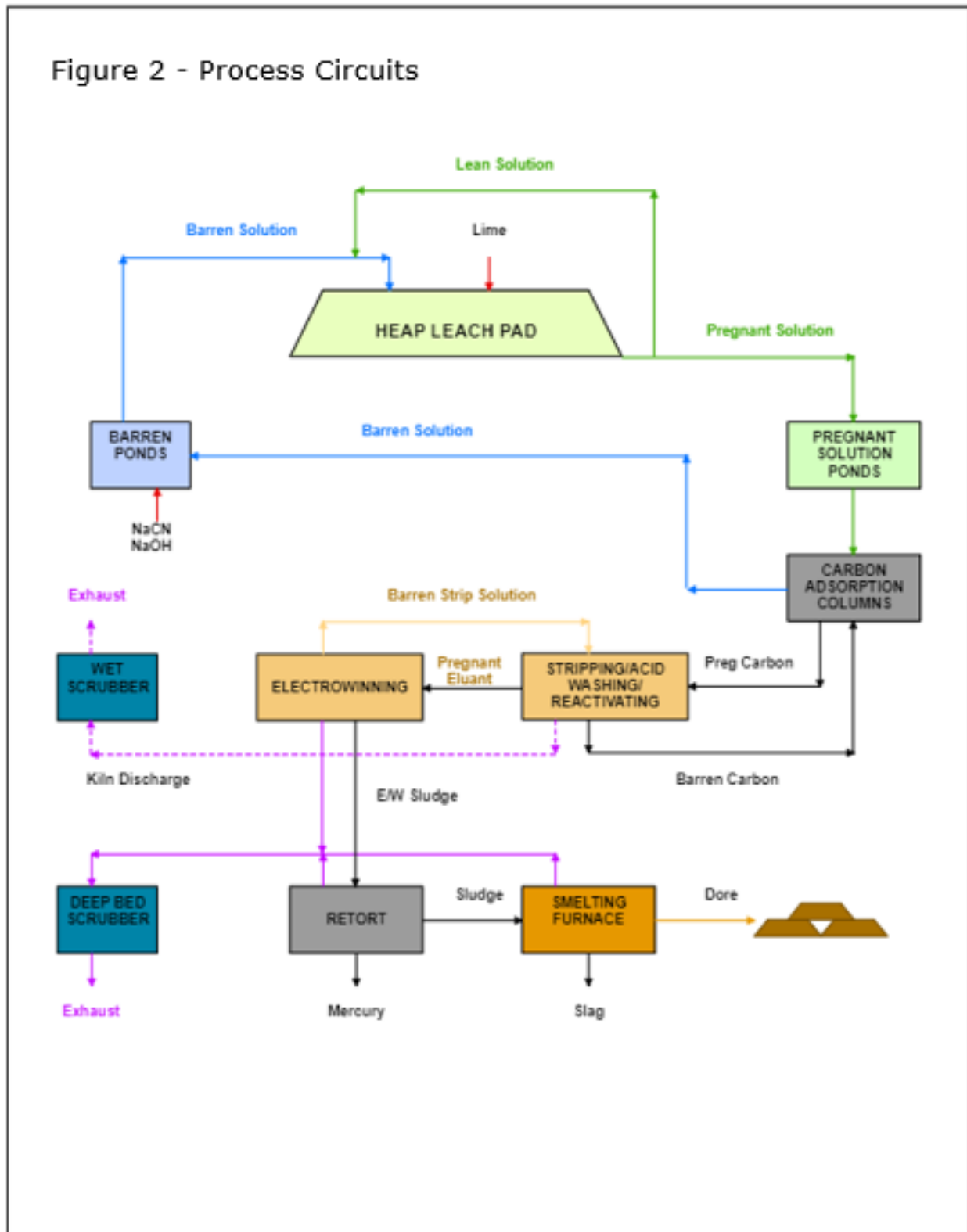


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Figure 2 - Process Circuits



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*[Handwritten Signature]*

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## Cyanide Facilities

The active cyanide facilities at the Marigold Mine, which comprise the existing fluid management system, consist of the following:

- Three Cyanide Offload/Storage Facilities (cyanide storage tanks and offload appurtenances);
- Heap Leach Pad (27 cells (Cells 1, 2, 3, 2/3 Infill, 4, 5a, 5b, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15R, East Side Extension, 16, 17, 18, 19, 19b, 20, 21, 22, and 24). Cell 19b is currently under construction;
- Process Solution Ponds;  
Barren Ponds 1 and 2 (double-lined); and  
Pregnant Ponds 1, 2, 3, 4, 5, and 6 (double-lined, Pregnant Pond 1 is decommissioned and maintained empty due to a leak in the primary liner);
- Stormwater Pond (single-lined);
- ADR circuit;  
35 Carbon Columns (seven column trains and appurtenances); and  
Carbon Strip Circuit (carbon transfer and holding tanks, strip and acid wash vessels, pregnant and barren solution tanks, and associated process tanks and appurtenances);
- Process solution piping and lined solution collection channels;
- LCRS for the heap leach cells and the solution ponds; and
- Associated concrete and lined secondary containment structures, process solution transfer pipes, valves, and pumps.

During the field component of this 2021 International Cyanide Management Code ("ICMC" or "Code") recertification audit, Cell 19B of the heap leach pad and the Reagent Storage Facility were under construction and expected to become active in the fall of 2021 or spring of 2022.

As mentioned above, with closure of the milling circuit, the TSF was taken out of service, reclaimed, and closed and will not be used for further deposition of tailings or impoundment of process solutions. Marigold retired the TSF in 1999 following cessation of milling operations and completed reclamation of the TSF in 2004. In late 2012, Marigold sealed the final connection to the TSF and the ability to utilize this facility for any process-related purposes. Therefore, the TSF has not been considered by this or previous ICMC audits as a cyanide facility. The TSF has been released from the previously applicable Nevada Division of Water Resources Dam permit, although it remains under Marigold's reclamation permit and bond and the Water Pollution Control Permit (WPCP). The monitoring components of the tailings remain in the WPCP and are reported in those reports. Marigold received approval from the NDEP Bureau of Mining Regulation and Reclamation (BMRR) in September 2016 to discontinue the annual tailings reports.

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Signature of Lead Auditor

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Date

## Auditor Information

**Audit Company:** Mountain Valley Professionals, LLC

**Lead Auditor:** John Barber

**Mining Technical Auditor:** John Barber

**Address and Contact:** Mountain Valley Professionals, LLC.  
59 Damonte Ranch Parkway, Suite B #298  
Reno, Nevada 89521

**E-mail:** john.barber@mvp-nv.com

**Website:** [www.mvp-nv.com](http://www.mvp-nv.com)

Marigold Mining Company

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Signature of Lead Auditor

December 3, 2021

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Date



## Summary Audit Report

### Auditor's Findings

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<b>Marigold Mine</b>	<input checked="" type="checkbox"/> in full compliance with	<b>The International Cyanide Management Code</b>
	<input type="checkbox"/> in substantial compliance with	
	<input type="checkbox"/> not in compliance with	

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This operation has experienced cyanide incidents during the previous 3-year audit cycle, which are discussed in this report under Standard of Practice 9.3. These incidents have not been "significant cyanide incidents" subject to the notification requirements in Item 6 of the ICMC signatory application; they do not affect the compliance status. These incidents did not involve worker exposures to cyanide requiring medical treatment or offsite incidents. Rather, these incidents were minor releases of cyanide-bearing solutions to soil that were reported to regulators, and thus are subject to listing under Question 3 of Standard of Practice 9.3.

The auditor has determined that the Marigold Mine is in **Full Compliance** over this ICMC audit cycle.

**Audit Company:** Mountain Valley Professionals, LLC

**Audit Team Leader:** John R. Barber, Lead Auditor

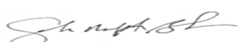
**Email:** john.barber@mvp-nv.com

### Other Auditors

<b>Name, Position</b>	<b>Signature</b>
Not Applicable	

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Signature of Lead Auditor

December 3, 2021  
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## **Dates of Audit**

**Audit Dates:** June 7<sup>th</sup> – 10<sup>th</sup>, 2021

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

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## PRINCIPLE 1 - PRODUCTION

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

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#### 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**

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**The operation is**  in full compliance with **Standard of Practice 1.1**  
 in substantial compliance with  
 not in compliance with

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

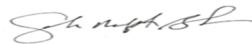
The Chemours Company ("Chemours") is the cyanide producer and supplier for the Marigold Mine. Marigold operates under a contract with Chemours dated January 1, 2016.

The current contract is effective from January 1, 2016, through December 31, 2021, and continues from year to year thereafter unless terminated by Marigold or Chemours on written notice. During this 2021 International Cyanide Management Code (ICMC) recertification audit, Marigold personnel indicated that, over this current ICMC audit cycle, neither party has given notice to terminate the contract and Marigold has purchased cyanide exclusively from Chemours.

The contract specifically identifies ICMC certification requirements as a provision. Chemours is signatory to the ICMC and the auditor reviewed the ICMC Summary Audit Report for the Chemours North American Sodium Cyanide Production and Packaging Operations, prepared by Management Solution Systems, Inc. (MSS) (November 15, 2019), demonstrating full compliance with the ICMC production protocol. Chemours received its official recertification from International Cyanide Management Institute (ICMI) on January 21, 2020. The audit certification includes Chemours' Memphis Plant (Memphis, Tennessee), the LSI facility owned and operated by Lemm Services Inc. Terminal (Memphis, Tennessee), and the Chemours Carlin Terminal owned by Chemours and operated by Lemm (Carlin, Nevada). Marigold has purchased cyanide solely from Chemours over this current ICMC audit cycle. Chemours has retained its full compliance certification with the ICMC over this entire audit cycle.

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## PRINCIPLE 2 - TRANSPORTATION

### Protect Communities and the Environment during Cyanide Transport

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**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**

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**The operation is**       in full compliance with      **Standard of Practice 2.1**  
 in substantial compliance with  
 not in compliance with

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

Marigold's contract with Chemours to supply and transport cyanide to the Marigold Mine specifies that cyanide delivery occurs once the cyanide solution has passed across the tank flange at the designated storage facility at the site (i.e., Marigold's designated cyanide tank). Prior to the delivery, Chemours retains responsibility for addition of colorant dye, transportation of the cyanide and risk of loss for the product. The contract also specifies that during the contract period, Chemours shall remain a signatory to the ICMC and shall comply and cause Chemours' cyanide production and transportation personnel, distributors and contract transporters to comply with all applicable ICMC Principles and Standards of Practice, performance goals, audit recommendations and certification requirements applicable to Chemours' production facilities and applicable to the Marigold site. This includes the specific compliance matters set out in the Code's production and transportation verification protocols.

The contract specifically states that Chemours shall, with respect to the cyanide delivered to Marigold, be responsible for packaging, addition of colorant dye, labeling, storage prior to shipment, evaluation and selection of routes, storage and security at ports of entry, interim loading, storage and unloading during shipment, transportation to the delivery locations, unloading at the delivery locations, safety and maintenance of the means of transportation throughout transport, task and safety training for transporters and handlers throughout transport, security throughout transport and emergency response throughout transport, all in accordance with the applicable ICMC Principles and Standards of Practice, performance goals, audit recommendations and certification requirements of the Code. The contract also requires that Chemours shall have, in place, emergency response plans relating to the Marigold site and conforming to the recommendations of the Code and requirements of applicable law.

**Standard of Practice 2.2**      **Require that Cyanide Transporters Implement Appropriate Emergency Response Plans and Capabilities and Employ Adequate Measures for Cyanide Management**

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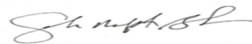
**The operation is**       in full compliance with      **Standard of Practice 2.2**  
 in substantial compliance with  
 not in compliance with

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

As stated in ICMC Standard of Practice 2.1 above, the purchase contract between Chemours and Marigold specifies that during the contract period, Chemours shall remain a signatory to the ICMC and shall comply and cause Chemours' cyanide production and transportation personnel, distributors and contract transporters to comply with all applicable ICMC Principles and Standards of Practice, performance goals, audit recommendations and certification requirements applicable to

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Chemours' production facilities and applicable to the Marigold site.

Chemours produces cyanide at its Memphis, Tennessee plant and distributes the product via rail and truck. Chemours contracts Quality Carriers Inc. (Quality Carriers) to transport liquid cyanide from the Chemours Carlin terminal to the Marigold Mine. Quality Carriers is a signatory to the ICMC. ICMC Summary Audit Reports reviewed for the Chemours transportation supply chains demonstrate full compliance with the ICMC transportation protocol, from the production facilities to the Marigold Mine. The Chemours rail/barge supply chain received recertification from the ICMI on August 18, 2017.

During this 2021 ICMC recertification audit, Marigold personnel indicated that, over this current ICMC audit cycle, Marigold has purchased cyanide exclusively from Chemours and Quality Carriers has been the sole transporter. Quality Carriers received recertification from the ICMI on October 7, 2019.

Chemours utilizes Empire Express, Inc. as a backup transporter for solid cyanide transportation from the Memphis plant to the Carlin Terminal. Empire Express is a signatory to the ICMC and was certified in full compliance with ICMC requirements on September 20, 2017.

These most recent ICMC certifications are each valid for a period of three years from the respective certification dates. However, due to health concerns and travel restrictions resulting from the COVID-19 virus, the Recertification deadline was extended to August 31, 2021.

## PRINCIPLE 3 – HANDLING & STORAGE

### Protect Workers and the Environment During Cyanide Handling and Storage

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#### 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**

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

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

The Marigold Mine receives sodium cyanide in liquid form at 30 percent strength, and currently operates three cyanide offload/storage facilities at various locations as follows:

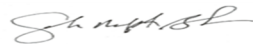
- Site 1 – located at the carbon columns;
- Site 2 – located at the Process/Refinery Building; and
- Site 3 – located at the east toe intersection of Cell 3 and Cell 12 of the leach pad (aka, Smiley Face Area).
- Reagent Storage Area – located 200-feet west of Site 1 (under construction/non-operating)

The three-cyanide offload/storage facilities have been audited in previous ICMC audit cycles and have not been modified since the previous audits. Site 1 cyanide offload/storage facility is in the process of being replaced, with a standalone Reagent Storage Facility. Site 1 will be decommissioned once the Reagent Storage Facility is commissioned. Once Site 1 is fully decommissioned the Reagent Storage Facility will be renamed Site 1.

The Reagent Storage Facility was being constructed approximately 200-feet west of the Site 1 area. The Reagent Storage Facility was approximately 75% complete during this site inspection and was designed for caustic and cyanide offloading/storage/distribution, with an adjacent offload area that will accommodate the entire length of a delivery trailer.

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Chemours was onsite to inspect the new offload facility on May 24, 2021 and has issued an email accepting the facility as adequate to received cyanide deliveries. Chemours will conduct a final inspection upon full completion of the new facility and prior to the first offload.

The Reagent Storage Facility is situated within concrete containment (i.e., a concrete pad with curbing) located approximately 200-feet west of the current Site 1 area. The concrete containment drains via gravity to the process ponds (i.e., Barren Pond 1). The insulated, mild steel storage tank has a nominal capacity of 20,000 gallons and is situated within the concrete containment (i.e., concrete pad and containment curbs). During this audit the Auditor reviewed the Reagent Storage Facility design package and confirmed that specifications for soil compaction, concrete reinforcement, piping and the cyanide storage tank were included and stamped by a Professional Engineer registered in the State of Nevada (Welsh Hagen Associates, April 18, 2018). The concrete pad and curbs have been designed with a containment capacity in excess of 110% of the largest vessel. In addition, the concrete pad is connected to the process pond system via a gravity flow synthetic lined ditch.

The cyanide offload/storage facilities at Site 1, Site 2, Site 3 and the Reagent Storage Facility are well situated with respect to surface and groundwater resources. No perennial or intermittent streams are within one-half mile of these facilities and no groundwater supply wells are nearby. The Reagent Storage Facility, Site 1 and Site 3 offload/storage facilities are located well away from the office facilities; therefore, the locations do not present any undue risk for human exposure. The Site 2 cyanide offload/storage facility is located behind the Process/Refinery and Process offices and away from general traffic, with low risk for undue risk for humane exposure. In addition, Site 2 is inactive and will be decommissioned in the near future.

The cyanide offload process is conducted on reinforced concrete pads at Site 1, Site 2, Site 3 and the Reagent Storage Facility (non-operating). At Site 1, the concrete containment drains via gravity to Barren Pond 1. At Site 2, the concrete pad is graded to drain into the Process/Refinery Building containment floor sump, from which it is ultimately pumped to Barren Pond 1. At Site 3, the pad is within the lined area of Cell 13 leach pad. At the Reagent Storage Facility, the concrete containment will drain via gravity to the Barren Pond 2.

The cyanide offload process is conducted on reinforced concrete pads at Site 1, Site 2, Site 3 and the Reagent Storage Facility. At Site 1, the concrete containment drains via gravity to Barren Pond 1. The facility was constructed in phases with containment curbing between the two phases and appropriate overflow capability towards the ponds. At Site 2, the concrete pad is graded to drain into the Process/Refinery Building containment floor sump, from which it is ultimately pumped to Barren Pond 1. At Site 3, the offload pad is within the lined area of the leach pad, which is sloped to drain into the lined solution conveyance channel provided for the pad to convey solutions to Pregnant Pond 2. At the Reagent Storage Facility, the concrete containment drains via gravity to Barren Pond 2.

Marigold has overfilling alarm and level indicators installed on the cyanide storage tanks located at all three-cyanide offload/storage areas. The instrumentation consists of tank level indicators with digital readouts that display a percentage full value, and high-level visual/audible alarms (strobe light and siren). Marigold tests the operation of the alarm systems and documents tank fill values prior to beginning an offload event and during every shift for cyanide inventory control. Standard Operating Procedure ("SOP") "Escorting and Monitoring the Offloading of Cyanide Deliveries" defines the high alarm settings and allowable (maximum) tank levels (percent full) for initiating offloads at Site 1, Site 2 and Site 3.

The cyanide tank foundation at Site 1 is solid mass concrete (i.e., the concrete floor slab). The cyanide tank at Site 2 rests on steel I-beams supported by the concrete containment slab. The cyanide storage tank at Site 3 is a skid-mounted horizontal tank, which sets on support beams on top of the gravel layer within the lined leach pad area. The containments provided for all three cyanide storage tanks provide protection against seepage to the subsurface.

The secondary containment structures provided for the cyanide storage tanks, including the Reagent Storage Facility, at Marigold are constructed of concrete and/or High-Density Polyethylene (HDPE) liner.

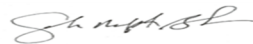
These materials provide a competent barrier to leakage.

The cyanide storage areas, including the Reagent Storage Facility, are located outside and are well ventilated with minimal potential for hydrogen cyanide ("HCN") gas build-up.

Marigold uses only liquid cyanide stored within enclosed, insulated steel tanks.

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The three cyanide storage areas and Reagent Storage Facility are within the fenced mine property. Site 1 and the Reagent Storage Facility are within a second (high and well-posted) fence to prevent wildlife and other uncontrolled access to the cyanide storage tank/s by contractors and delivery personnel. The cyanide tanks are filled from the top with piped conveyance and outflow, which prevents access (without dismantling the system). The cyanide storage tanks at all three offload areas have secured valves to prevent unauthorized and inadvertent access. The Reagent Storage Facility pump, pipelines and valves were not fully installed at the time of the field inspection.

Marigold stores cyanide separately from incompatible materials. Acid storage is located near the Site 2 cyanide offload/storage facility; however, within a separate containment area.

During the field component of this 2021 ICMC recertification audit, the auditor inspected all three-cyanide offload/storage facilities active areas and the Reagent Storage Facility (under construction/non-operating) and found the facilities to be in good condition.

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**Standard of Practice 3.2**      **Operate Unloading, Storage and Mixing Facilities using Inspections, Preventive Maintenance and Contingency Plans to Prevent or Contain Releases and Control and Respond to Worker Exposures**

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

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

Marigold receives liquid cyanide transported to the site in tanker trucks; therefore, there are no empty cyanide containers that require treatment or disposal. The auditor observed a cyanide delivery during the field component of this 2021 ICMC recertification audit and noted that the Quality Carriers' driver followed their offload procedure.

Marigold has developed and implemented a Standard Operating Procedure ("SOP") that provides systematic steps for offloading cyanide, covering both routine and emergency valve and coupling operation. The procedure defines the valve and coupling operation for the connection of the offload hose to the truck, valve opening, and the emergency shutdown button on the passenger side of the truck. The SOP addresses appropriate personal protective equipment ("PPE") and includes the requirement for full-time observation from a safe distance by the Marigold escort person during the hookup, offload and unhook activities. The observer must be familiar with emergency shutdown of the equipment as well as emergency procedures involved with cyanide. The procedure also requires that copies of the Quality Carriers procedures remain posted in the eyewash buildings located at the offload areas.

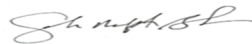
During the site verification the auditor identified that the Marigold SOP "Escorting, and Monitoring the Offloading of the Cyanide Deliveries," referenced the posting of the Chemours offload SOP – was posted at the offload areas. However, the proper offload procedure is the Quality Carriers – Marigold Mine SOP, Valmy Nevada. The auditor requested site to update the Marigold SOP to replace reference to Chemours Offload procedure with the Quality Carrier SOP that was posted at the offload areas. In addition, the site operators were requested to be notified of the change. Marigold updated the SOP, posted the Quality Carrier SOP at the offload areas and notified operators of the change. The site provided the auditor with adequate documentation: Updated Escort and Monitoring the Offload SOP, Quality Carriers SOP posting at the offload areas, and safety meeting minutes. The auditor reviewed the information and found it sufficient.

A separate SOP, "Sodium Cyanide Spills" provides systematic procedures for cleaning up cyanide spills occurring both within and outside of concrete containment.

Marigold and Chemours have been in communication regarding dye addition to cyanide deliveries to Marigold. Chemours stated in a letter to Marigold (July 2018) that they plan to begin dye addition to solid and liquid cyanide in the fourth quarter of 2018, during this audit the auditor reviewed the Chemours 30% SDS indicates the cyanide is dyed.

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## PRINCIPLE 4 – OPERATIONS

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

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#### Standard of Practice 4.1

**Implement Management and Operating Systems Designed to Protect Human Health and the Environment Utilizing Contingency Planning and Inspection and Preventive Maintenance Procedures**

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**The operation is**  in full compliance with **Standard of Practice 4.1**  
 in substantial compliance with  
 not in compliance with

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

The active cyanide facilities at the Marigold Mine, which comprise the existing fluid management system, consist of the following:

- Three Cyanide Offload/Storage Facilities (cyanide storage tanks and offload appurtenances);
- Heap Leach Pad (27 cells (Cells 1, 2, 3, 2/3 Infill, 4, 5a, 5b, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15R, East Side Extension, 16, 17, 18, 19, 19b, 20, 21, 22, and 24). Cell 19b is currently under construction;
- Process Solution Ponds;  
Barren Ponds 1 and 2 (double-lined);  
Pregnant Ponds 1, 2, 3, 4, 5, and 6 (double-lined, Pregnant Pond 1 is decommissioned and maintained empty due to a leak in the primary liner);
- Stormwater Pond (single-lined);
- ADR circuit;  
35 Carbon Columns (seven column trains and appurtenances);  
Carbon Strip Circuit (carbon transfer and holding tanks, strip and acid wash vessels, pregnant and barren solution tanks, and associated process tanks and appurtenances);
- Process solution piping and lined solution collection channels;
- LCRS for the heap leach cells and the solution ponds; and
- Associated concrete and lined secondary containment structures, process solution transfer pipes, valves, and pumps.

Marigold currently implements SOPs and written procedures related to the operation of its cyanide facilities. These written procedural documents cover the Marigold cyanide facilities and provide measures for managing cyanide in a manner that prevents or controls releases to the environment and exposures to workers and the community. The SOPs identify required PPE and the risks involved with the operating tasks, and adequately describe safe work practices. Additionally, the Water Pollution Control Permit ("WPCP") and the WPCP Renewal Applications stipulate operating requirements for the process facilities.

The WPCP and the WPCP Renewal Application identify the design/operating parameters and regulatory requirements on which the Marigold process facility (fluid management system) design is based.

The WPCP stipulates monitoring requirements, storage of process solution in ponds, the allowable solution application rate to the heap leach pad, action alert levels for the leak detection systems, inspection requirements, closure requirements and facility designs. In accordance with the WPCP, Marigold must: 1) construct, operate and close the facility per the approved renewal application; 2) contain within the fluid management system all process fluids including all meteoric waters that enter the system as a result of the 25-year, 24-hour storm event; and 3) not release or discharge any process or non-process contaminants from the fluid management system.

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According to the WPCP Renewal Application, the fluid management system, which includes the process pond system, is designed to contain the normal operating volume of the ponds; precipitation from the 100-year, 24-hour storm event; and 24-hours of draindown from the heap, while providing additional volume based on two feet of freeboard. SOP "High Preg or Barren Pond Levels" (Updated June 2021) incorporates the pond design parameters into the operating procedure for maintaining the process ponds at the allowable operating levels. The SOP also provides procedures to follow during upset conditions.

Marigold operates as a zero-discharge facility. Cyanide concentrations of the process solutions applied to the heap leach pad and stored within the barren and pregnant solution ponds are generally above 50 milligrams per liter (mg/L) Weak Acid Dissociable (WAD). The target concentration of Free cyanide in the barren process solution is 0.45 pounds per ton (225 mg/L). Consequently, Marigold utilizes fences, netting, and bird balls to protect wildlife from open solution.

The plans and procedures address those aspects of the operation that are necessary for protection of workers, communities and the environment. These procedures provide routine inspection and maintenance programs and address proper management of process solutions at the heap leach pad and process ponds to retain the design storage capacities.

Other inspections completed by Marigold include Area Inspections, Pre-Shift Environmental, Spills & Wildlife Inspections (Environmental Inspection Book) and Stormwater Inspections. The NDEP performs quarterly WPCP compliance inspections of the Marigold Mine facility. These inspections identify any issues that have the potential to degrade Waters of the State and include areas associated with the process facilities, equipment (including monitoring and control equipment), practices, or operations regulated by the permit.

Marigold implemented a formal "Management of Change" procedure in March 2010. Prior to this procedure, Marigold discussed procedures and continual improvements in weekly safety meetings. The Management of Change procedure is designed to cover all activities at the Marigold Mine including those involving contractors and vendors. Marigold uses the procedure to ensure that it evaluates changes for potential environmental, safety and health risks, and that it takes appropriate actions to ensure existing performance levels are not compromised. The program addresses the requirements for managing planned and unplanned or emergency changes.

SOP "High Preg or Barren Pond Levels," states that if the process ponds become full and solution begins reporting to the Stormwater Pond, Marigold management (i.e., the Process Manager, General Forman, Environmental Manager, Safety Manager, and General Manager) will meet to discuss actions to be taken to manage the excess water. The SOP describes various seasonal considerations to avoid high pond levels in the Barren and Pregnant ponds. The SOP also includes general guidelines for upset conditions to implement as the pond level increase (i.e. increase barren flow rate to current panels; turn off fresh water; slow down or increase carbon column flow depending on which pond level is increasing).

According to the WPCP Renewal Application, actions to take in response to a severe emergency whereby pond capacities are exceeded include recirculating solution to the process or constructing emergency containment basins adjacent to the ponds to contain fugitive solutions and to prevent entry into natural drainages.

In accordance with the WPCP, Marigold will notify the NDEP of planned temporary closures with an anticipated duration exceeding 30 days. In addition, the NDEP will be notified within 30 days after an unplanned temporary closure. Following a period of temporary closure and prior to start-up, Marigold will conduct a thorough inspection of the fluid management system including all pipelines, drainage channels, ponds, and pumping and processing equipment. Remaining solution in the ponds will be processed through the metals recovery circuit or applied to the heap, and the processing circuits will be reestablished.

Marigold process personnel perform comprehensive, monthly inspections of cyanide facilities according to SOP "Monthly Inspection (Cyanide)." These inspections cover the entire cyanide process circuit (fluid management system) and include photographs and a listing of all identified issues. The inspection report includes a summary table, which itemizes each issue and includes the completion date for each corrective action along with the name of the person that completed the work. Facility components inspected include tanks, pipes, hoses, pumps, flanges, signs and labels, concrete integrity, presence of open solution and cyanide salt buildup, high level alarm systems on storage tanks, antidotes, liner systems, wildlife deterrent systems, wildlife activity and mortalities, and the onsite emergency generator. Work orders were generated and appropriate actions were taken to close these issues out.

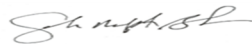
The comprehensive monthly inspections are supplemented by daily work area inspections. Marigold inspects solution levels in the process ponds daily. Additionally, NDEP performs quarterly WPCP compliance inspections of the Marigold Mine facility.

Work orders were generated and appropriate actions were taken to close these issues out.

It is the auditors professional opinion that the site inspects cyanide facilities on a frequency that is sufficient to assure and document that they are functioning within design parameters.

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In addition to the daily, monthly and quarterly visual inspections discussed under ICMC Standard of Practice 4.1.6, contractors (L&H Industrial and Morris Maierle) perform thickness testing and review, respectively, on the three cyanide storage tanks. The L&H Industrial submitted the test measurements to Morris Maierle who reviewed the measurements. Marigold provided reports with conclusions regarding the integrity of the tanks. In the reports prepared for the 2018 and 2020 testing, Morris Maierle concluded that continued operation of these tanks within established parameters and safety procedures would protect against cyanide exposures and releases. The contractors discerned nothing in the data reviewed that would suggest impairment of the structural integrity of any of the cyanide storage tanks. In the 2020 Report L & H Industrial recommended a Restraint Assessment be completed on the three cyanide tanks. Morris Maierle completed the assessment (August 2019). The assessment determined that Site 2 and Site 3 did not require supplemental support. While Morris Maierle provided two recommendations. These recommendations were analyzed by Marigold and it was determined to construct a new Site 1 (Reagent Storage Facility). At the time of the 2021 Audit the Reagent Storage Facility was under construction.

Marigold conducts monthly inspections of the secondary containment structures provided for the process tanks and pipelines during the daily (each shift) area inspections and during the monthly Cyanide Code Inspections and documents any observed issues on daily inspection forms and in monthly reports. Additionally, NDEP inspects the condition of secondary containments during its quarterly WPCP compliance inspections of the Marigold Mine facility.

Leak detection systems are installed in the process ponds and Cell 7 of the leach pad. Process personnel inspect flow in these leak detection systems daily and document the results on two spreadsheets, "Daily Production Summary" report (Leak Detection tab) and "Daily Heap Leach Report." The Environmental Department receives a monthly report from the Process Metallurgy Lab with a summary of the results. Marigold reports the results quarterly to NDEP.

Marigold inspects pipelines, pumps and valves for signs of deterioration and leakage during the daily (each shift) area inspections and during the monthly Cyanide Code Inspections and documents any observed issues on daily inspection forms and in monthly reports. Additionally, NDEP inspects the condition of these facility components during its quarterly WPCP compliance inspections of the Marigold Mine facility. Marigold conducts routine preventative maintenance on cyanide pumps in accordance with SOP "Process Facilities Preventative Maintenance".

Process Lead Operators monitor process pond levels each shift and informally record results in a logbook prior to electronic formal entry into the Water Balance Model (spreadsheet) each day.

SOP "High Preg or Barren Pond Levels" incorporates the pond design parameters into the operating procedure for maintaining the process ponds at the allowable operating levels. The SOP also provides procedures to follow during upset conditions.

In accordance with its Storm Water Pollution Prevention Plan (December 2018), Marigold inspects its stormwater facilities, including surface water ditches and diversions, quarterly and following significant storm events.

The written inspection reports include the date of the inspection, the name of the person that conducted the inspection and any observed deficiencies and corrective actions taken. Inspection records were maintained between the 2018 ICMC audit and this 2021 recertification audit.

SOP "Process Facilities Preventative Maintenance" provides the procedure for conducting routine preventative maintenance on cyanide pumps. This SOP lists the maintenance activities and schedule for each pump type. Specifically, procedures are provided for the vertical turbine pond pumps, vertical turbine pond pump motors, 800 horsepower booster pumps (No. 1 and No. 2), and the cyanide and caustic pumps. Maintenance activities include checking packing, oil levels (daily), excessive vibration (daily), lubrication (automatic and weekly), and visual inspection (daily and monthly) for leaks and other problems that may cause spillage.

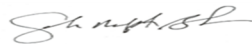
To achieve maximum value, the vertical turbine pond pumps are generally operated until the impellers either wear out or scale to the point that pumping volume is diminished. Removing the pump for preventive maintenance is not cost effective due to the rental cost of a crane. Therefore, Marigold keeps redundant pumps and parts available on site to facilitate quick repairs and/or pump replacements.

Marigold utilizes eMaint®, a computerized maintenance management software (eMaint Enterprises, LLC), to manage its preventative and corrective maintenance. During this audit, the auditor reviewed maintenance records on the system for the cyanide facilities over the three-year period between the 2018 ICMC audit and this 2021 recertification audit, including those for the leach circuit and the Carbon Strip Circuit. Maintenance items requiring work orders identified on routine inspections were tracked through the system to verify completion.

The Marigold operation has one diesel-powered generator located at the Booster Pad station. According to SOP "HL Gen Set," the generator capacity is 350 kilowatts (450 to 500 horsepower) and is capable of powering five pregnant solution pumps or three pregnant solution pumps and one barren solution pump. During line outages, Marigold allocates emergency

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power to process solution pumps as necessary. The Process Manager also indicated that, if necessary during prolonged outages, Marigold could rent additional generators from nearby towns or cities (i.e. Battle Mountain, Reno or Winnemucca, Nevada) and depending on availability could arrive to the site within eight hours. In January 2017, Marigold experienced a power outage and needed to bring in generator from Battle Mountain. During this recertification audit between 2018 and 2021 site did not require rental generators. The pond system is designed and managed to retain 24 hours of draindown from the heaps plus runoff generated by a 100-year, 24-hour storm event, while maintaining two feet of freeboard.

The Marigold truck shop mechanics perform routine preventative maintenance on the generator, which includes checking for oil leaks, sampling the engine oil, checking fluid levels, cleaning the fuel screen, checking fuel and air filters, and ensuring proper operation. The auditor reviewed preventative maintenance records over the period 2018 through June 2021. Additionally, during monthly Cyanide Inspections, Marigold personnel test the generator by starting and running the generator.

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**Standard of Practice 4.2**      **Introduce Management and Operating Systems to Minimize Cyanide use, thereby Limiting Concentrations of Cyanide in Mill Tailings**

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

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

This ICMC Standard of Practice is not applicable, because Marigold is a heap leach operation and does not operate a mill.

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**Standard of Practice 4.3**      **Implement a Comprehensive Water Management Program to Protect against Unintentional Releases**

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**The operation is**       in full compliance with  
 in substantial compliance with      **Standard of Practice 4.3**  
 not in compliance with

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

As determined during the 2012 ICMC recertification audit, Marigold implemented a new Microsoft® Excel® based water balance model in January 2011, developed by Knight Piésold Consulting. The prior model was also Excel® based; however, Marigold felt it was too conservative and desired a more accurate model that was also probabilistic.

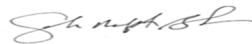
Marigold is still using the 2011 model developed by Knight Piésold. The site updated the model to accommodate the Cell 19 and pregnant pond 5 and additional anticipated cells and ponds. The auditor verified that the current version of the model incorporates the heap leach expansion that occurred over this audit cycle.

The model performs a probabilistic analysis (basis is 10 wettest years of "Precipitation on Record" for the climate station at Winnemucca) and a working analysis based on actual data. The 100-year 24-hour event (2.40 inches of rainfall) is used during model runs to simulate available pond capacity and freeboard.

Marigold collects onsite precipitation daily from a rain gauge located at the Process Building and inputs the data into the water balance model weekly for use in the working analysis. Historical rainfall (1950-2009) collected from a weather recording station located in Winnemucca was used to develop the model. The Winnemucca data is of good quality as the location is near enough and at a similar elevation to be representative. The model uses average monthly evaporation data and also accounts for sublimation Evaporation losses for drip emitters and wobblers are estimated at 1% and 10%, respectively. Marigold also maintains an on-site meteorological station (Campbell Scientific CR1000) near the reclaimed tailings storage facility that is audited and maintained by a third party and verified by the Nevada Division of Environmental

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Protection to be used for modeling purposes (specifically for air permit modeling). Data can be viewed in real time via a web browser and can be accessed off-site to monitor weather conditions if needed.

The Marigold heap leach facility is designed and operated such that all upgradient stormwater runoff is diverted around the facility. Stormwater is routed away from the heap leach facility by diversion ditches sized to safely convey runoff from a 100-year, 24-hour storm event.

Marigold estimates snowpack as it occurs and inputs the data into the water balance model. A snowmelt coefficient of 0.6 accounts for sublimation, estimation errors, and loss to soak up in ore.

The Marigold operation is a zero-discharge facility. Therefore, the only losses considered by the water balance include solution losses through evaporation of spray application, pond evaporation and moisture uptake by fresh ore.

The Marigold process pond system is designed to retain runoff generated by the 100-year, 24-hour storm event, and draindown from the heap leach pad over a 24-hour period, while providing two feet of freeboard. Marigold keeps rebuilt vertical turbine pond pumps and spare parts on site and maintains a diesel-powered emergency generator on site to provide emergency power in the event of a primary power outage. Additionally, if necessary during prolonged power outages, Marigold has the option of renting additional generators from nearby towns or cities that could arrive to the site within eight hours. Therefore, the water balance model does not account for power outages or pump and equipment failures.

Other factors considered by the water balance model include the active heap height, open pad liner area, open channel liner area, and ore characteristics (e.g., moisture, density, and porosity). The model uses a "Rain on Leach Coefficient" of 0.5 (assumes rainfall on stacked ore is absorbed and does not reach the ponds; however, consideration is given to rainfall on areas actively leached). Additionally, the model uses a "Snowmelt Coefficient" of 0.6, which accounts for sublimation, estimation errors and loss to soak-up in ore.

Process Lead Operators monitor process pond levels on a daily basis (each shift and throughout the shift) and informally record results in a log notebook prior to entering the Night Shift values into the "Daily Heap Leach Report." The levels recorded in the daily "Daily Heap Leach Report" are then entered into the Water Balance Model (spreadsheet) each day. The entered values are rounded to the nearest whole number (rounded up). Actual measured data is entered for Barren Pond No. 2 and Pregnant Pond No. 2, which are maintained between 8- and 9-feet deep.

SOP "High Preg or Barren Pond Levels" incorporates the pond design parameters into the operating procedure for maintaining the process ponds at the allowable operating levels. The SOP also provides procedures to follow during upset conditions.

The Marigold process ponds are designed to retain the 100-year, 24-hour storm event (2.40 inches of rainfall) and 24-hours draindown from the heap, while providing two feet of freeboard. Review of the operating water level records in the model indicates that all pond levels are maintained at or near the optimal levels. The water balance analyses confirm adequate freeboard for both working and probabilistic scenarios. Marigold estimates snowpack as it occurs and inputs the data into the water balance model. Precipitation is measured daily at the Process Building and at an on-site meteorological station near the reclaimed tailings storage facility and input to the model on a weekly basis. Historical evaporation data is utilized (climate data from Winnemucca weather station).

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**Standard of Practice 4.4**      **Implement Measures to Protect Birds, other Wildlife and Livestock from Adverse Effects of Cyanide Process Solutions**

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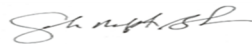
**The operation is**       in full compliance with      **Standard of Practice 4.4**  
 in substantial compliance with  
 not in compliance with

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

At the Marigold operation, open waters with WAD cyanide concentrations generally exceed 50 mg/L in the working ponds (i.e., Pregnant Pond 2, Barren Pond 1, and Barren Pond 2) are monitored on a consistent basis. The other process ponds (i.e., Pregnant Ponds 3, 4, 5, and 6) provide surge capacity and remain empty under normal operations. Nonetheless, all of the active process ponds are provided with avian deterrent systems (i.e., netting and bird balls). Pregnant Pond 1 is currently not in use. In addition to the avian deterrent systems, the process ponds are surrounded by chain-link and wire mesh fence and perimeter fencing surrounds the Marigold site to minimize access by terrestrial wildlife and livestock.

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Marigold uses netting to cover exposed pump boxes, sumps, and other areas where open solution or ponding occurs, such as at the toe of the heap adjacent to the Site 3 offload. Other potential areas where open solutions may occur temporarily include the solution pipeline containment channels at the heap leach pad and ponds (in the event of a leaking or ruptured pipe), and on the heap itself. Framed netting is used to protect wildlife from these areas.

Marigold applies leach solutions in a manner designed to avoid significant ponding on the heap surface and to limit overspray off the heap liner. Marigold utilizes both drip emitter application as well as wobbler spray application on the run-of-mine heap. Drip emitters are used for normal leaching operations while the wobblers and drip emitters are employed on side slopes and/or inactive portions of the heap for evaporation and solution balance control. The Marigold ore types vary, with certain ore material having higher clay content and other material being very durable and free draining rock. Marigold rips the heap surface to an average depth of nine feet prior to leaching to enhance infiltration and minimize ponding.

Preventing overspray of solutions off the lined pad area is a component of the SOP "Heap Leach Operator" and is monitored by leach operators during pre-shift inspections.

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**Standard of Practice 4.5**                      **Implement Measures to Protect Fish and Wildlife from Direct and Indirect Discharges of Cyanide Process Solutions to Surface Water**

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

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

Marigold operation is designed and operated as a zero-discharge facility with no direct discharge to surface water. As a result, there are no established mixing zones.

Marigold does not have indirect discharges to surface water. Ephemeral surface water flows in the area occur in Trout Creek, Cottonwood Creek, the unnamed drainage west of the 8-South Pit, and the unnamed drainage to the east of the heap leach facility. Stream flow generally occurs in the spring following periods of precipitation. Several springs are present in the mine area; however, mining and processing operations are downstream of the springs or outside of the associated meteoric water collection basins.

Trout Creek, an ephemeral stream, is the closest surface water body, located roughly one-half mile to one mile away from the Marigold process facilities. The Trout Creek Diversion Dam, located upstream from the process facilities, diverts Trout Creek west into Cottonwood Creek and around the facilities.

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**Standard of Practice 4.6**                      **Implement Measures Designed to Manage Seepage from Cyanide Facilities to Protect the Beneficial Uses of Ground Water**

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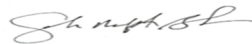
**The operation is**                       in full compliance with                      **Standard of Practice 4.6**  
 in substantial compliance with  
 not in compliance with

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

The Marigold operation is designed and operated as a zero-discharge facility. The project construction and operation include a number of seepage control technologies such as composite liner systems at the heap leach pad, double geomembrane liners with leak detection systems at the process ponds, geomembrane-lined containment channels for solution pipelines, and concrete secondary containment in process areas. Depending on the date of construction, the leach pad cells have either a clay liner (inactive cells) or a synthetic liner over a compacted composite base. The facility design and construction meets NDEP standards.

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The alluvium is the main groundwater storage unit in the mine area with bedrock storage upgradient in the primary pit development areas. The unsaturated zone thickness ranges from 530 feet at the south end of the site to approximately 280 feet at the north end.

The process ponds, which cumulatively make up the "pond system," are interconnected with synthetic-lined channels. The ponds are constructed with primary and secondary HDPE liners over a compacted clay base. A leak collection and recovery system ("LCRS") is installed between the primary liner and the secondary HDPE liner system designed to capture any solution before it reaches the compacted clay base of each pond and is designed to meet federal and state standards. Marigold reports the quantity of solution reporting to the LCRS to the NDEP in accordance with its Water Pollution Control Permit (WPCP). The Stormwater Pond is constructed with a single HDPE liner and does not have an LCRS.

The numerical standard for cyanide in groundwater, applicable to the Marigold operation, is 0.20 mg/L WAD (Drinking Water Standard). Marigold monitors groundwater quality at numerous wells (identified in the WPCP) both upgradient and downgradient of the process facilities.

During this audit, the auditor reviewed groundwater quality data over the three-year period between ICMC recertification audits. The data demonstrate that WAD cyanide levels were below the analytical detection limit (<0.01 mg/L) for all quarters.

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<b>Standard of Practice 4.7</b>	<b>Provide Spill Prevention or Containment Measures for Process Tanks and Pipelines</b>
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<b>The operation is</b>	<input checked="" type="checkbox"/> in full compliance with	
	<input type="checkbox"/> in substantial compliance with	<b>Standard of Practice 4.7</b>
	<input type="checkbox"/> not in compliance with	

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

There have been no changes to any spill prevention or containment measures that are provided for all cyanide unloading, storage, mixing and process solution tanks since the previous ICMC audits, with the exception of the construction of the Reagent Storage Facility to replace Site No. 1 cyanide storage and expansion of the pond side carbon processing tanks.

All cyanide process tanks at the Marigold operation are provided with secondary containment. The cyanide storage tank and the carbon columns at Site 1 are located within a curbed concrete containment area with direct overflow to Barren Pond 1. Additional carbon column trains were added to the Site 1 area, this included an expansion of the curbed concrete containment to accommodate the additions process tanks.

The Site 1 cyanide storage tank will be decommissioned once the Reagent Storage Facility is commissioned. The Reagent Storage Facility will include a cyanide storage tank located within a curbed concrete containment area with direct overflow to Barren Pond 1. The storage tank foundation is solid mass concrete (i.e., the concrete containment slab). During the audit the Reagent Storage Facility was under construction, however the auditor was able to view the concrete containment, overflow ditch, and cyanide storage tank.

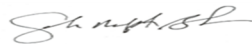
The concrete containment bund at Site 2 is over-lined with HDPE for additional protection, and contains an overflow connection to the adjacent, inactive containment bund. The cyanide tank at Site 2 rests on steel I-beams supported by the concrete containment slab. The cyanide storage tank at Site 3 is a skid-mounted horizontal tank, which sets on support beams on top of the gravel layer within the lined leach pad area. The containments provided for all three cyanide storage tanks provide protection against seepage to the subsurface.

The process tanks at the Process Building, which comprise the Carbon Strip Circuit, are provided with concrete secondary containment. The concrete floor and stem walls of the Process Building provide secondary containment for the tanks and vessels located inside. The tanks and vessels either set directly on top of the concrete floor slab or are supported above the floor.

A curbed, concrete containment area located outside the building provides secondary containment for two large process tanks used in the Carbon Strip Circuit [former carbon-in-leach ("CIL") tanks]. This containment encompasses six tank foundations (two with tanks and four vacant). The exterior and interior containment areas are interlinked via a drain through the exterior wall of the Process Building. The two tanks rest on octagon-shaped, concrete ring-beam foundations

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with soil fill material in the center area of each ring. Design drawings indicate that the tanks were constructed with two floors; a concrete slab inside the tank supported by fill material (providing primary containment) and the steel tank bottom itself (providing secondary containment). The CIL containment was verified during the ICMC 2012 audit cycle and summarized in the March 2013 ICMC Detailed Audit Report.

During this 2021 ICMC recertification audit, Marigold personnel confirmed that there have been two changes to the process areas. The addition of two new carbon trains at Site 1, expansion of the concrete containment to accommodate the new carbon trains and the Reagent Storage Facility (under construction) and that no existing tanks have been modified, and that no other modifications have been made that would affect the secondary containment requirements and capacities verified during the 2012, 2015, and 2018 ICMC audits. The modified facilities are described below.

The expanded secondary containment provided for the new and existing carbon columns and cyanide storage area at Site 1 is more than adequate to contain the largest tank volume located within the containment (i.e., the 20,000-gallon cyanide storage tank) in addition to the design storm event. The existing and expanded concrete containment is hydraulically connected via gravity flow to Barren Pond 1, which provides significant surplus capacity.

During this ICMC audit, the auditor confirmed that the concrete containment provided for the Reagent Storage Facility (future Site 1) cyanide storage tank is sized for greater than 110% of the tank volume (750-ft<sup>3</sup>) with a total capacity of 1,465-ft<sup>3</sup> providing an additional 715-ft<sup>3</sup> of precipitation storage. Additionally, the concrete containment is hydraulically connected via gravity flow to Barren Pond 2, which provides significant surplus capacity.

Cyanide solution or cyanide contaminated water collected in the secondary containment at Site 1, Site 2 and the Reagent Storage Facility would report to the process pond system via gravity flow. At Site 1 and the Reagent Storage Facility, Marigold would hose any residual spillage in the concrete containment into Barren Pond 1. Marigold implements SOP "Pumping Out Secondary Containment, Site #2" to manage solution collected in the isolated containment bund at Site 2. Procedures include pumping the spillage into the cyanide delivery truck or into the process circuit. Additionally, SOP "Heap Leach Operator" provides procedures for managing solution collected in secondary containment, which include pumping the spillage back into primary containment.

Cyanide solution or cyanide contaminated water collected in the secondary containment area at the Carbon Strip Circuit flows into a concrete floor sump inside the building. Collected water is pumped and directly conveyed to Barren Pond 1 via a buried pipe-in-pipe system.

Marigold provides spill prevention or containment measures for all cyanide process solution pipelines to collect leaks and prevent releases to the environment. Marigold places large-diameter process solution pipelines within HDPE-lined containment channels and concrete structures. Pipe-in-pipe systems are used for buried pipes and pipes located outside of lined or concrete containment. Buried pipes include those at road crossings and the pipeline connecting the Carbon Strip Circuit floor sump to Barren Pond 1. The buried pipe system between the Carbon Strip Circuit and Barren Pond 2 consists of an 8-inch diameter HDPE pipe inside of a 12-inch diameter HDPE pipe. During the 2015 ICMC audit, the auditor reviewed photographic evidence (of buried pipe-in-pipe system between Carbon Strip Circuit and Barren Pond 1).

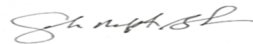
Additionally, the barren solution pipelines are instrumented with radio alarms that alert operators of pressure losses. SOP "Pressure Drop Response Plan" describes the actions to take in the event of a pressure drop in the barren solution pipelines.

No pipelines requiring special protection needs were identified at the Marigold operation. There are no perennial surface water streams nearby.

All cyanide process tanks at the Marigold operation are constructed of carbon steel. Because the cyanide storage tanks are insulated, the auditor relied on the non-destructive thickness test reports as evidence for these tanks. Process solution pipeline materials are stainless steel, carbon steel, HDPE, polyvinyl chloride ("PVC"), synthetic rubber (offload hoses), and synthetic rubber (small-diameter flex hose). These materials are compatible with cyanide and high pH conditions. The cyanide storage tank at the Reagent Storage Facility and new carbon trains and piping are constructed of carbon steel.

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**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**

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

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

Please refer to *Location and Description of the Operation* above for a list of the active cyanide facilities at the Marigold operation and to the previous ICMC Detailed Audit Findings Reports (December 2006, October 2009, March 2013, February 2016, and October 2018) for the construction quality assurance and quality control ("QA/QC") documentation provided for the cyanide facilities in operation at the time of those audits.

New cyanide facilities and modifications to existing cyanide facilities constructed subsequent to the 2018 ICMC recertification audit, include:

- Carbon Plant Expansion – modification of Site 1.
- Pregnant Pond 5.
- Pregnant Pond 6.
- Pregnant Pond #2 Concrete Pad.
- Heap Leach Pad Expansion – Construction of Cell 19 Synthetic Floor Liner System.
- Heap Leach Pad Expansion – Construction of Cell 19 Overliner.
- Heap Leach Pad Expansion – Construction of Cell 19 Solution Channel.
- Heap Leach Pad Expansion – Record of Construction of Cell 22.
- Heap Leach Pad Expansion – Record of Construction of Cell 24.

Marigold implemented QA/QC programs during the construction of the projects outlined above and as documented by the Geo-Logic Associates and Knight Pie'sold reports.

The construction QA/QC program conducted for the projects during this audit cycle addressed earthworks construction, concrete, and geomembrane installation. The earthworks components include grading, transitional fill, low permeable subbase and overliner placement. The concrete construction include subgrade suitability and compaction testing and concrete specifications and testing. The geomembrane installation includes welded seams, non-destructive seam testing, geomembrane destructive seam testing and repairs.

Marigold retains all construction documentation associated with its cyanide facilities. Reports were missing for Cell 4 through Cell 9; however, Marigold indicated that it maintains some of the older reports in offsite storage. The retention of QA/QC construction documentation for the carbon columns and the cyanide offload/storage facilities was also verified.

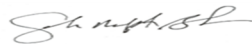
Geo-Logic Associates and/or Knight Pie'sold, competent engineering firms, conducted the QA/QC program for the construction projects outlined above. A professional civil engineer registered in the State of Nevada stamped the final construction reports. The reports provide a statement that the construction was performed and completed in accordance with design drawings and specifications, and current industry standards. In addition, the State of Nevada reviewed and approved the as-built reports.

As verified during the 2012 ICMC recertification audit, Marigold commissioned a qualified person to perform an engineering inspection of the new carbon column train constructed in 2011. M3 visually inspected the footings, structure, tanks, and upper walkway of the new carbon column train and found the facility to be in general conformance with the design drawings by Scotia International of Nevada, Inc.

During the field component of the 2012 ICMC recertification audit, original QA/QC documentation for the Carbon Strip Circuit facilities was not available. Therefore, Marigold commissioned a qualified person (professional engineer) to perform an inspection of the facilities. Knight Piésold Consulting visually inspected the process tanks and vessels; concrete walls, footers, slabs and floor sumps; piping; valves; pumps; and related structural support systems and documented the results in a letter report. Ultrasonic thickness testing was also performed on certain process tanks to confirm their physical integrity. The report concludes that the facilities inspected were found to be in satisfactory condition.

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**Standard of Practice 4.9**

**Implement Monitoring Programs to Evaluate the Effects of Cyanide Use on Wildlife, Surface and Ground Water Quality**

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**The operation is**  in full compliance with **Standard of Practice 4.9**  
 in substantial compliance with **Standard of Practice 4.9**  
 not in compliance with

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

In accordance with its WPCP, Marigold implements the procedure "Field Sampling Protocols" as a field guide to standard environmental water sampling techniques. The WPCP and the WPCP Renewal Applications also provide groundwater and surface water monitoring procedures.

Marigold does not implement a written procedure monitoring wildlife. Nonetheless, Marigold monitors for wildlife activity and mortalities daily as a component of the pre-shift area inspections and submits quarterly Wildlife Mortality Reports to NDOW in accordance with its Industrial Artificial Pond Permit.

John Barber (former Environmental Manager at Marigold) originally developed the Field Sampling Protocols. As documented in the 2009 ICMC audit report (Golder), the plan has been reviewed and approved by a professional engineer registered in the State of Nevada and a Hydrologist (documented in an email dated November 8, 2006, from George Hoffman of Hydro Engineering). The protocols are based on CFR (Code of Federal Regulations) 40 Part 136 – Guidelines Establishing Test Procedures for the Analysis of Pollutants. The Nevada certified laboratories used by Marigold, Energy Laboratories, SVL Laboratories and Western Environmental Testing Laboratory, provide analytical protocols for detection limits, quality assurance, preservation and holding times. Marigold environmental personnel periodically update the Field Sampling Protocols in parallel with WPCP renewals, primarily to incorporate changes to water monitoring points. NDEP reviews and approves all monitoring locations. The Marigold Senior Environmental Specialist (Jessie Barto) reviews document updates for approval. Mr. Barto has a Bachelor of Science Degree in Animal Science with ten years' experience in the mining industry.

The Field Sampling Protocols procedure specifies how and where samples are collected. Table 2.1a in the document identifies monitoring points, monitoring parameters and monitoring frequency required by the WPCP, as well as the analytical profiles required by and reported to NDEP for the samples collected from the specified monitoring points. Appendix 1 of the document provides a map with the locations of the monitoring points. The State of Nevada has specific required sample parameter lists known as Profile I and requires only collection of WAD cyanide samples for monitoring purposes.

Marigold records field conditions for sampling events on the Field Monitoring Sheets. These logs record the sampling point, date, time, initials of the sampler, static water level, transducer readings (if applicable, or water level meter readings), and comments such as surface water flow. Additionally, Marigold personnel complete a Groundwater Monitoring Field Sampling Checklist for each sampling day, designed to assist sampling personnel in preparation and completion of field sampling activities. The form also functions as a record to formally document weather conditions and deviances in field conditions that may compromise sample integrity.

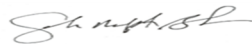
Marigold monitors groundwater and surface water quality down gradient and up gradient of the process facilities to ensure that indirect discharges are not occurring.

Marigold monitors for wildlife activity and mortalities and records them daily as a component of the pre-shift area inspections. The auditor reviewed NDOW quarterly Wildlife Mortality Reports October 2018 – April 2021. There were three cyanide-related wildlife mortalities since the 2018 ICMC recertification audit.

Marigold's monitoring program is designed to adequately characterize environmental media and to identify changes in a timely fashion. The media being characterized dictates the frequency of the samples. Marigold monitors for wildlife activity and mortalities daily as a component of the pre-shift area inspections. Marigold monitors surface water quarterly when flowing. Groundwater monitoring is conducted quarterly, semi-annually, and annually, depending on the well location. Leak detection systems are monitored daily.

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## PRINCIPLE 5 - DECOMMISSIONING

### Protect Communities and the Environment from Cyanide Through Development and Implementation of Decommissioning Plans for Cyanide Facilities

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<b>Standard of Practice 5.1</b>	<b>Plan and Implement Procedures for Effective Decommissioning of Cyanide Facilities to Protect Human Health, Wildlife and Livestock</b>
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<b>The operation is</b>	<input checked="" type="checkbox"/> in full compliance with	<b>Standard of Practice 5.1</b>
	<input type="checkbox"/> in substantial compliance with	
	<input type="checkbox"/> not in compliance with	

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

Marigold has developed written procedures to decommission their cyanide facilities at the cessation of operations. Section 3 of the Marigold Plan of Operations provides the Reclamation Plan, which includes, but is not limited to, stabilization, detoxification and disposal measures necessary to reclaim process ponds, heaps, and equipment.

Buildings, tanks and equipment associated with the leaching facilities will be detoxified, removed and recycled or disposed of in accordance with applicable regulations. Detoxification measures include freshwater rinsing or active remediation of facilities that contained cyanide solutions. Process solutions will be evapotranspiration or placed in a treatment facility.

Chemicals or reagents will be removed from the heap leach facilities, and along with empty containers, will be disposed of consistent with appropriate state and federal regulations. Surface plumbing and exposed conduits will be removed and disposed of properly. Other chemicals not salvaged will be removed and properly disposed of off-site.

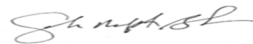
During the last permit renewal process, the site determined that the Final Permanent Closure Plan, dated September 2003, did not fully align with the regulatory requirements, and required updating. The update included incorporating the elements of the plan into the regulatory framework for the last Water Pollution Control Permit application. During this verification process the auditor identified that the application included the rising of pipelines and process solution management but did not explicitly include reference to other cyanide infrastructure; i.e., tanks and containment. Although the current costing model contains these activities. The auditor requested site to draft an internal memorandum indicating that reference to the decommissioning of the infrastructure was inadvertently not referenced in the application and that site will include this during the next permit modification. Site provided the auditor with a memorandum summarizing the information outlined above and was sufficient for verification during this audit.

As part of the proposed Mackay Optimization Project Plan Amendment to the Plan of Operations, Marigold developed a Reclamation Schedule in support of the Environmental Impact Statement required for the project. This schedule provides the conceptual timeline for closing and reclaiming the heap leach facilities, which includes heap draindown and solution management. According to the schedule developed for this mine expansion, mining and processing would continue through years 2037 and 2040, respectively, with heap draindown and solution management occurring in year 2040.

As stipulated by regulatory permits, Marigold is required by the NDEP and the U.S. Department of Interior, Bureau of Land Management ("BLM") regulations to review and update the Reclamation Plan and associated costs at least annually (NAC519.A). Marigold also updates its Plan of Operations and Reclamation Plan as any mine components change and during major permit revisions, as necessary. The most recent update to the Plan of Operations is dated February 14, 2020 and the prior version is dated November 1, 2013. Additionally, under the Close Down and Restoration Provision ("CDRP"), a SSR corporate internal policy, financial obligations are updated (internally) quarterly or when the reclamation bond is updated.

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**Standard of Practice 5.2**

**Establish An Assurance Mechanism Capable of Fully Funding Cyanide Related Decommissioning Activities**

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**The operation is**       in full compliance with  
 in substantial compliance with      **Standard of Practice 5.2**  
 not in compliance with

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

Marigold uses the most current/approved version of the Standardized Reclamation Cost Estimator ("SRCE"), an Excel©-based cost-estimating model developed and approved by BLM and NDEP, to prepare reclamation cost estimates for bond updates. Marigold used SRCE version 1.4.1 Build 017b with 2019 cost data to calculate its most recent bond obligation and submitted the estimate to the BLM under the February 2020 modification to the Plan of Operations. Section C of the estimate provides costs for "Detoxification / Water Treatment / Disposal of Wastes" which includes the cyanide-related decommissioning measures outlined in its Reclamation Plan. Handling of hazardous materials includes the cost of decontaminating, neutralizing, disposing, treating and/or isolating all hazardous materials used, produced, or stored on the site. The costs for "Interim Fluid Management" and "Process Fluid Stabilization," included within Section C of the SRCE model, are calculated using the Nevada Standardized Process Fluids Cost Estimator, an Excel©-based model.

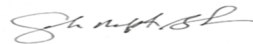
The bond estimates are based on costs for third-party implementation of the closure and reclamation activities, and include indirect costs such as Engineering and Design, Contingency, Insurance, Performance Bond, Contractor Profit, Contract Administration, and a BLM Indirect Cost. The April 2020 estimate calculates Section C direct costs to equal \$8.9 million (M), approximately 15.7 percent of the total direct costs for all closure and reclamation activities. Marigold's total obligated bond funds estimate is \$79.4 M, the total bonded amount is \$80.2 M, and \$0.77 M remains unobligated.

As stipulated by regulatory permits, Marigold is required by the NDEP and the BLM regulations to review and update the Reclamation Plan and associated costs at least annually. Marigold updates its reclamation bond during any Minor or Major Modification to the Reclamation Permit or Plan of Operations. Additionally, financial accounting procedures require that mine closure liabilities be reevaluated every year and under the SSR CDRP internal policy, financial obligations are updated quarterly or when the reclamation bond is updated.

As of the 2021 ICMC recertification audit, the BLM Nevada State Office held three reclamation bonds totaling \$80.2 million guaranteeing surface reclamation for operations conducted by Marigold under its Plan of Operations (N-65034).

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## PRINCIPLE 6 – WORKER SAFETY

### Protect Workers' Health and Safety from Exposure to Cyanide

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**Standard of Practice 6.1**      **Identify Potential Cyanide Exposure Scenarios and Take Measures as Necessary to Eliminate, Reduce or Control Them**

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

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

Marigold has developed procedures describing how cyanide-related tasks are to be conducted. SOP "Cyanide Safety" requires workers to monitor all enclosed areas or confined spaces for HCN content (using a gas detector) before entering. SOP "Process Maintenance Decontamination Procedures" describes how to perform equipment decontamination prior to maintenance and requires workers to complete a "Confined Space Entry" Permit if a confined space must be entered to perform work.

The Marigold cyanide-related SOPs require pre-work inspections and use of proper PPE. In addition to the specific task-related SOPs, Marigold performs Area Inspections prior to every shift, whereby workers inspect for any conditions that may adversely affect safety or health.

Marigold implemented a formal "Management of Change" procedure in March 2010. Prior to this procedure, Marigold discussed procedures and continual improvements in weekly safety meetings. The Management of Change procedure is designed to cover all activities at the Marigold Mine including those involving contractors and vendors. Marigold uses the procedure to ensure that it evaluates changes for potential environmental, safety and health risks, and that it takes appropriate actions to ensure existing performance levels are not compromised. The program addresses the requirements for managing planned and unplanned or emergency changes.

A "Change Proposal Form" and "Change Management Log" must be completed for proposed changes and appropriate department personnel review and authorize the proposed changes based on the degree and impact of the change. Authorizing agents include the designated expert or custodian, area supervisor, department manager, Technical Services Manager, Safety Manager, Environmental Manager and General Manager.

The Marigold Safety health and Security Manager manages the Management of Change procedure, which is reviewed annually and updated if necessary to ensure it remains effective. In July 2015, Marigold updated its Management of Change procedure to enhance the program and make the completion process more user friendly and has been implemented during this audit cycle.

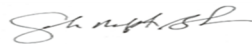
Marigold conducts routine (weekly) safety meetings, whereby workers have the opportunity to provide input regarding health and safety matters. Additionally, Marigold operates under an "open door policy" and encourages workers to voice concerns and make recommendations for improvement.

Marigold has an environmental, health and safety committee (Solutions Team), which represents all departments (at least one person from each department is required to serve on the committee). The committee meets monthly to plan and discuss continuous improvement and to review comments that employees provide via "Solutions Cards" collected monthly from the Solutions Card boxes located on site. This committee and its' role are in the process of being modified.

Workers complete "Field Level Risk Assessment" cards prior to performing any non-routine task or special project, if they have not performed that task for more than one week or if something has changed while performing a task. Individuals that complete the cards look for hazards associated with the task and hazard controls to make the task safer. Because supervisors and the Safety Department reviews the assessments, they serve to provide worker input regarding health and safety matters.

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**Standard of Practice 6.2**

**Operate and Monitor Cyanide Facilities to Protect Worker Health and Safety and Periodically Evaluate the Effectiveness of Health and Safety Measures**

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**The operation is**  in full compliance with **Standard of Practice 6.2**  
 in substantial compliance with **Standard of Practice 6.2**  
 not in compliance with

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

The pH adjustment system consists of a dry lime silo located on the haulage access to the leach pad as well as liquid caustic tanks at the carbon columns and at the Process Building. SOP "Heap Leach Operator" defines the target pH level for controlling evolution of HCN gas at 10 to 10.5. According to this SOP, Marigold takes samples at the Booster Pad Station and adjusts levels at Barren Pond 2 accordingly by adding caustic solution. The daily sample taken at the Booster Pad Station is recorded on the "Daily Production Summary" report. Marigold also takes manual samples twice per shift as operational checks. These sample locations periodically change based on operating conditions. To further regulate pH levels, Marigold adds lime to the run-of-mine ore prior to pad loading.

Marigold receives cyanide in liquid form and the potential for the creation of cyanide dust would be extremely low. Marigold conducts periodic HCN surveys of all cyanide process areas. There is not an established frequency. Two surveys have been conducted in this audit cycle. The surveys were conducted on October 30, 2019, and June 5, 2021. The surveys included Site 1, Mill, Site 3, the Process Ponds and portions of the leach pad. All results of the surveys demonstrated that all recorded HCN levels were well below 4.7 parts per million ("ppm") and most readings were zero.

With the exception of the Carbon Strip Circuit, all Marigold cyanide facilities are located outside in open-air environments. The Carbon Strip Circuit is located inside the Process Building, which is well ventilated. SOP "Cyanide Safety" requires workers to monitor all enclosed areas or confined spaces for HCN content (using a handheld gas detector) before entering. The Marigold operation does not utilize any fixed, continuous HCN monitors. Marigold uses handheld HCN monitors. The handheld detectors are set to alarm at 4.7 ppm and workers must leave the area when the alarm sounds.

Marigold uses portable (handheld) HCN gas monitoring devices and does not utilize any fixed, continuous HCN gas monitors. During the field component of this 2021 ICMC recertification audit, Marigold has 12 monitoring devices in service. The monitors include eight Industrial Scientific Gas Badges single gas detectors and four Industrial Scientific Ventis Pro 4 multi-gas monitors.

The user manual recommends the following calibration frequency: initially then monthly, depending upon use and sensor exposure to poisons and contaminants." The user manual recommends "bump" testing prior to each use. Marigold utilized a "docking" station and online software to conduct the calibration and testing. The docking station uploads the calibrations and bump tests to a database, which maintains the records for each device, for at least 3-years. In addition, the software is programed to send notices to key personnel in the event of calibration or testing failure. The auditor reviewed the calibration, bump test and failure records for all HCN Monitors from January 1, 2020 to January 1, 2021.

Marigold maintains two six gas (Industrial Scientific Ibrid) monitors for use by emergency response personnel during emergency events. The units reside inside the bay for the Emergency Response Vehicle (ambulance). The user manual for this device recommends monthly calibrations and Marigold provided complete calibration records for the period January 1, 2020, to January 1, 2021.

Marigold has installed signs advising workers that cyanide is present and of the associated dangers. These areas include the leach pad road, process solution tanks and pipelines, process ponds, cyanide offload/storage areas, and all process areas. The signs state cyanide in use, no smoking, eating or drinking. In areas where reagent-strength cyanide is present (i.e., each cyanide offload/storage area), there are signs stating the cyanide strength (30%), required and specific PPE, notice not to smoke, eat or drink, emergency response procedures, and locations of first aid, the emergency shower/eyewash, fire extinguisher and cyanide antidote.

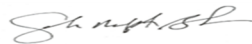
The purchase contracts between Marigold and Chemours states that the Seller (i.e., Chemours) is responsible for the addition of colorant dye. The auditor reviewed the site SDS for liquid cyanide which indicated that the liquid cyanide color was red.

Emergency showers, low-pressure eyewash stations, and appropriate fire extinguishers are located throughout the process areas. Shower/eyewash stations are located within the Safety Sheds at the Site 1 and Site 3 offload/storage facilities.

Additionally, an ABC dry chemical fire extinguisher is mounted next to the door of each Safety Shed. The

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shower/eyewash station at the Site 2 offload/storage facility is located close to the cyanide storage tank, next to the Process Building overhead door, and there is another station near the two large process tanks located on the other side of the building. Shower/eyewash stations are located on the upper level and ground floor of the Carbon Strip Circuit (inside the Process Building) and fire extinguishers are located throughout the building. There is a portable emergency eyewash station, which includes a drench hose for spot showers at the Booster Pad Station.

Marigold tests the shower/eyewash stations before each shift and records the results in the Eyewash Logbooks. Logbooks are located in the Safety Sheds at the Site 1 and Site 3 offload/storage facilities. Inspections of the shower/eyewash stations located at the Process Building are recorded in the "Mill Operator Logbook." Marigold also tests the stations at the cyanide/offload storage facilities before each offload. During this audit, the auditor spot-checked the showers and eyewashes to ensure proper operation and water pressure.

The Marigold Process Department performs monthly inspections of the fire extinguishers within their area. Additionally, an outside contractor (Silver State Fire) performs annual inspections of the fire extinguishers.

Marigold labels cyanide storage and process tanks and piping alerting workers of the contents and flow directions. Additionally, Marigold places signs warning of cyanide on pump boxes, gates, and doorways to buildings. Adequate signage was located throughout the offload, heap leach and process areas.

Safety Data Sheets (SDS) and safety procedures regarding cyanide are provided at the three-cyanide offload/storage facilities and in the administration building. The SDS are bound in three-ring notebooks and are also available via an online service (Sphera). General safety procedures are provided on signs. First aid and Amyl Nitrite are also located at the three offload areas. All written information is in English, the language of the workforce.

Marigold must complete MSHA (Mine Safety and Health Administration) reports that include any cyanide-related worker exposures, which require treatment or result in death (30 CFR Part 50). Marigold Safety and Environmental personnel indicated that no such incidents have occurred at the Marigold Mine over the three-year period between the 2018 ICMC recertification audit and this 2021 recertification audit. Additionally, the WPCP requires oral reporting to the NDEP of instances of non-compliance with the WPCP followed by a written incident report. No cyanide-related human mortalities or injuries have occurred during this 2021 audit period.

Marigold implements an "Incident Investigation Program" providing guidance and the basic requirements for conducting incident investigations at the Marigold Mine. The program provides general guidelines and defines roles and responsibilities. The Safety Manager is responsible for administering and managing the program.

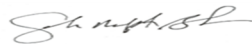
In 2015, Marigold enhanced its Incident Investigation program to include an "Incident Investigation Report," which includes an Incident Severity and Reporting Matrix, general information regarding the incident, employee/eyewitness statement, controls, causes, and corrective actions. The Marigold Superintendent/General Foreman, Department Manager, Safety Manager, and Environmental Manager sign completed reports.

In 2019 Marigold updated the Severity Factor Table, matrix, to capture the difference between safety & health injuries or illnesses. Environmental impacts were also updated to take into consideration the longevity of any related incidents and amount of area impacted, including the release of all chemical products.

Marigold provided a copy of the "Incident Investigation Report" completed for an actual near miss incident that occurred on March 24, 2021, in which a process operator performing cyanide salt removal activities and was nearly sprayed with reagent grade cyanide. As the cyanide salts dissolved a leak began spraying away from the process operator, the operator was not exposed to cyanide solutions. The incident occurred at cyanide offload Site 1; the solution was contained within secondary containment. The investigation report documents root causes and corrective actions along with the dates that Marigold completed the corrective actions. Corrective actions implemented (to prevent reoccurrence) include; inspection of all 30% cyanide pipelines for obvious integrity issues, replacement of all 30% cyanide pipelines: iron pipe, with stainless steel piping as recommended by the cyanide supplier, and modification of SOPs to include cleaning of cyanide salts.

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**Standard of Practice 6.3**

**Operate and Monitor Cyanide Facilities to Protect Worker Health and Safety and Periodically Evaluate the Effectiveness of Health and Safety Measures**

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

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

The Marigold Emergency Response Plan ("ERP") provides a listing of Medical and First Aid Equipment and Communication Equipment. The Medical and First Aid Equipment includes; oxygen, resuscitator, automatic external defibrillators, cyanide antidotes (amyl Nitrite) and medical trauma kits (Jump Kits). The defibrillators are located in the Emergency Response Vehicle, Administration/Assay lunchroom, in the Section 20 office and in the upper warehouse, and there are three spare units. Oxygen, resuscitators, and Jump Kits are located at the Site 1, Site 2 (i.e., in the Process Building Lunchroom) and Site 3 cyanide offload/storage facilities, the Administration/Assay Lunchroom, the Emergency Response Vehicle as well as other locations throughout the mine site.

The primary means of communication while on-site is the mine radio system. Landline telephones are accessible in the mine buildings. Additionally, a satellite phone is located at the Mine Dispatch Center and available for use in the event of an emergency.

The monthly inspections conducted in accordance with SOP "Monthly Inspection (Cyanide)" include verifying the presence and expiration date of antidotes and the temperature of the stored antidote.

The Marigold Safety Department inspects emergency equipment and supplies stored in the emergency vehicle and the rescue trailer monthly. The antidote inspections and Jump Kit inspections performed by the Safety Department are documented on the forms titled "Cyanide Antidote Monthly Inspection" and "Monthly Jump Kit Inventory Checklist," respectively. The condition of each antidote and the antidote expiration dates are documented on the inspection form. One inspection checklist titled "Rescue 1 - Ambulance Inspection checklist" covers the Emergency Response Vehicle equipment and medical supply inventory, as well as the general condition of the vehicle (e.g., tires, lights, fuel, oil, etc.).

The ERP is a detailed planning tool intended to provide in-depth information on various types of emergencies that could typically occur at the mine including cyanide exposures.

Appendix A of the plan implements "Facility Pre-plans," which provide systematic procedures that supervisors and Emergency Response Team Members would typically implement during a cyanide emergency. Appendix B provides systematic procedures that Incident Management Team would typically implement during an emergency. While Appendix C lists all applicable resources (with telephone numbers). The Facility Pre-plans provides procedures for first aid and medical treatment, administering the antidote, and decontaminating the victim.

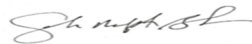
At the time of this 2021 ICMC recertification audit, Marigold had approximately 38 Emergency Medical Responders (EMR) and 15 Emergency Medical Technicians (EMT) personnel, all of whom are trained to respond to cyanide exposures. Marigold maintains four or five Emergency Medical Services personnel on site at any one time. Marigold has a dedicated Emergency Response Vehicle located on site, fully equipped to treat workers exposed to cyanide (e.g., oxygen, automatic external defibrillator and a cyanide antidote). They also have two emergency response trailers. One of which is dedicated for hazardous materials response containing, level A hazmat suits, decontamination equipment and self-contained breathing apparatuses.

The "Facility Pre-plans" provide systematic procedures for responding to a cyanide exposure incident, which includes the protocol for transporting victims to local, offsite medical facilities. Generally, Marigold EMS Responders stabilize the victim and contact offsite responders via telephone by dialing 911. The Marigold Emergency Response Vehicle transports the victim for rendezvous with the Battle Mountain Hospital or the Humboldt General Hospital ambulance, generally at Interstate 80, Exit 216. Alternatively, Marigold EMS Responders may decide to contact the medical helicopter for air evacuation depending on the severity of the incident, whereby the Marigold Emergency Response Vehicle is used to transport the victim to the onsite helipad. Marigold transports the cyanide antidote with the victim.

On August 26, 2020, Marigold provided letters to the Humboldt General Hospital and the Battle Mountain General Hospital notifying the hospitals that liquid sodium cyanide is used within the hospitals' response areas and requesting verification that the hospitals understand that a potential cyanide exposure could occur at the Marigold Mine and that the hospitals are

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able to respond to a cyanide poisoning. The letters informed the hospitals that cyanide antidotes are located at the mine and they will be transported with the victim to the hospitals.

Marigold periodically conducts mock drills in accordance with its Emergency Response Plan, Section 7, and provided documentation for one cyanide-related mock emergency drill conducted subsequent to the 2021 ICMC recertification audit. During this 2021 ICMC audit cycle, Marigold conducted one cyanide-related mock drill that tested emergency response procedures and the emergency response team capabilities. This mock drill documentation included: Incident Run Report, Field Notes, and Incident timeline, however there was no documentation outlining the goals and objective nor a formal debrief record for review. Site personnel provided verbal summarized the goals and objectives and post drill corrective actions, there was evidence that corrective actions were completed.

Based on this the auditor required site to conduct a mock drill that followed the site protocols, contained in the Marigold Emergency Response Plan, Section 7, for conducting a mock drill. To address this the site conducted a drill on July 20, 2021, the drill was to test the site ability to account for all personnel during and emergency. The drill documentation included:

- Drill goals and objectives – with test scenario
- Timeline;
- Post drill review with strengths and weaknesses identified;
- Corrective action plan defining the actions required, responsible person and completion dates.

The July 20, 2021, drill provided verification to the auditor that the site has conducted mock drills and had a mock drill process in place that was sufficient to provide lessons learned and incorporation into site procedures and ERP documents as appropriate.

## PRINCIPLE 7 – EMERGENCY RESPONSE

### Protect Communities and the Environment Through the Development of Emergency Response Strategies and Capabilities

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#### Standard of Practice 7.1

#### Prepare Detailed Emergency Response Plans for Potential Cyanide Releases

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**The operation is**  in full compliance with **Standard of Practice 7.1**  
 in substantial compliance with  
 not in compliance with

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

The ERP lists Medical Illness and Injuries, Unplanned Chemical Releases, Loss of Process Solution Containment, and Power Failures as a few of the many potential Operational Emergencies. Marigold has developed the SOP for response to potential accidental releases of cyanide "Sodium Cyanide Spills" to provide general spill response and cleanup procedures.

The Marigold Emergency Response Plan considers the potential cyanide failure scenarios appropriate for the operation's circumstances, including plans for clearing personnel and potentially affected communities. Emergency Response Facility Pre-plans provide systematic procedures for responding to chemical spills (including cyanide) and would generally apply to cyanide spill scenarios.

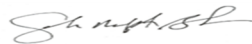
SOP "Cyanide Incident First Responder" provides actions to take if HCN gas is present.

The ERP states that, in the event of a cyanide transportation emergency, Marigold will provide emergency response in the interim until the Chemours Response Team arrives.

The current version of SOP "Sodium Cyanide Spills" provides systematic procedures for responding to cyanide spills occurring both within and outside of containment as well as general spill response and cleanup procedures.

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Emergency Response Facility Pre-Plans, "Light Vehicle or Heavy Equipment Fire Response" and "Structure Fire Emergency Response" provide response actions to fires and include the requirements to check for explosion hazards, flammable storage nearby, and chemical hazards (solid, liquid or gas). Nonetheless, it is unlikely that releases during fires and explosions would occur at Marigold with cyanide storage and handling located outside, away from fuel storage and the refinery.

SOP "Pumping Out Secondary Containment, Site #2" provides procedures to respond to spills from trucks, tanks, pipes, pumps and other sources collected in the secondary containment located at the Process/Refinery Building (Site 2). Additionally, Section 9.2 of the WPCP Renewal Application provides procedures for responding to spills from tanks, pipelines and other sources.

SOP "High Preg or Barren Pond Levels" (Updated June 2021), and the WPCP Renewal Application describe actions to take in the event the process ponds are overtopping and solution is reporting to the Stormwater Pond. According to these procedures, actions may include pumping water to another process component, constructing an emergency containment basin, and informing regulatory agencies and corporate management.

The WPCP Renewal Application presents Marigold's methods for prevention, containment and handling of spills and/or releases of materials outside containment (i.e., the fluid management system) and outlines responsibilities for notification of the various state and federal agencies in the event of a release. The WPCP Renewal Application provides emergency and spill contingency plans for spills and releases of solutions from various portions of the fluid management system. Scenarios covered include spills of cyanide, solution pond leaks and overtopping of process solution ponds.

The WPCP Renewal Application provides measures to address power outages and pump failures. During a sustained outage or other shutdown situation, the onsite backup generator is used or other backup power sources are obtained to manage solutions. Backup pumps are available on site to compensate for pump failures. Marigold could deploy additional pumps from standby locations to active operational areas within 2 to 4 hours. SOP "H.L. Gen Set" provides the procedure for operating the emergency generator during power outages.

The WPCP Renewal Application provides procedures for responding to leaks in the process ponds.

The WPCP Renewal Application includes steps to take if process solution flows outside containment and off the mine. Marigold has implemented Emergency Response Pre-Plans addressing earthquakes and flooding.

Cyanide is delivered to the Marigold Mine in liquid form from the Chemours Carlin Terminal via highway tanker trucks. The transportation supply chain for cyanide deliveries is certified as fully compliant under the ICMC. The cyanide producer (Chemours) and its transporter (Quality Carriers) are responsible for cyanide spills up to the point of offloading at the Marigold site.

The emergency response plans, procedures and Facility Pre-Plans, provide specific response actions with adequate detail to address the types of releases and incidents that may reasonably be expected to occur at the Marigold site.

The WPCP Renewal Application provides specific response actions for spills or releases of cyanide solutions from mixing tanks, ruptured pipelines, or other sources.

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**Standard of Practice 7.2**

**Involve Site Personnel and Stakeholders in the Planning Process**

**The operation is**  in full compliance with **Standard of Practice 7.2**  
 in substantial compliance with **Standard of Practice 7.2**  
 not in compliance with **Standard of Practice 7.2**

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

The Marigold site is fairly remote with the nearest community (Valmy) located over three miles away.

Marigold's Senior Safety Coordinator is an active Local Emergency Planning Committee (LEPC) member. Several Marigold personnel serve as alternate committee members as well. In accordance with the Marigold Emergency Response Plan, local emergency agencies are encouraged to participate in emergency drills.

Marigold's workforce also has the ability to participate in the emergency response planning process via weekly safety meetings and mock drills.

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Marigold provides the opportunity to communicate issues of concern with the public through LEPC meetings. Additionally, the regulatory process for new permits and permit revisions provides opportunity for public review and comment associated with potential releases. The WPCP is renewed every five years and each renewal provides a formal opportunity for public comment. As a courtesy, Marigold notifies the Humboldt County Commissioners of WPCP revisions. The WPCP requires Quarterly and Annual Water Pollution Control reports be submitted to NDEP and these reports are public documents.

Marigold provides the opportunity to communicate issues of concern with the public through LEPC meetings.

In August 2020, Marigold provided letters to the Humboldt General Hospital and the Battle Mountain General Hospital notifying the hospitals that liquid sodium cyanide is used within the hospitals' response areas and requesting verification that the hospitals understand that a potential cyanide exposure could occur at the Marigold Mine and that the hospitals are able to respond to a cyanide poisoning.

In May of 2019, Marigold hosted a training workshop titled "General Cyanide Awareness, Emergency Response, First Aid and Medical Awareness Training" conducted and presented by a Chemours representative as part of a community outreach program. The training was provided to 43-participants at the Battle Mountain Hospital, Marigold Mine Emergency Response Team, and Marigold Operations personnel.

In May of 2021, Chemours conducted a training workshop for twenty Marigold operators and Emergency Response Team members, 17-participants from the Battle Mountain Hospital and Golconda Fire Department. The training provided a basic overview of sodium cyanide and its safe use in the mining industry, basic first aid information and was part of an internal assessment/operational review conducted by Chemours.

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**Standard of Practice 7.3**      **Designate Appropriate Personnel and Commit Necessary Equipment and Resources for Emergency Response**

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

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

The ERP designates the Incident Commander as the person in charge of emergency response. According to the ERP, the onsite Shift Supervisor responsible for the area where the emergency occurs, or his/her designee, will assume responsibility as the Incident Commander until relieved by a senior supervisor or manager. The Department Head or the next senior manager or supervisor of the affected area, becomes the Incident Commander. Duties of the Incident Commander include commanding, controlling and communicating the response, and the ERP describes responsibilities under each duty.

The ERP contains a list identifying the current Marigold Emergency Medical Service responders (i.e., EMRs and EMTs). The Emergency Response Plan provides 24-hour emergency contact numbers for the Chemours Cyanide Response Team and relevant local external emergency agencies, and list Mine Emergency Responders as a resource under Applicable Resources.

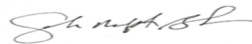
Marigold provides training for the Emergency Response Team. Some of the topics include: Patient Assessment – Medical, HCN exposure, and gas monitor; inspections; patient loading and handling, scene size up; bleeding control and patient extrication and CPR (Cardiopulmonary resuscitation) and AED (Automated Electronic Defibrillator). EMR must pass a written exam to become qualified.

The ERP includes an Emergency Equipment List, which provides a listing of Medical and First Aid Equipment, Fire Fighting Equipment, Mine Rescue Equipment, Chemical and Cleanup Materials and Equipment, Communications Equipment, and Mobile Equipment (i.e., mobile fleet). SOPs list appropriate PPE required for each task.

The Marigold Safety Department inspects emergency equipment and supplies monthly. The antidote inspections and Jump Kit inspections, performed by the Safety Department, are documented on the forms titled "Cyanide Antidote Monthly Inspection" and "Monthly Jump Kit Inventory Checklist," respectively. The contents of each antidote and the antidote expiration dates are documented on the inspection form. One inspection checklist titled "Emergency Equipment" covers the Emergency Response Vehicle equipment and medical supply inventory and the general condition of the vehicle (e.g., tires, lights, fuel, oil, etc.).

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The current version of the Marigold ERP describes the roles of outside responders, medical facilities and communities in the emergency response procedures. Local (Battle Mountain / Winnemucca Hospital/Humboldt) emergency responders assist Marigold Emergency Responders if the Incident Commander requests assistance for a medical emergency. Similarly, the local (Battle Mountain or Winnemucca) fire department and/or HAZMAT team is dispatched to the site if requested by the Incident Commander.

Marigold has made formalized arrangements with the local hospitals and sent letters to the Battle Mountain General Hospital and the Humboldt General Hospital regarding the Marigold Mine Cyanide Consumer Notification. Marigold completed the most recent update to its ERP in December 2020 and provided a copy to the LEPC for review and use.

Outside entities having a defined role in the ERP are invited to participate in mock drills, training and implementation exercises.

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**Standard of Practice 7.4**      **Develop Procedures for Internal and External Emergency Notification and Reporting**

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**The operation is**       in full compliance with  
 in substantial compliance with      **Standard of Practice 7.4**  
 not in compliance with

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

The ERP and Emergency Response Pre-Plans include procedures and contact information for notifying management, outside response providers and medical facilities. For example, the "Cyanide Medical Emergency Procedures Pre-Plan" and ERP lists all applicable resources (with telephone numbers) including The Chemours Cyanide Response Team, CHEMTREC Spill Hotline, Valmy and Battle Mountain Volunteer Fire Departments, Advanced Life Support Ambulance from Battle Mountain, Advanced Life Support Ambulance from Winnemucca, and the medical helicopter (provided by Humboldt General Hospital). The action lists contained on each Emergency Response Pre-Plan provide notification procedures. The ERP provides the protocol for internal communications.

The WPCP provides reporting requirements for spills and releases and Section 9.3 of the WPCP Renewal Application describes notification requirements.

The Marigold ERP stipulates procedures for communication with the media. The General Manager or his/her designated representative is the only person that corresponds with the media, non-mine personnel or government agencies (except to make required regulatory reports). If the General Manager is absent, all media inquiries are referred to the SSR corporate office.

Emergency Response Plan and Facility Pre-Plans include procedures and contact information for members of the LEPC (affected community). Reporting Requirements under Section 3 of the WPCP provide additional reporting procedures for spills and releases.

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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**

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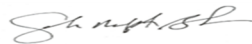
**The operation is**       in full compliance with  
 in substantial compliance with      **Standard of Practice 7.5**  
 not in compliance with

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

SOP "Sodium Cyanide Spills" provides the procedures for responding to cyanide spills outside of containment. Immediate

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actions include reporting the spill to the Environmental Department immediately upon discovery. Environmental personnel will then refer to the WPCP reporting requirements and verbal instructions from NDEP on how to handle/remediate/sample the spill. The SOP provides the following remediation actions and general guidance:

- Wash concentrated cyanide solutions into process ponds.
- Pump accumulated solution from outside of containment into containment or into an appropriate vessel that is labeled for cyanide.
- Collect materials and information necessary to complete an incident report.
- Excavate soils impacted by liquid sodium cyanide and/or process solutions and place on the leach pad.
- If unable to access the impacted area with removal equipment, appropriate personnel may treat the soils with sodium hypochlorite (common bleach) to destroy any residual cyanide. The Environmental Department will be consulted for specific treatment steps prior to initiating.

Cyanide spills would be disposed of on the heaps or in the solution ponds, depending upon the nature of the spill, as follows:

- Spilled cyanide solutions would be returned to the process circuit by disposal into the barren solution ponds whenever possible.
- Spills within the metals recovery plant would be returned to the process circuit
- Spilled cyanide solutions may be mixed with soil or other absorbent material and placed on the heap.

All wetted and cyanide-contaminated soils would be removed and disposed of on the heap. A release from the operation could not reasonably affect drinking water supply. Well WW1 is the only drinking water supply located nearby the Marigold site. The nearest other drinking water supplies to the mine include domestic wells in Valmy (approximately three miles away), a regulated potable water well at the Valmy rest area, and a regulated potable water well at the Lone Tree Mine (approximately five miles away). As mentioned above, Marigold also provides bottled water, which would serve as an alternate drinking water supply.

SOP "Sodium Cyanide Spills" provides the procedures for responding to cyanide spills outside of containment and contains a warning not to use sodium hypochlorite near oil or petroleum products or any surface water sources such as Trout Creek or Cottonwood Creek (ephemeral sources).

In accordance with the WPCP, in the event of spills or releases, Marigold must take all available and reasonable actions, including more frequent monitoring, to: determine the effect and extent of the incident; minimize any potential impact to the waters of the State, domestic animals and wildlife; and to minimize the endangerment of the public health and safety. NDEP may require Marigold to submit a written report summarizing any related actions, assessments, or evaluations, and including any other information necessary to determine and minimize potential impacts.

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**Standard of Practice 7.6**

**Periodically Evaluate Response Procedures and Capabilities and Revise Them as Needed**

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

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

The Emergency Response Plan requires that the Marigold Safety Manager review the ERP every two years and revise it periodically, as necessary. The Safety Department makes all revisions to the ERP. If there are major changes to the ERP, the changes are communicated to mine personnel during safety meetings before going into effect and during annual refresher training. During the 2018 ICMC recertification audit, the auditor reviewed Version 2.2 of the ERP, dated September 21, 2012, Version 4.0, dated September 28, 2015 and Version 5.0, dated July 1, 2018. During this 2021 ICMC recertification audit, the auditor reviewed the ERP, dated December 15, 2020.

Marigold periodically conducts mock drills in accordance with its Emergency Management Program.

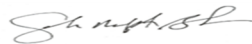
During this 2021 ICMC audit cycle, Marigold conducted one cyanide-related mock drill that tested emergency response procedures and the emergency response team capabilities. The drill conducted during this current audit cycle was the following scenario:

- October 22, 2020 – Marigold conducted a drill simulating a process operator being overcome by HCN gas.

The October 2020 drill documentation included: Incident Run Report, Field Notes, and Incident timeline, however there was

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no documentation outlining the goals and objective nor a formal debrief record for review. Site personnel provided verbal summarized the goals and objectives and post drill corrective actions, there was evidence that corrective actions were completed. Based on this the auditor required site to conduct a mock drill that followed the site protocols, contained in the Marigold Emergency Response Plan, Section 7, for conducting a mock drill. To address this the site conducted a drill on July 20, 2021, the drill was to test the site ability to account for all personnel during and emergency.

The drill documentation included:

- Drill goals and objectives – with test scenario
- Timeline;
- Post drill review with strengths and weaknesses identified;
- Corrective action plan defining the actions required, responsible person and completion dates.

The site has experienced one near miss cyanide-related incident during cyanide offload. The near miss occurred on March 24, 2021. Marigold provided a copy of the "Incident Investigation Report" completed, in which a process operator performing cyanide salt removal activities and was nearly sprayed with reagent grade cyanide. As the cyanide salts dissolved a leak began spraying away from the process operator, the operator was not exposed to cyanide solutions. The incident occurred at cyanide offload Site 1; the solution was contained within secondary containment. The investigation report documents root causes and corrective actions along with the dates that Marigold completed the corrective actions. Corrective actions implemented (to prevent reoccurrence) included; inspection of all 30% cyanide pipelines for obvious integrity issues, replacement of all 30% cyanide pipelines: iron pipe, with stainless steel piping as recommended by the cyanide supplier, and modification of SOPs to include cleaning of cyanide salts.

No modifications to the ERP were identified, from the mock drills or near miss. The auditor reviewed the documents and concurred that no modification to the ERP were required.

## PRINCIPLE 8 – TRAINING

### Protect Communities and the Environment Through the Development of Emergency Response Strategies and Capabilities

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<b>Standard of Practice 8.1</b>	<b>Train Workers and Emergency Response Personnel to Manage Cyanide in a Safe and Environmentally Protective Manner</b>
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<b>The operation is</b>	<input checked="" type="checkbox"/> in full compliance with	<b>Standard of Practice 8.1</b>
	<input type="checkbox"/> in substantial compliance with	
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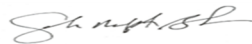
#### Summarize the basis for this Finding/Deficiencies Identified:

The Marigold Safety Department provides training to all Marigold employees and visitors regarding recognition of the cyanide materials present at the operation, the health effects of cyanide, symptoms of cyanide exposure, and procedures to follow in the event of exposure. Process employees are trained on SOP "Cyanide Safety Process," which provides guidance on hazard recognition; the physical properties of sodium cyanide; proper PPE; general precautions and safety rules; health hazards and exposures to HCN gas; symptoms of cyanide poisoning; emergency response, first aid and medical treatment; administering the antidote, and decontamination of equipment prior to performing work. This SOP includes training requirements and an acknowledgment block, which records the date training is completed and the Instructor/Supervisor and trainee signatures.

Marigold provides annual refresher training regarding cyanide safety. The Safety Department manages retains and maintains all training records for all employees.

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**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**

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

The "Training Acknowledgment" cards themselves do not authorize trainees to perform the associated work tasks unsupervised; however, the trainee must complete the training requirements and receive an MSHA Form 5000-23 before performing the tasks unsupervised. Process Supervisors and lead operators provide the required training, which includes review of the related SOP and hands-on demonstration. This task-specific training supplements the cyanide safety training provided to all process employees.

In addition to the SOPs, Marigold implements a "Part 48 Training Plan" required by MSHA 30 CFR, Part 48 (Surface). This plan identifies approved instructors and tasks covered under different the training programs (i.e., annual refresher, new miner, experienced miner, and task and hazard training).

Process Supervisors and lead operators provide the required task training, which includes review of the related SOP and hands-on demonstration, prior to new employees performing a work task unsupervised.

Marigold trains all process employees on SOP "Cyanide Safety" and each task-specific SOP identifies hazards associated with cyanide. Completion of "Training Acknowledgment" cards is required for all cyanide-related (and non-cyanide-related) work tasks. The trainee must complete the training requirements and receive an MSHA Form 5000-23 before performing the tasks unsupervised.

Marigold provides task-related refresher training if a worker has not performed the task in over a one-year period. Additionally, cyanide safety training is provided annually.

Certain cyanide-related SOPs include written exams that employees must pass before performing the tasks. Prior to signing-off on MSHA task training the instructor is required to conduct visual observations that the employee can conduct the task safely.

The Safety Department manages, retains and maintains training records for all employees. Each employee file contains a history of training completed over the duration of employment. The training records include the name of the employee, trainer, date of training and topics covered. In many cases, the record of training history includes a column documenting the "Proficiency" of the trainee and certain cyanide-related SOPs include written exams that employees must pass before performing the tasks. In addition, Part 48 training requires the instructor to verify proficiency prior to issuing the MSHA Form 5000-23.

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**Standard of Practice 8.3**

**Train Appropriate Workers and Personnel to Respond to Worker Exposures and Environmental Releases of Cyanide**

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

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

The Marigold Safety Department provides training to all Marigold process employees on SOP "Cyanide Safety," which among other topics provides guidance on emergency response, first aid and medical treatment and administering the antidote.

The Marigold Process and Environmental departments also provide sections of the New Hire Training, which includes a basic overview of air, land, vegetation, water, wildlife (controls), spills (awareness, tracking, prevention), and Corporate

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Social Responsibility. Marigold EMS responders receive training on SOP "Cyanide Incident First Responder." As outlined on the SOP, the primary training objectives are to ensure that all EMS responders are:

- Properly trained to provide basic first aid for personnel exposed to cyanide;
- Properly trained to administer amyl nitrite;
- Properly trained on the location of the cyanide antidotes;
- Aware of the hazards associated with sodium cyanide and HCN gas; and
- Properly trained on victim and rescuer decontamination procedures.

Additionally, all Marigold process employees receive training on SOP "Cyanide Safety," which includes emergency response, first aid and medical treatment.

The Marigold Emergency Response Plan requires that emergency response drills be conducted periodically. These drills/training sessions are documented and involve EMS responders and process employees trained in "Cyanide Safety".

The Marigold Emergency Management Program requires the emergency response team to complete monthly training to maintain skills, use of response equipment and/or resolve identified training deficiencies. Some of the training topics include Patient Assessment – Medical, HCN exposure, and gas monitor; inspections; patient loading and handling, scene size up; bleeding control and patient extrication and CPR and AED.

Marigold has made formalized arrangements with the local hospitals and sent letters to the Battle Mountain General Hospital and the Humboldt General Hospital regarding the use of cyanide at the Marigold Mine., Marigold sent a copy of the ERP to the LEPC for review and use (in case their involvement is required).

Marigold provides periodic refresher training to EMS responders on SOP "Cyanide Incident First Responder." Additionally, all Marigold process employees receive training on SOP "Cyanide Safety," which includes emergency response, first aid and medical treatment.

Marigold periodically conducts mock drills (cyanide exposure and releases) for training purposes in accordance with its Emergency Response Plan.

Marigold evaluates the emergency drills from a training perspective to determine if personnel have the knowledge and skills required for effective response.

Marigold documents and retains records of the emergency response training that has been conducted. The training records for each employee include the name of the trainer, employee name, date of training and topics covered. In many cases, the record of training history includes a column documenting the "Proficiency" of the trainee and certain cyanide-related SOPs include written exams that employees must pass before performing the tasks.

## PRINCIPLE 9 – DIALOGUE

### Engage in Public Consultation and Disclosure

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#### Standard of Practice 9.1

#### Provide Stakeholders the Opportunity to Communicate Issues of Concern

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**The operation is**

in full compliance with

in substantial compliance with **Standard of Practice 9.1**

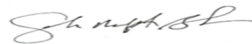
not in compliance with

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

Marigold provides several means for stakeholders to communicate issues of concern regarding cyanide use and management at the mine, including LEPC meetings, external events such as educational presentations, site tours, information posted on its corporate website, and public comment related to the regulatory process for new permits and permit revisions.

Marigold Mining Company

Name of Mine



Signature of Lead Auditor

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**Standard of Practice 9.2**      **Initiate Dialogue Describing Cyanide Management Procedures and Responsively Address Identified Concerns**

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**The operation is**       in full compliance with  
 in substantial compliance with      **Standard of Practice 9.2**  
 not in compliance with

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

The SSR annual reports provide environmental and sustainability information regarding its operations, which are available to the public in both hard copy and electronic format. The SSR website describes Marigold’s involvement in the ICMC and its proactive implementation of the Code’s principles, including forming strong relationships with communities to support the local emergency response and medical facilities and to provide sustainable improvements in education and awareness regarding the safe use of cyanide.

On SSR’s corporate website there is a discussion of each of their mines, including Marigold, that describes “Working with Communities” and “Environmental Stewardship” the various community involvement programs and the ICMC certification of Marigold. Mine employees and family members regularly volunteer their time in community projects, fundraising events and sustainable development efforts.

In August 2019, Marigold partnered with Battle Mountain General Hospital and Chemours to provide cyanide basic awareness training and antidote training to the hospital and Lander County EMS. Chemours presented training on the molecular physiology of cyanide poisoning and the clinical pharmacology of first aid antidote (amyl nitrite) and medical antidotes (sodium nitrite, sodium thiosulfate and hydroxocobalamin). Seventeen emergency responders from Lander County EMS, Battle Mountain volunteer fire department, and the Golconda Fire Protection District attended the training along with Marigold Mine personnel.

An example of a local community stakeholder meeting is from August 2018 and May 2021 when Marigold hosted meetings with landowners in Valmy, the nearest community to the mine. Marigold discussed topics that included the Mackay Optimization Project, the hydrogeological studies to assess if there would be any potential impacts to their wells, ICMC certification and addressing their questions on cyanide use.

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**Standard of Practice 9.3**      **Make Appropriate Operational and Environmental Information Regarding Cyanide Available to Stakeholders.**

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**The operation is**       in full compliance with  
 in substantial compliance with      **Standard of Practice 9.3**  
 not in compliance with

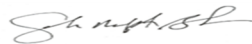
**Summarize the basis for this Finding/Deficiencies Identified:**

The WPCP Renewal Application and the WPCP Permit Fact Sheet provide descriptions of the “process fluid management” facilities, which include the cyanide facilities. The WPCP is renewed regularly and each renewal provides a formal opportunity for public comment. The current permit, effective as of May 16, 2020, is valid until November 3, 2024. No public comments were received during the public comment period held for the most recent permit renewal.

Please refer to ICMC Standard of Practice 9.2 above regarding the SSR annual reports and sustainability reports. Furthermore, as a signatory company to the ICMC, Marigold was initially certified under the Code on January 2, 2007, and subsequently on January 12, 2010, March 20, 2013, February 11, 2016 and November 5, 2018. The summary reports for these audits are made available to the public via the ICMC website. The SSR corporate website advertises that Marigold is signatory to the Code and that in 2006, Marigold became the first operating mine in the world certified as fully compliant with the Code.

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Marigold must complete MSHA reports, that are made public, include any cyanide-related worker exposures, which require hospitalization or result in death and the WPCP requires oral reporting to the NDEP in the instances of non-compliance with the WPCP, followed by a written incident report. Marigold indicated that no such incidents have occurred at the Marigold Mine over the three-year period between the 2018 ICMC recertification audit and this 2021 recertification audit. The WPCP provides reporting requirements for spills and releases and the WPCP Renewal Application describes notification requirements (see ICMC Standard of Practice 7.4 above). These reports become public record.

Additionally, Marigold conducts quarterly and annual reporting as set forth in the WPCP, which includes a summary of cyanide spills and releases. Spills occurring within the operating boundary and below the reportable quantities are contained, characterized, mitigated, and recorded. Quarterly reports include results of monitoring and inspections as well as a summary of minor reportable spills that occurred within the quarter. Spills exceeding the reportable quantity are reported within specified regulatory timeframes to the appropriate agencies. The reports include period and location of release, agencies notified by phone (when applicable), material release and concentration, quantity release, incident description, and remedial action and cleanup activities. The NDEP reports are available to the public.

Marigold indicated that no cyanide releases off the mine site requiring response or remediation have occurred at the Marigold Mine over the three-year period between the 2018 ICMC recertification audit and this 2021 recertification audit. Additionally, Marigold has not experienced any significant cyanide releases over the audit cycle, on or off the mine site, resulting in significant adverse effects to health or the environment.

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 Marigold, is provided below for easy reference:

**NDEP**

901 S. Stewart Street, Suite 4001 Carson City, Nevada 89701-5249 Phone: 775.687.4670

Website: [www.ndep.nv.gov](http://www.ndep.nv.gov)

**Nevada Division of Emergency Management**

2478 Fairview Drive Carson City, Nevada 89701

Phone: 775.687.0300 (non-emergency calls)

Website: [www.dem.nv.gov](http://www.dem.nv.gov)

**National Response Center**

2100 2nd Street, SW Washington, DC 20593-0001

Phone: 202.267.2675 or toll free 800.424.8802

Website: [www.nrc.uscg.mil](http://www.nrc.uscg.mil)

**LEPC**

315 S. Humboldt Street

P.O. Box 187

Battle Mountain, Nevada 89820 Phone: 775.463.6592

Website: <http://serc.nv.gov/lepcs.htm#Lander>

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