

**TOOELE ARMY DEPOT - SOUTH AREA
(TEAD-S)**

**MODULE VI
ATTACHMENT 1**

**SOLID WASTE MANAGEMENT UNIT (SWMU) 9
POST CLOSURE PLAN**

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LIST OF ACRONYMS AND ABBREVIATIONS

ABP	Agent Breakdown Product
CFR	Code of Federal Regulations
CMI	Corrective Measures Implementation
CMS	Corrective Measures Study
DWMRC	Division of Waste Management and Radiation Control
EO	Environmental Office
IMPA	Isopropyl Methylphosphonic Acid
MPA	Methylphosphonic Acid
PCP	Post Closure Plan
RCRA	Resource Conservation and Recovery Act
RFI	RCRA Facility Investigation
SWMU	Solid Waste Management Unit
TEAD-S	Tooele Army Depot South Area
UAC	Code Administrative Utah

1.0 INTRODUCTION

The three objectives of this Post-Closure Plan (PCP) are: 1) ensure that Tooele Army Depot South Area (TEAD-S) complies with the Permit; 2) outline the requirements needed to prevent exposure or contact with contamination left in place at this Solid Waste Management Unit (SWMU); and 3) to ensure that future land use is industrial use only. To meet these objectives, this PCP provides detailed information regarding the location, regulatory criteria and post-closure inspections at SWMU 9. Post-closure requirements shall continue for a minimum of 30 years. The post-closure care period may be extended or shortened, as deemed necessary by the Director.

In accordance with Utah Administrative Code (UAC) R315-270-28, the PCP shall include specific information for a closed facility. As applicable to SWMU 9, the information requirements include:

- General description of the facility,
- Description of security procedures,
- General inspection schedule,
- Preparedness and Prevention Plan,
- Facility location information (including seismic and flood plain considerations),
- Closure Plan or Closure Proposal,
- Certificate of Closure,
- Topographic map, with specific scale,
- Summary of groundwater monitoring data, and
- Identification of uppermost aquifer and interconnected aquifers.

The following table lists the regulatory citation, description of the regulatory requirement and where to find this information in the permit and within this PCP.

Table 1: Summary of SWMU 9 Post-Closure Information Requirements Under UAC R315-270-14

Regulation Citation	Requirement Description	Requirement Location
UAC R315-270-14(b)(1)	General Description of the Facility	Section 2 and Permit Attachment 6
UAC R315-270-14(b)(4)	Description of Security Procedures	Section 2.8 and Module VI (VI.I)
UAC R315-270-14(b)(5)	General Inspection Schedule	Section 3.2 and Module VI Form A
UAC R315-270-14(b)(12)	Training Requirements	Module VI (VI.K)
UAC R315-270-14(b)(6)	Preparedness and Prevention	Permit Attachment 10
UAC R315-270-14(b)(11)(i-ii, v)	Facility Location Information Applicable seismic standard	Permit Attachment 6 (Section 14.4)
UAC R315-270-14(b)(11)(iii-v)	Facility Location Information - 100- year floodplain	Permit Attachment 6 (Section 14.5)

Regulation Citation	Requirement Description	Requirement Location
UAC R315-270-14(b)(14)	Closure Certification and Notification	Section 2.7
UAC R315-270-14(b)(16)	Post-Closure Cost Estimate	Federal Facilities are exempt from this requirement
UAC R315-270-14(b)(18)	Proof of Financial Coverage	Federal Facilities are exempt from this requirement
UAC R315-270-14(b)(19)(i)	Topographic Map - Map Scale and Date	Permit Attachment 6 (Section 9.0)
UAC R315-270-14(b)(19)(ii)	Topographic Map - 100-year floodplain area	Permit Attachment 6 (Section 14.5)
UAC R315-270-14(b)(19)(iii)	Topographic Map - Surface waters including intermittent streams	Permit Attachment 6 (Section 10.0)
UAC R315-270-14(b)(19)(iv)	Topographic Map - Surrounding land uses	Permit Attachment 6 (Section 11.0)
UAC R315-270-14(b)(19)(v)	Topographic Map - A wind rose (i.e., prevailing wind speed and direction)	Permit Attachment 6 (Section 12.0)
UAC R315-270-14(b)(19)(vi)	Topographic Map - Orientation of map, North arrow	Permit Attachment 6 (Section 9.0)
UAC R315-270-14(b)(19)(vii)	Topographic Map - Legal boundaries of the hazardous waste management facility.	Permit Attachment 6 (Section 9.0)
UAC R315-270-14(b)(19)(viii)	Topographic Map - Access control, fence, gates	Permit Attachment 6 (Section 9.0)
UAC R315-270-14(b)(19)(ix)	Topographic Map - Injection and withdrawal wells	Permit Attachment 6 (Section 11.1)
UAC R315-270-14(b)(19)(xi)	Topographic Map - Barriers for drainage or flood control	Permit Attachment 6 (Sections 9.0 and 14.0)
UAC R315-270-14(c)(1)	Groundwater Monitoring Information - Summary of groundwater data	Not required.
UAC R315-270-14(c)(2)	Groundwater Monitoring Information - Identification of uppermost aquifer	Not required.
UAC R315-270-14(c)(3)	Groundwater Monitoring Information - Delineation of the waste management area	Not required.
UAC R315-270-14(c)(4)	Groundwater Monitoring Information - Extent of plume	Not required.
UAC R315-270-14(c)(5)	Groundwater Monitoring Information - Detailed plans/engineering report for proposed groundwater program	Not required.

Regulation Citation	Requirement Description	Requirement Location
UAC R315-270-14(c)(6)(i)	Groundwater Monitoring Information - Proposed list of parameters	Not required.
UAC R315-270-14(c)(6)(ii)	Groundwater Monitoring Information - Proposed groundwater monitoring system	Not required.
UAC R315-270-14(c)(6)(iii)	Groundwater Monitoring Information - Background values	Not required.
UAC R315-270-14(c)(6)(iv)	Groundwater Monitoring Information - A description of the proposed sampling	Not required.

2.0 FACILITY DESCRIPTION

The following provides a general description of SWMU 9, as required by UAC R315-270.14(b)(1).

2.1 SWMU 9 LOCATION AND HISTORY

SWMU 9 encompasses approximately 145 acres (USATHAMA, 1979) and includes the former open-storage portion of the Area 2 chemical munitions safeguarding area and the Old Area 2, which is southwest of the current Area 2. The SWMU also includes an area southeast of Old Area 2 that reportedly contained burn pits. SWMU 9 is no longer used for agent storage (Foster Wheeler, 1999a).

2.2 PAST OPERATIONS

This site was used for chemical munitions storage (GB, VX, and mustard containers). One-ton containers were stored on rail lines. Munitions were also stored in tin sheds in the area. The site was used for munitions storage from the 1960s to the early 1980s. Known minor mustard releases have occurred at this site and other releases are probable. Burn pits have also been discovered in the area.

2.2.1 Area 2

Area 2 stored munitions containing mustard, nerve agents, chemical agent identification sets and war gas identification sets. Area 2 consisted of 23 chemical munitions storage buildings and an open area where one-ton containers of mustard, GB and VX were stored on rails (Foster Wheeler, 1999a; Weston, 1991). The rails were placed in 1967 to hold canisters from Area 10. VX spray tanks were reportedly stored on ties between the buildings in Area 2, while the GB and mustard containers were stored on 10 pairs of rails south of the buildings in an area that was approximately 0.75 mile long. Open storage continued in Area 2 until 1974, when the containers were transferred back to Area 10 (Foster Wheeler, 1999a).

2.2.2 Old Area 2

Old Area 2, southwest of Area 2, stored M70 bombs, mustard, chemical agent identification sets and a limited number of one-ton containers of mustard and lewisite prior to 1967. Two to three sheds at the south end of Old Area 2 contained one-ton containers of mustard and CG. Several of the mustard containers leaked onto the ground by the sheds. The locations of the leaks were decontaminated by treating the area with bleach and plowing the surface soil. Old Area 2 reportedly also contained burn pits

in the southern portion of the site. Open storage continued in Old Area 2 until the mid-1980s (Foster Wheeler, 1999a).

A Corrective Measure Study (CMS) was conducted in 1996 to address the human health risks found in the Phase II Resource Conservation and Recovery Act (RCRA) Facility Investigation (RFI) (Foster Wheeler, 1999b). The CMS proposed that institutional controls would prevent residential use of land and shallow groundwater (Foster Wheeler, 1999b). The decision document accepts the CMS preferred alternative of institutional controls (Foster Wheeler, 1999c). The decision document has been submitted to the state and approved.

2.3 PREVIOUS INVESTIGATIONS DOCUMENTATION

Pre-RFI	Phase I RFI	Phase II RFI	CMS	Decision Document	Corrective Measure Implementation (CMI)
<ul style="list-style-type: none"> • USATHAMA 1979: Report 141; • NUS 1987: Interim RFI; • USATHAMA 1988, Performance Assessment/Site Investigation 	EBASCO 1993	Foster Wheeler 1999	Foster Wheeler 1999	Foster Wheeler 1999	North Wind 2004

2.4 CLOSURE ACTIVITIES

The 1999 Foster Wheeler CMS established the following controls:

1. Site control – fencing and posting of warning signs to restrict entry and activity at the site is complete.
2. Form D TEAD-S Excavation Permit process shall be enforced.
3. Land use restriction (deed restriction) – restrictions to prevent shallow groundwater use and future development has not been implemented.

2.5 HUMAN HEALTH AND ECOLOGICAL RISK ASSESSMENT

Soil samples collected during the RFI revealed the presence of arsenic and low concentrations of two agent breakdown products (ABPs), methylphosphonic acid (MPA) and isopropyl methylphosphonic acid (IMPA).

Groundwater samples collected during 1993 indicated the presence of methylene chloride and metals contamination. The presence of methylene chloride is likely due to contamination in the laboratory.

The results of the human health risk assessment indicate residential risk levels were not met, but that there were negligible potential health risks to industrial workers associated with exposure to SWMU 9 soils. There is no significant ecological risk at SWMU 9.

2.6 SURFACE WATER AND GROUNDWATER

There are no defined surface water features within or near SWMU 9. The general direction of surface water drainage in the area surrounding this unit is southerly toward the low portion of Rush Valley.

Groundwater quality at SWMU 9 is primarily defined as Class IA, with the western portion defined as Class II. Groundwater contours show a slight “divide” through the center of the site; groundwater within the southwest half of the SWMU flows to the south-southwest at a gradient of 0.0133 feet/foot while groundwater within the northeastern half of the SWMU flows to the south-southeast at a gradient of 0.0100 feet/foot.

Groundwater in the vicinity is not currently used for drinking water, irrigation or other purposes. The nearest potable groundwater wells (there are two) are located approximately three miles northwest (up gradient) of SWMU 9, inside the TEAD-S boundary.

Groundwater monitoring is not required for SWMU 9 (Parsons, 2012).

2.7 CLOSURE NOTIFICATIONS

Federal facilities are exempt from submitting notifications to the local zoning authority in accordance with UAC R315-264-110 through 120.

2.8 SECURITY REQUIREMENTS

Security features shall be maintained and inspected throughout the post-closure care period.

The following security conditions have been implemented at SWMU 9:

Signs are present warning against unauthorized entry. This SWMU is fenced and contact with contamination is not expected during normal Facility operations.

The security features (i.e., posted warning signs) will be inspected according to the frequency in Module VI, Condition 2.2. The Permittee shall report to the Director any decrease of TEAD-S Base Security, which could affect the security conditions as applicable to SWMU 9.

Damaged or missing security features shall be noted in the inspection checklist. Repairs shall be completed as soon as practicable after the problem is discovered, in compliance with UAC R315-264-15(c).

3.0 POST-CLOSURE OPERATIONS AND INSPECTIONS

3.1 INTRODUCTION

SWMU 9 post closure care shall be in accordance with the Module VI. To ensure that the area is not reused or developed for residential purposes, periodic site inspections and a biennial post-closure report are required. Removal and reuse of soil from this site shall not be allowed unless approved by both the TEAD-S Environmental Office (EO) in accordance with Condition VI.H.3 and the Director.

3.2 ROUTINE SITE INSPECTIONS

During the Post-Closure period, general inspections of the SWMU 9 site shall be conducted as required by Module VI annually by November 1st to ensure the site remains under industrial use. Any modifications to the frequency of inspections shall be in accordance with Condition I.D.3.

Site inspections consist of a complete walkthrough and visual inspection of the areas. A general site inspection checklist for industrial sites is included in Module VI as Form A. Completed inspection forms shall be filed with the TEAD-S EO as part of the Facility Operating Record.

At a minimum, the site inspector shall have a radio or phone and a First Aid kit available during inspections.

3.3 INSPECTION FOLLOW-UP

The EO shall notify the appropriate personnel to implement corrective action as needed. Corrective action shall be initiated as soon as practical after identifying a problem or as directed by the Permittee. If corrective action is required a technical plan shall be prepared to summarize the problem, the potential impacts, the proposed plan for action and the time-frame in which corrective action shall be implemented as required by Module V and Module VI. This plan requires Director approval prior to implementing corrective action.

3.4 NON-COMPLIANCE REPORTING

Notifications of any type of non-compliance with any condition of this Permit shall be submitted as required by Condition V.L.4.

3.5 BIENNIAL POST-CLOSURE REPORT

In accordance with UAC R315-270-30(1)(9), a Biennial Post-Closure Report shall be prepared for all SWMUs undergoing post-closure care by March 1 of the reporting year. The SWMU 9 Biennial Post-Closure Report shall include, at a minimum, the following:

- General site description and conditions, and
- Inspection records.

3.6 REQUIRED SUBMITTALS

Biennial Post-Closure Reports shall be submitted to the Director no later than March, of the year the report is due. Reporting years are even numbered years beginning with March 2012, for the duration of the Post-Closure Monitoring Period.

3.6.1 *Non-Compliance Reporting:*

- The Permittee shall notify the Director orally within 24-hours of any noncompliance that may endanger public drinking water supplies or human health or the environment.

- The Permittee shall notify the Director in writing within five days of any non-compliance which may endanger public drinking water supplies or human health or the environment including evidence of groundwater contamination, significant data quality issues.
- The Permittee shall notify the Director in writing within 15-days of any noncompliance which does not endanger public drinking water supplies or human health or the environment.

4.0 POST-CLOSURE CERTIFICATION

No later than 60 days after post-closure activities are completed and approved by the Director, the Permittee shall submit a certification to the Director, signed by the Permittee and an independent professional engineer registered in the State of Utah, stating why post-closure care is no longer needed.

5.0 REFERENCES

Deseret Chemical Depot 2012- Evaluation of Potential for Migration of Contaminants to Groundwater at Solid Waste Management Unit (SWMU) 9. July.

Division of Waste Management and Radiation Control (DWMRC), 2019. *Administrative Rules for Cleanup Action and Risk-Based Closure Standards*. Utah Department of Environmental Quality. R315-101, Utah Administrative Code.

EBASCO, 1993. *Tooele Army Depot – South Area Suspected Releases Unit RCRA Facility Investigation – Phase I Revised Final Report*. July

Foster Wheeler 1999. *Deseret Chemical Depot Suspected Releases Units RCRA Facility Investigation, Phase II Group 2 SWMUs (SWMUs 3, 5, 8, 9, 30, and 31)*.

Foster Wheeler, 1999. *Deseret Chemical Depot Suspected Releases Units RCRA Corrective Measures, Phase II Group 2 SWMUs (SWMUs 3, 5, 8, 9, 30, and 31)*.

North Wind 2004 - Corrective Measure Implementation

NUS Corporation (NUS), 1987. *Interim RCRA Facility Assessment*, Tooele Army Depot South Area.

Parsons, 2013. *Final Hydrogeological Assessment and Recommendations Report*, Deseret Chemical Depot. July.

United States Army Toxics and Hazardous Materials Agency (USATHAMA), 1979. *Installation Assessment of Tooele Army Depot. Report No. 141*, Aberdeen Proving Ground.

USATHAMA, 1988. *Performance Assessment/Site Investigation*, Tooele Army Depot South Area.