**International Cyanide Management Code** 



**Certification Audit of:** 

**Cyanco Cheyenne Transloading Facility** 

**Summary Audit Report** 

Submitted to:
The International Cyanide Management Institute
1400 I Street, NW – Suite 550
Washington, DC 20005
USA

2017 Audit Cycle





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Signature of Lead Auditor

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# **Cyanco Cheyenne Transloading Facility Summary**

#### **Company Names & Contact Information**

Name and location of Operation:	Cyanco Cheyenne Transloading Facility Swan Ranch Industrial Park 6143 Tundra Drive Cheyenne, WY 82007
Names and contact information for this facility:	Scott Goldblatt Safety & Health Manager Office: 775.623.1214 ext. 105 Email: scott.goldblatt@cyanco.com  Phil Bennett Winnemucca Terminal Manager / Bulk Carrier Specialties, Inc. Contact Person Tel. 775-623-0707
	winnemuccanv@transwood.com

## **Operational Overview**

The Cyanco Cheyenne Transload Facility located in Cheyenne, Wyoming is a sodium cyanide transloading facility operated by Bulk Carrier Specialists, Inc., a subsidiary of TransWood Inc. The Cheyenne transload building where all transloading operations are carried out is over 8,000 square feet in size. Cyanide solution is transported by rail car from Winnemucca to Cheyenne, moved on-site into a fenced area, and then loaded into ISO container trailers for truck transport to mines. Cyanco's first transload and shipment of cyanide at this facility was conducted on January 3, 2017. This operation underwent the ICMC pre-operational certification process and underwent an operational certification audit within the first 6 months following the first shipment of cyanide, as per ICMI requirements.

## **Audit Implementation**

This operational certification audit was conducted through discussions and interviews with senior management, operations management, engineering, and environmental, health & safety (EH&S) staff. Personnel involved in the audit represented Cyanco, TransWood, and Bulk Carrier

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Specialties, Inc. The auditor used the ICMI "Cyanide Production Verification Protocol" to evaluate International Cyanide Management Code (ICMC) compliance.

Procedures, site conditions and records were evaluated during this audit. The assessment was based on random samples of information and therefore deficiencies may exist which have not been identified. The depth to which records and data were sampled was typical of an environmental, health and safety (EH&S) management system audit. Although legally required records were sampled in order to evaluate ICMC compliance, legal compliance with federal, regional, and local regulations was not part of the scope of this evaluation.

The audit was performed by an independent third-party auditor who is pre-approved by the ICMI as Lead Auditor for all types of International Cyanide Management Code (ICMC) audits and as a technical expert for ICMC audits of cyanide transportation and production operations.

All aspects of the cyanide operations were included in this ICMC Initial Certification Audit. The operation was found to be in FULL COMPLIANCE with ICMC Cyanide Production requirements.

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## **Auditor's Finding**

The cyanide management practices for the Cyanco Cheyenne transloading operation were evaluated for ICMC compliance using the *ICMI Cyanide Production Verification Protocol*. Cyanco Cheyenne internal standards, policies, practices, and procedures regarding the management of the cyanide operations were reviewed.

The auditor found that the overall level of preparedness and understanding of ICMI Cyanide Code requirements was very good. Management systems upon which the operation is based are mature, and requested records were readily available for review.

There have been no significant spills or releases outside of the transloading containment building since the beginning of operations. There was one exposure event shortly after start-up that involved two operators. Emergency response measures were immediate and sufficient to prevent any significant health or medical impact to the operators. A full incident investigation was performed and corrective actions taken following the incident were evaluated during the audit and were found to be appropriate and effective.

The results of this operational certification audit demonstrate that the Cyanco Cheyenne transload facility and cyanide-related operations are in FULL COMPLIANCE with International Cyanide Management Code requirements.

Audit Company:	MSS Code Certification Service, A Division of Management System Solutions, Inc.	
	www.mss-team.com	
Lead / Technical Auditor:	Nicole Jurczyk E-mail: njurczyk@mss-team.com	
Date(s) of Audit:	June 12-13, 2017	

I attest that I meet the criteria for knowledge, experience and conflict of interest for Code Certification 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 the Audit Reports accurately describe the findings of the certification audit. I further attest that the certification audit was conducted in a professional manner in accordance with the International Cyanide Management Code *Cyanide Production Verification Protocol* and using standard and accepted practices for health, safety and environmental audits.

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## **Cyanco Operational Certification Audit Results**

1. OPERATIONS: Design, construct and operate cyanide production facilities to prevent release of cyanide.

<u>Production Practice 1.1</u>: Design and construct cyanide production facilities consistent with

sound, accepted engineering practices and quality control/quality

assurance procedures.

The operation is ☐ in full compliance with Production Practice 1.1

Summarize the basis for this Finding:

The Cheyenne Terminal was found to be in full compliance with ICMC Production Practice 1.1. The facility was designed in a manner that is consistent with sound, accepted engineering practices and quality control procedures.

The operation has implemented quality control and quality assurance programs as part of the Cheyenne transload facility construction project. Confirmation was made that engineering records, including quality control and quality assurance records, are on file and readily accessible. The terminal hand-off, sign-off, commissioning, and Certificate of Completion for the terminal were reviewed during the audit and found to be acceptable. Extensive design and build records were also reviewed during the pre-operational audit and were found to be complete and acceptable.

Records were available to demonstrate that appropriately qualified personnel reviewed the facility construction process at frequent intervals to confirm that all stages of the facility conformed to engineering plans. The Pre-Startup Safety Review (PSSR) that was conducted prior to commencing operations was reviewed and found to be acceptable.

The materials of construction for the cyanide transload facility are compatible with reagents that are used in the transloading processes. Materials of construction specifications were sampled during the audit and were found to be acceptable.

Each critical system has an interlock mechanism, which is designed to stop the flow of cyanide and prevent releases in the event of a system upset. Additionally, emergency stop buttons are present in the transloading area. Records of third-party testing and calibrations of these systems were observed. Rail car safety inspections are done regularly and all piping is secured when transloading is complete.

All cyanide transload activities are conducted on a sloped concrete surface inside the transload building which would direct any spills to a secondary sump containment system that is appropriately sized for the process and associated piping. All cyanide piping is within the building and containment area. Since the transloading occurs indoors, the containment of rainwater is not

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a concern for this operation. The transload process is designed so that tank overfilling is not possible and the process is monitored all times when loading. Additionally, level indicators on the ISO tank are used to ensure the vessel is not overfilled. There are no cyanide-related activities performed outside of the building and containment area and there are no storage tanks on site.

<u>Production Practice 1.2</u>: Develop and implement plans and procedures to operate cyanide production facilities in a manner that prevents accidental releases.

#### The operation is **☑** in full compliance with Production Practice 1.2

Summarize the basis for this Finding:

The Cheyenne Terminal was found to be in full compliance with ICMC Production Practice 1.2. The Cheyenne transload facility has procedures that describe the standard practices necessary for its safe and environmentally sound operation in a manner that prevents accidental releases.

Procedures are in place which address normal operations, process upsets, maintenance and emergencies and were found to be complete. The facility Emergency Response Plan describes the procedures to be followed in the event of a fire, explosion, and exposure or cyanide release. The facility and its subcontractors use management of change (MOC) procedures in their operations. These procedures and MOC records were reviewed and appeared to be effective for the operation.

A preventive maintenance program was developed for the facility. The maintenance procedure was reviewed and was found to be appropriate for the operation including all equipment and devices necessary for cyanide production and handling.

The operation has implemented a process to monitor critical process parameters. Facility personnel complete a daily inspection checklist to monitor critical parameters that could potentially affect health, safety, and environmental performance. This operation does not have any process instruments that require calibration. Records of HCN monitor calibrations were reviewed during the audit and were complete.

The operation has also implemented procedures for disposing of contaminated fluids and solids that may result from cyanide operations. Procedures were reviewed and were found to be appropriate.

The production building has adequate ventilation to prevent the build-up of hydrogen cyanide gas. Additionally, the building has a temperature alarm which notifies operational personnel in the event of a low temperature that could adversely affect operations. All cyanide transload activities are conducted inside the transload building to prevent contact with water.

The perimeter of the facility is completely fenced to ensure that no unauthorized personnel access the site. Operators have 24/7 access to security camera information.

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The operation ensures that all cyanide packages are labeled in the appropriate languages for the countries through which the material is transported.

<u>Production Practice 1.3</u>: Inspect cyanide production facilities to ensure their integrity and prevent accidental releases.

The operation is **☐** in full compliance with Production Practice 1.3

Summarize the basis for this Finding:

The Cheyenne Terminal was found to be in full compliance with ICMC Production Practice 1.3.

Preventive maintenance procedures and inspection records were available for all equipment during the audit of the facility. Routine inspection of pipelines, pumps and valves for deterioration and leakage are performed.

Daily, monthly, and annual inspection frequencies have been established, depending on the type of equipment being inspected. Frequencies were found to be sufficient. Records were available for review and were acceptable.

The secondary containment system for the transload operation appears to be appropriately sized for the equipment and operations and is inspected monthly. Records were available for review. There are no tanks at the facility.

The documented program identifies the items that need to be inspected and/or observed. Records reviewed included the date of the inspections, the name of the inspector, and any observed deficiencies. The terminal is quite new and no deficiencies had been noted during inspections. Interviews confirmed, however, that the operators will note the results of corrective actions in the event that there is a repair identified as necessary and that records will be retained.

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#### 2. WORKER SAFETY: Protect workers' health and safety from exposure to cyanide.

<u>Production Practice 2.1</u>: Develop and implement procedures to protect plant personnel from exposure to cyanide.

The operation is **☐** in full compliance with Production Practice 2.1

Summarize the basis for this Finding:

The Cheyenne Terminal was found to be in full compliance with ICMC Production Practice 2.1.

The facility has implemented procedures for transloading and shipping of cyanide, including appropriate PPE necessary to minimize worker exposure. Procedures are in place for normal operations, abnormal operations, emergency and maintenance-related activities.

The operation uses a Management of Change procedure to review proposed changes in documentation, facility design and operations that have the potential to impact facility performance. Initial records demonstrating implementation were available for review.

The operation holds monthly site safety meetings with employees and subcontractors to obtain worker input on safety issues and communicate safety information. Records of safety meetings are retained at the site.

The operation uses stationary cyanide monitoring devices in the transloading area which are calibrated quarterly. These monitors help protect against elevated HCN exposure potential for employees and contractors involved in the transloading operation. In addition, procedures defining personal protective equipment requirements are in place and enforced at the facility, including the requirement that PPE be decontaminated and remain the transload building.

PPE requirements for contractors and visitors to the transload area were clearly defined and communicated. Procedures ensure that at least two people work in the operation at all times and that radio contact between operators is maintained. Employee health is evaluated prior to employment and throughout their employment to ensure their fitness to perform their specified work tasks.

The facility has appropriate cyanide warning signs and PPE signs posted in operational areas. Cyanide warning signs are posted on the perimeter fence and appropriate signage is in place in the transload building indicating that eating, drinking, smoking, and open flames are prohibited. Management showed very good awareness of the restrictions and of the potential dangers of not adhering to those restrictions. Eating, smoking, and smoking are allowed in the office building.

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<u>Production Practice 2.2</u>: Develop and implement plans and procedures for rapid and effective response to cyanide exposure.

#### The operation is ☐ in full compliance with Production Practice 2.2

Summarize the basis for this Finding:

The Cheyenne Terminal was found to be in full compliance with ICMC Production Practice 2.1.

The operation has an Emergency Response Plan (ERP) in place for rapid and effective response to cyanide exposure. Procedures are comprehensive and include procedural steps to be followed in the event of a cyanide-related emergency. The operation provides first aid to workers who are potentially exposed to cyanide and would use emergency response procedures to obtain further medical assistance in the event of an emergency. The facility has procedures in place to communicate an emergency situation to site personnel and local responders and to obtain transport for exposed workers to locally available qualified off site medical facilities in the event of an emergency.

Shower / low-pressure eye wash stations and ABC powder fire extinguishers are appropriately placed in the transload building. The operation has the following in place: water, oxygen (with breathing mask) in both buildings, and AED, and a resuscitator. The facility keeps two cyanokits in the office building in a temperature controlled office which would be provided to the paramedic at the time of arrival, in the event of an emergency. The cyanokits were in-date at the time of the audit. The ERP contains instructions for communicating an emergency to facility, emergency response, and regulatory personnel.

The facility inspects its emergency equipment monthly and maintains records of these inspections. Emergency response equipment inspection records were found to be acceptable.

The facility has communicated with the local hospital to alert them of the possibility of cyanide victims at the facility. The operation conducts at least one emergency response drill per year and integrates learnings back into facility procedures as appropriate. Cyanide training and a joint drill was conducted with emergency responders and the hospital in 2017. The ERP requires that emergency plans be reviewed and updated as appropriate in accordance with actual emergency or drill critique recommendations. The operation has an incident investigation procedure for investigating, evaluating and reporting incidents, including cyanide exposure cases.

Cyanco sodium cyanide solution safety data sheets (SDSs) and first aid procedures are available to workers in the office building in English, the language of the workforce. SDSs are maintained in an SDS book. Operators and office personnel have ready access to the SDSs.

The facility has markings in place alerting workers to equipment and piping that contains cyanide. Markings on process equipment indicate the direction of cyanide, water and air flow in pipes.

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The operation has a decontamination procedure that requires all personnel to change out of their personal protective equipment (PPE) and work boots after performing the transload operation. All PPE must be decontaminated and is kept in the transload building. Contractors and visitors are not allowed in areas where there is a potential for cyanide exposure or contamination. In an abnormal operating condition if this situation were to occur, contractors and visitors would be required to decontaminate prior to leaving the transload building. This policy was confirmed through interviews.

The operation provides first aid to workers who are potentially exposed to cyanide and would use emergency response procedures to obtain further medical assistance in the event of an emergency. Procedures are in place to obtain transport for exposed workers to locally available qualified off site medical facilities in the event of an emergency. The operation has communicated with the local medical facility to confirm their capability for treating a potential cyanide exposure victim. Records of Cyanide Safety Awareness Training conducted with members of the hospital staff were available for review during the audit. Additionally, hospital personnel, fire department and emergency responders also participated in man-down and table-top drills. Records were found to be complete.

The Emergency Response Plan (ERP) calls for at least one emergency exposure drill per year. An emergency drill of the site's ability to respond to a cyanide exposure scenario was conducted on June 6, 2017. Lessons learned from the emergency drills are considered when updating the ERP and emergency procedures. According to the ERP, emergency plans should be reviewed and updated after any emergency or recommendations following an emergency response drill. A drill critique was written following the June 2017 exposure drill and corrective actions were identified and processed.

The operation has an incident investigation procedure for in place investigating, evaluating and reporting incidents, including cyanide exposure cases. Records indicated the one incident that occurred shortly following start-up was investigated, contributing causes were identified, and actions were taken to correct system deficiencies. Procedures for investigating and evaluating exposure incidents appear to be effective in ensuring facility programs protect worker health and safety.

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#### 3. MONITORING: Ensure that process controls are protective of the environment.

<u>Production Practice 3.1</u>: Conduct environmental monitoring to confirm that planned or unplanned releases of cyanide do not result in adverse impacts.

The operation is ☐ in full compliance with Production Practice 3.1

Summarize the basis for this Finding:

The Cheyenne Terminal was found to be in full compliance with ICMC Production Practice 3.1.

Indoor air cyanide concentrations are monitored using stationary HCN detectors. The operation's transloading operation is designed and operated to limit atmospheric process emissions of hydrogen cyanide gas such that the health of workers and the community are protected.

The facility does not have direct or indirect discharges to surface water. There are no surface water bodies near the facility. Operations are compliant with ICMC requirements and its operations do not impact groundwater. In the unlikely event of a release of cyanide to the environment in the future, the operation has procedures in place for engaging the appropriate resources to ensure that remediation needs are fulfilled.

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

<u>Production Practice 4.1</u>: Train employees to operate the plant in a manner that minimizes the potential for cyanide exposures and releases.

The operation is ☐ in full compliance with Production Practice 4.1

Summarize the basis for this Finding:

The Cheyenne Terminal was found to be in full compliance with ICMC Production Practice 4.1.

The operation has provided training to all personnel on the Emergency Response Plan to ensure that they understand the hazards of cyanide and how to properly respond to an incident. Site personnel receive training regarding the use, storage and cleaning of the personal protective equipment (PPE) required by each activity or task.

The operation also trains its workers in the operational procedures needed to perform their normal tasks with minimum risk to worker health and safety and in a manner that prevents unplanned cyanide releases. Training is provided initially to personnel who work with cyanide and is

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refreshed annually. Training records were available to demonstrate that all employees have received training before working with cyanide.

Operational SOPs are in place. The facility uses the SOPs to supplement cyanide awareness training materials. The training elements necessary for each job are identified in the training materials. A review of the SOP training records, including test results, was found to be complete for employees who work with cyanide.

The facility provides testing for all critical training topics such as transload procedures, ERP, cyanide safety training, and lock-out/tag out. Testing results are maintained with training records. A training plan was provided for review.

Confirmation was made that the individuals who are involved in the development and delivery of training are highly qualified and capable of providing safety and operations training.

Production Practice 4.2: Train employees to respond to cyanide exposures and releases.

**☑** in full compliance with Production Practice 4.2 The operation is

*Summarize the basis for this Finding:* 

The Cheyenne Terminal was found to be in full compliance with ICMC Production Practice 4.2.

The operation trains all personnel on its Emergency Response Plan. The ERP provides details on what is to be done in the event that a cyanide release is discovered. The operation conducts drills at least annually to evaluate general response to chemical emergencies, including cyanide exposure. Records of the 2017 drill, including the after-action report, were evaluated during the audit and deemed acceptable. Evaluation personnel training is part of the drill critique process and is incorporated into the identification of corrective actions and improvement opportunities.

Training records are maintained electronically and in paper format at the facility and observed records were found to be conformant with ICMI requirements. The operation keeps training records for at least as long as the employee is working at the site.

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# 5. EMERGENCY RESPONSE: Protect communities and the environment through the development of emergency response strategies and capabilities.

<u>Production Practice 5.1</u>: Prepare detailed emergency response plans for potential cyanide releases.

The operation is ☐ in full compliance with Production Practice 5.1

Summarize the basis for this Finding:

The Cheyenne Terminal was found to be in full compliance with ICMC Production Practice 5.1.

The operation has an Emergency Response Plan (ERP) in place that considers the potential failure scenarios appropriate for its site-specific environmental and operating circumstances. The scenarios addressed in the ERP appear to be appropriate for the operation. The ERP document was updated in 2017.

The ERP includes a list of telephone numbers and the notification procedure to be followed in the event of an emergency. The plan describes first aid measures to be taken in the event of cyanide exposure. An evacuation procedure for site personnel in the event of an emergency is included in the ERP. The facility has no immediate residential or industrial neighbors.

The ERP calls for the control of releases at their source and provides information on the use of the emergency stop buttons in the transload building. The plan describes the necessary actions to take for release containment, assessment, mitigation and prevention. Cyanide remediation is addressed in the plan and contact information for an environmental services company is included.

<u>Production Practice 5.2</u>: Involve site personnel and stakeholders in the planning process.

The operation is ☐ in full compliance with Production Practice 5.2

Summarize the basis for this Finding:

The Cheyenne Terminal was found to be in full compliance with ICMC Production Practice 5.2.

The operation engages its stakeholders on a regular basis to ensure that its emergency plans remain current and address changing conditions. The operation involves its workforce and external responders in the emergency response planning process. The facility has held meetings with local stakeholders including individuals from the county, city, hospital, and appropriate emergency services organizations. The operation conducted joint drills with facility employees and contractors, the local hospital, and emergency response organizations. The operation has also

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coordinated with the Local Emergency Planning Committee and plans to continue to interface with them quarterly to ensure that plans remain current and effective.

<u>Production Practice 5.3</u>: Designate appropriate personnel and commit necessary equipment and resources for emergency response.

The operation is  $\square$  in full compliance with Production Practice 5.3

Summarize the basis for this Finding:

The Cheyenne Terminal was found to be in full compliance with ICMC Production Practice 5.3.

The operation's ERP designates primary and alternate emergency response coordinators with explicit authorities and responsibilities. The operation does not have its own emergency responders, but rather coordinates with external responders, Cyanco corporate, and its emergency response / remediation contractors. Operators are trained to stop operations and evacuate the transload building in the event of a release.

All facility personnel have been trained on the ERP. The ERP includes 24-hour telephone numbers for the terminal managers, local emergency response agencies, and Cyanco personnel including leadership. The responsibilities, authorities and duties for managing an emergency situation are clearly described in the plan.

The ERP includes a list of emergency response equipment that will be maintained by the site. The emergency response equipment is inspected monthly by site personnel and records were available to demonstrate this.

The role of outside responders is explained in the ERP. The operation has communicated with outside entities included in the plan to ensure they are aware of their roles in emergency response. External responders and hospital personnel were included in the 2017 emergency response drill. Interactions with external responders were found to be appropriate for the operation.

<u>Production Practice 5.4</u>: Develop procedures for internal and external emergency notification and reporting.

The operation is ☐ in full compliance with Production Practice 5.4

Summarize the basis for this Finding:

The Cheyenne Terminal was found to be in full compliance with ICMC Production Practice 5.4.

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The operation is located within an industrial park however, the adjacent facilities were empty at the time of the audit. There are no residential communities near the facility. The ERP includes upto-date telephone numbers for the hospital, local emergency agencies, and Cyanco emergency contacts. The plan includes emergency communication responsibilities for the notification of all stakeholders, Cyanco and TransWood personnel, authorities, external responders, and the media, as warranted.

<u>Production Practice 5.5</u>: Incorporate into response plans and remediation measures monitoring elements that account for the additional hazards of using cyanide treatment chemicals.

The operation is  $\square$  in full compliance with Production Practice 5.5

Summarize the basis for this Finding:

The Cheyenne Terminal was found to be in full compliance with ICMC Production Practice 5.5.

The operation's ERP describes specific, appropriate remediation measures, such as recovery or neutralization of solutions or solids, decontamination of soils or other contaminated media and management and/or disposal of spill clean-up debris, and provision of an alternate drinking water supply, as appropriate. The ERP includes contact information for an environmental services company.

Chemicals such as sodium hypochlorite, ferrous sulfate and hydrogen peroxide are prohibited from being used to treat cyanide that has been released into surface water. The facility does not have direct or indirect discharge to surface water and there are no surface water bodies near the facility.

The ERP indicates that Cyanco, along with regulatory authorities and the environmental services firm, will determine the required environmental monitoring in the event of a release requiring monitoring and/or remediation. The ERP includes contact information for an environmental services company.

<u>Production Practice 5.6</u>: Periodically evaluate response procedures and capabilities and revise them as needed.

The operation is ☐ in full compliance with Production Practice 5.6

Summarize the basis for this Finding:

The Cheyenne Terminal was found to be in full compliance with ICMC Production Practice 5.6.

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Emergency plans are reviewed at least once a year and an emergency cyanide spill with worker exposure drill is performed at least once a year. The ERP was updated in March 2017 and all employees have received training on the plan. The most recent drill was conducted jointly with emergency response organizations on June 6, 2017. The ERP requires that emergency plans be reviewed and updated after an actual emergency or emergency response drill. Drill and incident critiques and after-action reports serve as the method for evaluating the ERP effectiveness. Records were available to demonstrate full implementation.

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