DUGWAY PERMIT

MODULE VII

ATTACHMENT 30

SOILD WASTE MANAGEMENT UNIT
SWMU 075
POST-CLOSURE PLAN

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In compliance with Department of Defense physical security directives, figures are not included for public distribution

1.0 INTRODUCTION

The objectives of this Post-Closure Plan (PCP) are to ensure that Dugway Proving Ground (DPG or Dugway) complies with the Post-Closure Permit issued by the State of Utah in accordance with Utah Administrative Code (Utah Admin. Code) R315-265 - Title 40 Code of Federal Regulations (CFR) §265.117 incorporated by reference, with respect to post-closure inspection requirements and to document tracking and inspections to ensure industrial site use. To meet these objectives, this PCP provides detailed information regarding the location, regulatory criteria, and post-closure inspections at Solid Waste Management Unit (SWMU) 75. Post-closure requirements will continue for a minimum of 30 years after closure of SWMU 75 The post-closure care period may be extended or shortened, as deemed necessary Utah Admin. Code R315-265 (40 CFR §265.117(a)(2) incorporated by reference).

Based on the approved Resource Conservation and Recovery Act (RCRA) Facility Investigation (RFI) there are no uncontrolled sources of contamination (Utah Admin. Code R315-101-2 and 3) present at DPG-075. The nature and extent of potential contamination has been characterized in soil in accordance with R315-101-4 and the site risks have been assessed in accordance with Utah Admin. Code Utah Admin. Code R315-101-5. Surface and subsurface soil do not qualify for no further action (NFA) based on hypothetical residential use; however, potential exposures to soil are below Utah Admin. Code R315-101-6 industrial screening levels. Soil-to-groundwater analysis indicates that potential future impacts to groundwater from soil are not expected at DPG-075. Corrective measures for soil are not required. Future site management is based on the characterization in the approved RFI.

In accordance with Title 40 CFR §270.28 and Utah Admin. Code R315-270-28, the Post-Closure Plan is required to include specific information for a closed facility. As applicable to DPG-075, the information requirements include:

- General description of the facility,
- Description of security procedure,
- 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.

Table 1 provides the regulatory citations for the general information requirements and the locations in this Post-Closure Plan where the specific information is presented.

Table 1: Summary of DPG-075 Post-Closure Information Requirements Under 40 CFR §270.14 and Utah Admin. Code R315-270-28 and R315-270-14

Regulation Citation	Requirement Description	Location Requirement is Addressed
40 CFR §270.14(b)(1) Utah Admin. Code R315-270-14(b)(1)	General Description of the Facility	Section 2.0
40 CFR §270.14(b)(4) Utah Admin. Code R315-270-14(b)(4)	Description of Security Procedures	Section 3.0
40 CFR §270.14(b)(5) Utah Admin, Code R315-270-14(b)(5)	General Inspection Schedule	Section 4.0 and Module VII, Form A
40 CFR §270.14(b)(6) Utah Admin. Code R315-270-14(b)(6)	Preparedness and Prevention	Section 3.0
40 CFR §§270.14(b)(11)(i-ii, v) Utah Admin. Code R315-270-14(b)(11) (i-ii, v)	Facility Location Information Applicable seismic standard	There are no active faults in the vicinity of DPG-075.
40 CFR §§270.14(b)(11) (iii-v) Utah Admin. Code R315-270-14(b)(11) (iii-v)	Facility Location Information 100-year floodplain	DPG-075 is not located within a verified 100-year floodplain area.
40 CFR §270.14(b)(14) Utah Admin. Code R315-270-14(b)(14)	Copy of the Closure Proposal	Final Phase II RCRA Facility Investigation (RFI) was issued on October 2004 and approved on 10/14/2005.
40 CFR §270.14(b)(16) Utah Admin. Code R315-270-14(b)(16)	Closure Certification and Notification	Section 2.7.
40 CFR §270.14(b)(18) Utah Admin. Code R315-270-14(b)(18)	Post-Closure Cost Estimate	Federal Facilities are exempt from this requirement.
40 CFR §270.14(b)(19) Utah Admin. Code R315-270-14(b)(19) (i)	Proof of Financial Coverage	Federal Facilities are exempt from this requirement.
40 CFR §270.14(b)(19) Utah Admin. Code R315-270-14(b)(19) (ii)	Topographic Map Map Scale and Date	Figure 2 (1 inch = 1000 feet (ft)).
40 CFR §270.14(b)(19) Utah Admin. Code R315-270-14(b)(19) (iii)	Topographic Map 100-year floodplain area	DPG-075 is not located within a verified 100-year floodplain area.
40 CFR §270.14(b)(19) Utah Admin. Code R315-270-14(b)(19) (iv)	Topographic Map Surface waters including intermittent streams	Figure 2
40 CFR §270.14(b)(5) Utah Admin, Code R315-270-14(b)(5)	Topographic Map Surrounding land uses	DPG-075 is within a military base. There are no nearby operations in the vicinity of DPG-075.
40 CFR §270.14(b)(19) Utah Admin. Code R315-270-14(b)(19) (v)	Topographic Map A wind rose (i.e., prevailing windspeed and direction)	There are no residential populations abutting DPG-075. The closest residential area approximately 1.5 miles away. A wind rose is not deemed necessary for DPG-075.
40 CFR §270.14(b)(19)	Topographic Map Orientation of	Figure 2

Regulation Citation	Requirement Description	Location Requirement is Addressed
Utah Admin. Code R315-270-14(b)(19)(vi)	Map, North Arrow	

Table 1 (Continued): Summary of DPG-075 Post-Closure Information Requirements Under 40 CFR §270.14 and Utah Admin. Code R315-270-28 and R315-270-14

40 CFR §270.14(b)(19) Utah Admin. Code R315-270-14(b)(19)(vii)	Topographic Map Legal boundaries of the hazardous waste management facility	Figure 2
40 CFR §270.14(b)(19) Utah Admin. Code R315-270-14(b)(19)(viii)	Topographic Map Access control, fence, gates	Figure 2.
40 CFR §270.14(b)(19) Utah Admin. Code R315-270-14(b)(19)(ix)	Topographic Map Injection and withdrawal wells	Figure 2
40 CFR §270.14(b)(19) Utah Admin. Code R315-270-14(b)(19)(xi)	Topographic Map Barriers for drainage or flood control	Figure 2. There are no barriers to drainage or flood control in the vicinity of DPG-075.
40 CFR §270.14(c) Utah Admin. Code R315-270-14(c)(1)	Groundwater Monitoring Information Summary of Groundwater Data	Final Phase II RFI Report, Section 2.2.4
40 CFR §270.14(c) Utah Admin Code R315-270-14(c)(2)	Groundwater Monitoring Information Identification of uppermost aquifer	Final Phase II RFI Report, Section 2.2.1
40 CFR §270.14(c) Utah Admin. Code R315-270-14(c)(3)	Groundwater Monitoring Information Delineation of the Waste Management Area	Figure 3
40 CFR §270.14(c) Utah Admin. Code R315-270- 14(c)(4)	Groundwater Monitoring Information Extent of Plume	Final Phase II RFI Report, Section 2.2.4
40 CFR §270.14(c) Utah Admin. Code R315-270-14(c)(5)	Groundwater Monitoring Information Detailed Plans/Engineering Report for Proposed Groundwater Program	Post-closure groundwater monitoring at DPG-075 is not required.
40 CFR §270.14(c) Utah Admin. Code R315-270-14(c)(6)(i)	Groundwater Monitoring Information Proposed List of Parameters	Post-closure groundwater monitoring at DPG-075 is not required.
40 CFR §270.14(c) Utah Admin. Code R315-270-14(c)(6)(ii)	Groundwater Monitoring Information Proposed Groundwater Monitoring System	Post-closure groundwater monitoring at DPG-075 is not required.
40 CFR §270.14(c) Utah Admin. Code R315-270-14(c)(6)(iii)	Groundwater Monitoring Information Background Values	Post-closure groundwater monitoring at DPG-075 is not required.
40 CFR §270.14(c) Utah Admin. Code R315-270-14(c)(6)(iv)	Groundwater Monitoring Information A description of the Proposed Sampling	Post-closure groundwater monitoring at DPG-075 is not required.

2.0 FACILITY DESCRIPTION

The following provides a general description of DPG-075, as required by Utah Admin. Code R315-270-14(b)(1) (Figures 1 and 2).

2.1 DPG-075 LOCATION AND HISTORY

DPG-075 is located south of Fries Park, approximately 1200 feet (ft) south of Stark Road. DPG-075 originally consisted of a three-celled sewage lagoon. Each cell was approximately 30 ft wide by 70 ft long by 5 ft deep and separated from the adjacent cells by an earthen berm (Utah Department of Environmental Quality [UDEQ] Division of Solid and Hazardous Waste [DSHW], 1992). Based on information obtained during the Phase I investigation, the Phase II investigation of DPG-075 was expanded to include sewer piping, a former Imhoff tank, a sump, and ditches associated with disposal of effluent from the Fries Park area. These site features cover an affected area of approximately 6 acres. The site slopes gently eastward with an average elevation of 4840 ft above mean sea level (msl).

Information from site surveys and facility drawings indicate that a buried pipe extends south from Fries Park to the location of the former Imhoff tank. No manholes have been identified to confirm the location of the buried pipe; however, the pipe is expected to follow the gravel road. At the location of the former Imhoff tank, all material has been removed except for a wooden box. This box probably contained a valve to control the amount of effluent released from the Imhoff tank. Engineering drawings suggest that the Imhoff tank was below ground. This tank was subsequently removed, and the excavation was closed by backfilling. Effluent from the Imhoff tank apparently was diverted either to the three-cell lagoon or to two effluent ditches that extend southward for a distance of approximately 2200 ft. A second wooden box is located approximately 100 ft south of the Imhoff tank and apparently served as a diversion box between the two effluent ditches. Each ditch is approximately two ft wide and one to two ft deep. The effluent ditches were probably used as an overflow mechanism when the amount of effluent exceeded the capacity of the sewage lagoons. A man-made sump is located at the outfall of the effluent ditches. This sump is a depression 10 ft wide by 14 ft long by 3.5 ft deep.

2.2 PAST OPERATIONS

Information collected from the Phase I investigation indicates that the three-cell lagoon was used during the early 1950s to treat sewage from the Fries Park area (Parsons, 1999). Fries Park served as a temporary housing and construction storage area during the construction of the English Village and Avery facilities. Wastewater generated from the buildings and housing area in Fries Park was probably discharged to the Imhoff tank, and then to the lagoons for evaporation.

2.3 PREVIOUS INVESTIGATIONS DOCUMENTATION

The detailed results of previous soil and groundwater sampling and closure information including the risk assessment are available for DPG-075 in the Utah Division of Waste Management and Radiation Control (UDWMRC), formerly Division of Solid and Hazardous Waste (DSHW), public documents listed below in Table 2 (Utah Admin. Code R315-270-14(b)(13)).

Table 2: UDWMRC Library Documents Detailing DPG-075 Investigations

Document Title	Received Date	UDWMRC Library No.
Parsons, 1999. *Final Phase I RCRA Facility Investigation, Investigation Report, Revision 1*. September.	09/99	DPG0007
Parsons, 2004. *Final Phase II RCRA Facility Investigation Report, SWMU-75 Addendum*. October.	10/04	

2.4 CLOSURE ACTIVITIES

Documentation in the approved RFI Report indicates that conditions at DPG-075 meet the closure performance standards under Utah Admin. Code R315-265; 40 CFR §265.111 incorporated by reference). Risks and hazards associated with potential exposure to soil at DPG-075, while not qualifying for NFA, are less than industrial screening levels. Land use controls are required to prevent residential use of the site.

The major closure activities completed at DPG-075 included:

- Demonstrating that degradation of groundwater was unlikely based on the soil-to-groundwater screening analysis; and

- Prevention of human contact with the waste and groundwater protection will be achieved through land use restrictions. An inspection checklist designed to insure that these objectives are maintained is presented in Module VII, Form A.

2.5 HUMAN HEALTH AND ECOLOGICAL RISK ASSESSMENT

Results of the HRA and ERA performed per Utah Admin. Code R315-101 (UDWMRC, 2001) indicate: 1) that adverse health effects to industrial workers associated with potential exposures to COPCs in the soil at DPG-075 are not expected; and 2) COPECs are not expected to pose unacceptable hazards to ecological receptors. Therefore, corrective measures are not required for soils under continued industrial land use. The appropriate closure method for DPG-075 is to restrict future property use to industrial use only.

2.6 SURFACE WATER AND GROUNDWATER

Although the sewage lagoons and effluent ditches at DPG-075 likely contained surface water in the past when the site was active, no surface water was observed in these features during Phase I or Phase II RFI field activities (Parsons, 1999 and 2004). Therefore, there are no defined surface water features within or near DPG-075.

Groundwater level measurements indicate that the top of the water bearing zone at DPG-075 is probably between 164 and 192 ft bgs, and that regional groundwater flow to the west. Data from monitoring wells at HWMU-47 indicate that groundwater quality at DPG-075 is likely Class II (drinking water quality) per (Utah Admin. Code R317-6-3 (DWQ, 2002). Therefore, groundwater in this area can be used for drinking water, irrigation, or other purposes.

The closest active water well is WW18, located in the English Village area. WW18 is approximately 1.5 miles northeast of DPG-075 and is screened from 100-320 ft bgs. Water quality data collected from WW18 on April 10, 2001 indicates that the groundwater from this well is likely Class II (drinking water quality) per Utah Admin. Code R317-6-3 (DWQ, 2002). WW18 is currently used for irrigation purposes.

2.7 CLOSURE NOTIFICATIONS

Federal facilities are exempt from submitting notifications to the local zoning authority as required by Utah Admin. Code R315-264-116 and R315-264-119.

3.0 SECURITY REQUIREMENTS

The following security condition is applicable to DPG-075:

DPG-075 is located within a federal, military installation (DPG). As such, the installation is restricted for the common population.

The Dugway Emergency Response and Contingency Plan (Part B Permit), where applicable to this site, shall be used to announce and respond to emergency conditions. At a minimum, the site inspector should have a radio or cell phone and a First Aid kit available during inspections.

4.0 POST-CLOSURE OPERATIONS AND INSPECTIONS

4.1 INTRODUCTION

DPG-075 has been closed under a continued industrial use scenario, which prohibits residential use in the area formerly occupied by the site. The site has been closed under the DPG RCRA Part B Permit requirements. To ensure that the area is not reused or developed and to ensure the Dugway Dig Permit Process (Module VII.I) has been followed, annual site inspections and a biennial post-closure report shall be required.

4.2 ROUTINE SITE INSPECTIONS

During its Post-Closure period, general inspections of the former DPG-075 site shall be conducted annually by November 1st to ensure that the former site remains under industrial use. The frequency of inspections can be modified in accordance with amendments submitted in the form of proposed permit modifications.

Site inspections will consist of a complete walk through and visual inspection of the site. A general site inspection checklist for industrial use sites is included in Module VII, Form A. Completed inspection forms shall be filed with the Dugway Environmental Office.

At a minimum the site shall be visually inspected to ensure the following conditions are maintained at the site:

1. There is no evidence of land use other than for industrial purposes within the former site boundary; and
2. There is no evidence of soil disturbance.

Table 3 summarizes the Post-Closure Inspection Schedule for DPG-075, and lists the items to be inspected. Inspection personnel shall note any problems found and shall inform appropriate Dugway representatives.

Table 3: DPG- 075 Post-Closure Inspection Schedule

Inspection/ Monitoring Item	Method of Documentation	Frequency of Inspection
Land Use	Industrial Use Inspection Checklist (Module VII, Form A)	Annual inspections shall be conducted before November 1st, of each year.
Soil Disturbance	Industrial Use Inspection Checklist (Module VII, Form A)	Annual inspections shall be conducted before November 1st, of each year.

4.3 INSPECTION FOLLOW-UP

Copies of completed site inspection checklists (Module VII, Form A) shall be forwarded to the Dugway Environmental Office. The Point-of-Contact for the Dugway Environmental Office is as follows:

Environmental Programs Compliance Representative
Dugway Proving Ground Environmental Program Office
Dugway Proving Ground, UT 84022
Telephone: (435) 831-3560

The Dugway Environmental Office shall notify the appropriate personnel to implement corrective action as needed.

Corrective action shall be initiated as soon as practical but no longer than 30 days of discovery. If the corrective action will require more than 30 days, a schedule of the correction will be provided to the Director for approval. If the corrective action requires substantial effort, a technical plan shall be prepared to summarize the problem, illustrate potential impacts, and clarify the proposed plan for action. Routine corrective actions will be recorded on the site inspection form in the comments with the date of the correction. This will ensure proper tracking of the resolution.

5.0 SUBMITTALS/REPORTING

Based on the evaluation presented in the RFI for DPG-075 (Parsons, 2004), post-closure inspection is required.

5.1 NON-COMPLIANCE REPORTING

The conditions at DPG-075 are such that the impact to human health and the environment is very unlikely. Hazardous wastes are no longer managed at the site. Nonetheless, if there is any type of non-compliance with any condition of this Permit, notifications shall be submitted per permit condition VII.C.5.

5.2 BIENNIAL POST-CLOSURE REPORT

In accordance with Utah Admin. Code R315-270-30l)(9), a Biennial Post-Closure Report shall be prepared for all Dugway closed HWMUs and SWMUs undergoing post-closure care by March 1, of the reporting year. The first Post-Closure report for DPG-075 shall be due no later than March 1, 2010. Specifically for DPG-075, the Biennial Post-Closure Report shall include, at a minimum, the following:

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

5.3 REQUIRED SUBMITTALS

Table 4 summarizes the requirements for the Biennial Post-Closure Report for DPG-075 and reporting of any non-compliance.

Table 4: Summary Table of Required Submittals

Required Submittals	Frequency and Submittal Date
Biennial Post-Closure Report	Post-Closure Reports shall be submitted to the Division of Waste Management and Radiation Control no later than March, of the year the report is due. Reporting years are even numbered years beginning with March 2010, for the duration of the Post-Closure Monitoring Period.

Non-Compliance Reporting	
Anticipated Non-Compliance	30 days advance notice of any change which may result in noncompliance
24-hour Notification for information concerning the non-compliance, which may endanger public drinking water supplies or human health or the environment.	Orally within 24 hours of discovery

Table 4: Summary Table of Required Submittals (Continued)

Required Submittals	Frequency and Submittal Date
Five-day written notification for information concerning the 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 Director may waive the 5-day notice, in favor of a 15-day notice.	Within 5 days of discovery
Written notification for information concerning the non-compliance, which does not endanger human health or the environment.	Submitted when the Biennial Post Closure Reports are submitted.

6.0 POST-CLOSURE CERTIFICATION

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

7.0 REFERENCES

Division of Water Quality (DWQ), 2002. *Division of Water Quality Administrative Rules for Groundwater Quality Protection R317-6 Utah Administrative Code.*

Division of Solid and Hazardous Waste (DSHW), 2001. *Administrative Rules for Cleanup Action and Risk-Based Closure Standards*. Utah Department of Environmental Quality. R315-101, Utah Administrative Code.

Parsons Environmental Science, Inc. (Parsons), 2004. *Final Phase II RCRA Facility Investigation Report, SWMU-075 Addendum*. October.

Parsons, 1999. *Final Phase I RCRA Facility Investigation, Investigation Report, Revision 1.* September.

Utah Department of Environmental Quality (UDEQ), 1992. *RCRA Facility Assessment of Solid Waste Management Units at Dugway.*