

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

**MODULE VI  
ATTACHMENT 4**

**SOLID WASTE MANAGEMENT UNIT (SWMU) 28  
POST CLOSURE PLAN**

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## **LIST OF ACRONYMS AND ABBREVIATIONS**

bgs	below ground surface
CFR	Code of Federal Regulations
CMS	Corrective Measures Study
DCD	Deseret Chemical Depot
DWMRC	Division of Waste Management and Radiation Control
EO	Environmental Office
ft	feet
PA/SI	Preliminary Assessment / Site Investigation
PCP	Post Closure Plan
RCRA	Resource Conservation and Recovery Act
RFA	RCRA Facility Assessment
RFI	RCRA Facility Investigation
SWMU	Solid Waste Management Unit
TEAD-S	Tooele Army Depot South Area
UAC	Utah Administrative Code

## 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 industrial use only. To meet these objectives, this PCP provides detailed information regarding the location, regulatory criteria, and post-closure inspections at SWMU 28. 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 28, the information requirements shall 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**

<b>Regulation Citation</b>	<b>Requirement Description</b>	<b>Requirement Location</b>
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)

<b>Regulation Citation</b>	<b>Requirement Description</b>	<b>Requirement Location</b>
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.

<b>Regulation Citation</b>	<b>Requirement Description</b>	<b>Requirement Location</b>
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 28, as required by UAC R315-270-14(b)(1).

### **2.1 SWMU 28 LOCATION AND HISTORY**

SWMU 28 is an inactive (abandoned) landfill encompassing approximately 0.3 acres, and is located approximately 1,000 feet (ft) southwest of the Administrative Area in the northeast region of the Facility (Figure 2.3; Inset 1). The landfill was used between 1963 and 1972 for the disposal of solid waste, paper, and building debris. Reportedly, no noxious or hazardous materials were disposed of at this site, and the landfill was filled to grade and revegetated in 1972, although details of the cover/cap are unknown (Ebasco, 1993).

Based on test pitting conducted by the Permittee in October 2012, the thickness of overburden at the landfill ranges from approximately one to two ft, and buried debris is present to a maximum depth of approximately 11 to 14 ft below ground surface (bgs). No landfill liner was observed during the test pit operations; as such, the landfill at SWMU 28 was likely an unlined disposal area.

A range fire in 2012 burned and removed all vegetation at the SWMU 28 site and exposed the landfill cover materials. The cover, comprised of gravel and cobble rich materials, is similar to the fill/cover material commonly seen at the Facility sites and is therefore believed to have originated from the installation's primary borrow pit.

### **2.2 PAST OPERATIONS**

Previous investigations at SWMU 28 include a Resource Conservation and Recovery Act (RCRA) Facility Assessment (RFA), Preliminary Assessment/Site Investigation (PA/SI), Phase I RCRA Facility Investigation (RFI) field investigation, 2012 test pit investigation, and a RCRA RFI Addendum in 2012. The Phase I RFI only included the installation and sampling of three groundwater monitoring wells. No soil or soil gas samples were collected during the Phase I RFI or during the test pitting operation conducted in 2012. The scope of the RFI addendum included completion of the nature and extent of potential contamination within and around the landfill and included additional sampling of surface and subsurface soils and soil gas (active). The conclusions of the RFI addendum were that the site met industrial use and risks, groundwater monitoring was not required.

2.3 PREVIOUS INVESTIGATIONS DOCUMENTATION

<b>RFA</b>	<b>PA/SI</b>	<b>Phase I RFI</b>	<b>Phase IIA RFI</b>	<b>Phase IIB RFI (Addendum)</b>
NUS Corp 1987	EA Engineering Science & Tech inc 1988	Ebasco 1992	DCD <sup>a</sup> 2012 Test Trench Investigation	Parsons, 2013a
<sup>a</sup> Deseret Chemical Depot (now the TEAD-S)				

2.4 CLOSURE ACTIVITIES

Based on the RFI Addendum (Parsons, 2013a) the following controls are to be established:

1. Form D TEAD-S Excavation Permit process shall be enforced.
2. Land use restriction – restrictions to prevent shallow groundwater use and future development.

2.5 HUMAN HEALTH AND ECOLOGICAL RISK ASSESSMENT

A risk assessment was conducted using residential (hypothetical) and industrial (actual) land use exposure scenarios to determine potential risks and hazards to receptors from exposure to contaminants at SWMU 28. The carcinogenic risks estimated for residents exceeded the point of departure of 1E-06. This risk estimate is almost entirely due to assumed exposures to benzo(a)pyrene in soils and assumed inhalation exposures to chloroform in indoor air from soil gas. However, the risk estimates for industrial and construction workers are within the USEPA (1990) risk management range of 1E-06 to 1E-04. The non-carcinogenic hazard index estimated for residents, industrial workers, and construction workers are less than or equal to 1.0, the benchmark level of concern for non-carcinogenic effects. An ecological risk assessment was also conducted and no chemicals of concern were identified that may pose potential hazards to populations of ecological receptors at the site. Soil-to-groundwater analysis also indicates that future impacts to groundwater from chemicals in soil are not expected. Therefore, based on the results from the soil-to-groundwater evaluation, detections in soils are not present at concentrations that will significantly impact groundwater in the future and degradation of natural resources is not likely.

2.6 SURFACE WATER AND GROUNDWATER

No surface water is present at SWMU 28. Previous investigations at SWMU 28 were limited to the installation and sampling of three groundwater monitoring wells. Periodic sampling of these wells over the last 20 years has shown no impacts to site groundwater. The RFI addendum (Parsons, 2013a) recommended the discontinuation of groundwater monitoring for this site.

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

Based on the results from the human health risk assessment, only land use management measures are required at SWMU 28.

### 3.0 POST-CLOSURE OPERATIONS AND INSPECTIONS

#### 3.1 INTRODUCTION

SWMU 28 post closure care shall be in accordance with 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; removal and reuse of the soil associated with the soil pile removal is prohibited unless part of the remediation process.

#### 3.2 ROUTINE SITE INSPECTIONS

During the Post-Closure period, general inspections of the SWMU 28 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 shall 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

The Permittee shall submit 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 28, the 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, which 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, or a request for reduced monitoring frequency. 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

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.

Analytical Quality Solutions (AQS), 2013. *Final Risk Assumptions Document Solid Waste Management Units and Other Corrective Action Sites*. Deseret Chemical Depot, Tooele, Utah. Revision 1. January.

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Kleinfelder, 1999. *Final Groundwater Monitoring Report, Fall 1998, Deseret Chemical Depot, Tooele, Utah*. May.

Parsons, 2013a. *Final Work Plan - RCRA Facility Investigation Addendum for Solid Waste Management Units 19 and 28 at Deseret Chemical Depot, Utah*. February.

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