

**INTERNATIONAL CYANIDE MANAGEMENT CODE
MINING OPERATION CERTIFICATION AUDIT
SOLEDAD MOUNTAIN MINE | KERN COUNTY, CALIFORNIA**

Prepared for

GOLDEN QUEEN MINING COMPANY, LLC

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Prepared by

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Submitted to

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0.0 GENERAL

0.1 Operation Information

Name of Mine:	Soledad Mountain Mine
Name of Mine Owner:	Golden Queen Mining Company, LLC
Name of Mine Operator:	Golden Queen Mining Company, LLC
Name of Responsible Manager:	Mr. Robert Walsh, President and CEO
Address and Contact Information:	Golden Queen Mining Company, LLC 2818 Silver Queen Road / P.O. Box 1030 Mojave, CA 93502-1030 Telephone: +1 (661) 824-4300 Email: rwalish@goldenqueen.com

0.2 Background

The Soledad Mountain Mine (“Soledad Mountain”), an open-pit, heap leach mine owned and operated by Golden Queen Mining Company, LLC (“GQM”), was conditionally certified under the International Cyanide Management Code (“ICMC” or “Code”). An operation is conditionally certified when the auditors determine that the operation is substantially compliant with the Code. The conditional certification is subject to the operation implementing a Corrective Action Plan that brings it into full compliance with the Code. The operation must fully implement the Corrective Action Plan and notify the International Cyanide Management Institute (“ICMI”) within one year of the ICMI posting the conditional certification on its website.

As described in the detailed and summary audit reports prepared for this ICMC verification audit, the auditors determined a finding of substantial compliance for seven (7) ICMC Standards of Practice. In response to the deficiencies identified, Visus Consulting Group, Inc. (“Visus”) developed this Corrective Action Plan, which details the actions necessary to bring the operation into full compliance with the Code.

0.3 Corrective Actions

The following section presents the identified deficiencies and evidence required to bring Soledad Mountain into full compliance with the Code. Individual Corrective Action Requests summarize each deficiency and the associated evidence requested by the auditors.

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1.0 CORRECTIVE ACTION REQUESTS

1.1 GQM-ICMC-CAR-01 | Standard of Practice 3.1

ICMC Protocol Question 3.1.5

Description of Deficiency

At the time of this 2018 ICMC audit, GQM had not implemented procedures for routine testing and maintenance of the tank level instrumentation installed on the Cyanide Storage Tank to ensure that the instrumentation is functioning properly. Therefore, the auditor requested that GQM implement a preventative maintenance program for this instrumentation according to the manufacture's recommendations.

Following the field component of this audit, GQM developed a new Standard Operating Procedure ("SOP"), *Concentrated Cyanide Tank Level Sensor Testing and Maintenance*, which provides the guidelines for testing and maintaining the cyanide tank level instrumentation. The SOP indicates that Plant Maintenance will perform the testing at least once per year. GQM indicated that the Merrill-Crowe Plant Supervisor who created the SOP is the person responsible for performing the instrumentation maintenance with the help of an electrician on the ground; therefore, task training is not necessary.

Corrective Actions Required

To achieve full compliance under this Standard of Practice, GQM must complete the following corrective actions:

- Perform testing and maintenance on the Cyanide Storage Tank level instrumentation in accordance with SOP *Concentrated Cyanide Tank Level Sensor Testing and Maintenance*.

Evidence Required for Verification of Corrective Action Completion

- Copies of maintenance records for one preventative maintenance/testing event performed on the Cyanide Storage Tank level instrumentation.

Corrective Action Completion Date

- Within one year of ICMI posting conditional certification of the Soledad Mountain operation.

Comments

The cyanide producer and the cyanide delivery driver check the tank level prior to cyanide deliveries and procedures are in place to prevent overfilling of the tank during offloads. Additionally, the Cyanide Storage Tank sits within competent secondary containment designed and constructed to contain and recover the full capacity of the tank. Therefore, no immediate or substantial risk to employee or community safety, health or the environment is deemed to exist during implementation of this corrective action.

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1.2 GQM-ICMC-CAR-02 | Standards of Practice 4.1 & 6.1

ICMC Protocol Questions 4.1.1, 6.1.1 & 6.1.2

Description of Deficiency

Although the existing plans, procedures and permits developed for Soledad Mountain provide the framework for operating the process facilities and conducting certain critical tasks, in the auditor's professional judgment, at the time of this 2018 ICMC audit, GQM had not developed and implemented comprehensive written management and operating plans or procedures for its cyanide facilities, which adequately address the protection of human health and the environment.

Corrective Actions Required

To achieve full compliance under this Standard of Practice, GQM must complete the following corrective actions:

- Develop and implement written procedures, comprehensive of all cyanide-related tasks that, if not performed properly, have the potential to cause cyanide exposures or releases. The procedures for these tasks may be in any form, including operating manuals, SOPs, training documents, signs, checklists or other written formats. The auditor recommends that GQM consider developing individual task procedures for each process circuit within the Merrill-Crowe Plant as appropriate (e.g., clarification, de-aeration, zinc addition, etc.) and at the heap leach facilities. The task procedures must address worker safety and environmental protection.

Evidence Required for Verification of Corrective Action Completion

- Copies of new written procedures addressing the elements requested above.
- Task training records associated with all new written procedures.

Corrective Action Completion Date

- Within one year of ICMI posting conditional certification of the Soledad Mountain operation.

Comments

The cyanide delivery SOP, implemented by the cyanide producer and transporter, provides detailed procedures for performing cyanide offload activities, including the use of proper PPE. Existing procedures currently implemented by GQM, to some extent, address proper PPE for operation of valves in process areas. The regulatory operating permits provide measures for operating the heap leach facilities in a manner that prevents or controls releases to the environment. Additionally, GQM trains its workers to perform cyanide-related tasks. Therefore, no immediate or substantial risk to employee or community safety, health or the environment is deemed to exist during implementation of this corrective action.

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1.3 GQM-ICMC-CAR-03 | Standard of Practice 4.1

ICMC Protocol Question 4.1.7

Description of Deficiency

Although GQM performs routine inspections of the Soledad Mountain cyanide facilities, in the auditor's professional judgment, at the time of this 2018 ICMC audit, GQM's inspection program does not adequately cover and document inspection of all cyanide facilities. Inspection records were available for the Merrill-Crowe Plant and Refinery areas and for water levels in the Overflow Pond. However, GQM did not provide documentation demonstrating inspections of the Pump Box and appurtenances, process solution pipelines between the Merrill-Crowe Plant and the leach pad and pond, the Pipeline Containment Channel provided for the pipelines and the liner integrity of the Overflow Pond.

Corrective Actions Required

To achieve full compliance under this Standard of Practice, GQM must complete the following corrective actions:

- Develop a comprehensive inspection program encompassing all cyanide facilities and established on a frequency sufficient to assure and document that the facilities are functioning within design parameters. Inspection forms must be focused rather than general and must document the date of the inspection, name of the inspector, and any observed deficiencies. Finally, the inspection forms must document the nature and date of corrective actions.

Evidence Required for Verification of Corrective Action Completion

- Task training records associated with all new cyanide-related inspections.
- Inspection records, comprehensive of all cyanide-related facilities, completed during actual inspections.

Corrective Action Completion Date

- Within one year of ICMI posting conditional certification of the Soledad Mountain operation.

Comments

The auditor recommends that inspection forms prompt the inspector to look at the specific items that need to be evaluated (e.g., the presence of cracking on the floor of a secondary containment) and remind the inspector of the proper expectation to be met (e.g., no accumulation of precipitated salt on a cyanide reagent pump). Inspections of cyanide facilities should focus on items of potential concern such as those identified in Question 4.1.7 of the *ICMI Mining Operations Verification Protocol*; thus, inspection forms should reflect this focus and direct the inspector to evaluate these specific items.

Infrastructure at Soledad Mountain is in new condition, first commissioned in early 2016, and GQM has redundant pumping systems and spares available on site for all critical pumps. Additionally, GQM indicated that it conducts comprehensive inspections of cyanide facilities, but has not necessarily documented all inspections properly.

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Therefore, no immediate or substantial risk to employee or community safety, health or the environment is deemed to exist during implementation of this corrective action.

1.4 GQM-ICMC-CAR-04 | Standard of Practice 4.1

ICMC Protocol Question 4.1.9

Description of Deficiency

At the time of this 2018 ICMC audit, GQM had not yet established a work order system or a program to document maintenance activities and the auditor was unable to review representative maintenance records for the cyanide facilities and track maintenance items identified during routine operational inspections through the system to verify completion. GQM indicated that it has taken initial steps to implement a formal preventative maintenance program, which includes implementation of a computerized maintenance system to manage and document maintenance activities. Once fully implemented, the software will automatically produce preventative maintenance work orders on an established schedule.

Corrective Actions Required

To achieve full compliance under this Standard of Practice, GQM must complete the following corrective actions:

- Implement a preventative maintenance program for the Soledad Mountain cyanide facilities that addresses and documents routine maintenance of critical equipment for which a failure could result in a cyanide release or exposure.

Evidence Required for Verification of Corrective Action Completion

- A preventative maintenance schedule with critical cyanide equipment listed or similar documentation demonstrating full implementation of the preventative maintenance program currently being developed by GQM.

Corrective Action Completion Date

- Within one year of ICMI posting conditional certification of the Soledad Mountain operation.

Comments

GQM implements routine inspection procedures, visually checking tanks and pipelines during each shift for structural integrity and signs of corrosion and leakage. Additionally, although undocumented, GQM performs preventative maintenance and corrective maintenance required to repair issues identified during inspections (e.g., GQM has replaced three pumps since operations began at Soledad Mountain). Furthermore, infrastructure at Soledad Mountain is in new condition, first commissioned in early 2016. Therefore, no immediate or substantial risk to employee or community safety, health or the environment is deemed to exist during implementation of this corrective action.

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1.5 GQM-ICMC-CAR-05 | Standard of Practice 4.8

ICMC Protocol Question 4.8.5

Description of Deficiency

At the time of this 2018 ICMC audit, GQM did not provide Quality Assurance/Quality Control (“QA/QC”) documentation for all existing cyanide facilities (i.e., major installations) constructed at Soledad Mountain. More specifically, GQM did not provide QA/QC documentation for the Merrill-Crowe Plant facilities, which were not covered under visual inspections of the cyanide offload and storage facilities conducted by qualified persons in early 2016.

Corrective Actions Required

To achieve full compliance under this Standard of Practice, GQM must complete the following corrective actions:

- Provide a statement from the qualified person (i.e. professional engineer) who originally signed off on the QA/QC program conducted for the Merrill-Crowe Plant facilities (e.g., tanks, vessels, pipelines, pumps and associated valves and fittings, and steel structures supporting the equipment) describing the nature of the program and its results; or
- Have a qualified person conduct a visual inspection of the Merrill-Crowe Plant facilities (e.g., tanks, vessels, pipelines, pumps and associated valves and fittings, and steel structures supporting the equipment) and issue a report concluding that continued operation of the facilities will protect against cyanide releases and exposures.

Evidence Required for Verification of Corrective Action Completion

- A copy of the written statement or the facility inspection report described above.

Corrective Action Completion Date

- Within one year of ICMI posting conditional certification of the Soledad Mountain operation.

Comments

GQM implements routine inspection procedures, visually checking tanks and pipelines during each shift for structural integrity and signs of corrosion and leakage. Additionally, infrastructure at Soledad Mountain is in new condition, first commissioned in early 2016. Therefore, no immediate or substantial risk to employee or community safety, health or the environment is deemed to exist during implementation of this corrective action.

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1.6 GQM-ICMC-CAR-06 | Standard of Practice 7.1

ICMC Protocol Questions 7.1.2 & 7.1.4

Description of Deficiency

The Code requires that emergency response plans or other related documentation provide an appropriate degree of specific instruction in response tasks for each potential cyanide failure scenario applicable to the operation. The Emergency Response / Spill Contingency Plan (“ERSCP”) references *Response Plans*, which provide systematic procedures and guidance information to respond to various emergency scenarios. However, the auditor observed that 15 of the 20 *Response Plans* listed in the ERSCP were missing as attachments. Additionally, the ERSCP references on-site “emergency vehicles” although the Soledad Mountain operation does not have such vehicles.

Corrective Actions Required

To achieve full compliance under this Standard of Practice, GQM must complete the following corrective actions:

- Update the ERSCP to include the missing attachable *Response Plans* that pertain to cyanide failure scenarios applicable to Soledad Mountain. Alternatively, review and revise the ERSCP as necessary to ensure that response instructions, if not addressed in other documentation, are included for all potential cyanide failure scenarios not attached as *Response Plans*.
- Update the ERSCP to remove references to *Response Plans* in the body of the document for each *Response Plan* not included as an attachment.
- Update the ERSCP to remove all references to on-site “emergency vehicles”.

Evidence Required for Verification of Corrective Action Completion

- A copy of the updated ERSCP that includes the cyanide-related *Response Plans* listed in the body of the document and without references to on-site emergency vehicles; or
- A copy of updated ERSCP that includes, within the main body of the document, detailed instruction for each cyanide failure scenario applicable to Soledad Mountain, minus any detailed instructions for cyanide failure scenarios that are provided in other operational plans, procedures or documentation. The updated version of the ERSCP must also be without references to on-site emergency vehicles.
- Copies of the operational plans, procedures and/or documentation that provide detailed response instructions for cyanide failure scenarios not provided in the ERSCP.

Corrective Action Completion Date

- Within one year of ICMI posting conditional certification of the Soledad Mountain operation.

Comments

GQM conducts cyanide safety training annually for plant operations personnel and trains affected employees annually in the relevant emergency response procedures and the Incident Command System. Additionally, workers participate in routine response drills to ensure they are able to perform these tasks when required. Therefore, no immediate or substantial risk to employee or community safety, health or the environment is deemed to exist during implementation of this corrective action.

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1.7 GQM-ICMC-CAR-07 | Standard of Practice 8.2

ICMC Protocol Question 8.2.2

Description of Deficiency

In the auditor's professional judgment, at the time of this 2018 ICMC audit, GQM did not provide adequate evidence demonstrating that its training materials identify the specific cyanide management elements that each employee must be trained in to perform cyanide-related tasks safely.

Corrective Actions Required

To achieve full compliance under this Standard of Practice, GQM must complete the following corrective actions:

- Develop training materials that identify the specific cyanide management elements that each employee must be trained in to perform the task/job properly, such as task training forms for cyanide-related SOPs.

Evidence Required for Verification of Corrective Action Completion

- Copies of the cyanide-related task training materials, comprehensive of cyanide-related work tasks.

Corrective Action Completion Date

- Within one year of ICMI posting conditional certification of the Soledad Mountain operation.

Comments

GQM uses the *Merrill-Crowe Plant Operations Manual* as training material for the overall operation of the plant and experienced operators provide hands-on training. Additionally, GQM provided evidence of training materials for certain tasks related to the cyanide offload and storage facilities. Therefore, no immediate or substantial risk to employee or community safety, health or the environment is deemed to exist during implementation of this corrective action.

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1.8 GQM-ICMC-CAR-08 | Standard of Practice 8.2

ICMC Protocol Question 8.2.7

Description of Deficiency

In the auditor's professional judgment, at the time of this 2018 ICMC audit, GQM did not provide adequate evidence demonstrating that it retains records of the cyanide-related task training provided to workers.

Corrective Actions Required

To achieve full compliance under this Standard of Practice, GQM must complete the following corrective actions:

- Implement a program to properly document and retain records of training provided for cyanide-related tasks.

Evidence Required for Verification of Corrective Action Completion

- Copies of the cyanide-related task training records.

Corrective Action Completion Date

- Within one year of ICMI posting conditional certification of the Soledad Mountain operation.

Comments

The auditor recommends that the training records include the names of the employee and the trainer, the date of training, the topics covered, and if the employee demonstrated an understanding of the training materials. No immediate or substantial risk to employee or community safety, health or the environment is deemed to exist during implementation of this corrective action, as it relates to records retention and proper documentation.

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1.9 GQM-ICMC-CAR-09 | Standard of Practice 8.3

ICMC Protocol Question 8.3.3

Description of Deficiency

During the field component of this 2018 ICMC audit, GQM did not provide evidence of training provided for proper use of the self-contained breathing apparatus (“SCBA”) utilized on site for emergencies.

Corrective Actions Required

To achieve full compliance under this Standard of Practice, GQM must complete the following corrective actions:

- Implement a program to properly document and retain records of training provided for the use of emergency response equipment, which includes the SCBA units.
- Provide training to personnel responsible for using SCBA during emergencies.

Evidence Required for Verification of Corrective Action Completion

- Task training records associated with the proper use of SCBA utilized on site for emergencies.

Corrective Action Completion Date

- Within one year of ICMI posting conditional certification of the Soledad Mountain operation.

Comments

Based on interviews with GQM personnel, no immediate or substantial risk to employee or community safety, health or the environment is deemed to exist during implementation of this corrective action as it relates to records retention and proper documentation.

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