

DUGWAY PERMIT

MODULE VII

ATTACHMENT 13

**HWMU 37
POST-CLOSURE PLAN**

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LIST OF ACRONYMS, ABBREVIATIONS, AND SYMBOLS

bgs	Below Ground Surface
CFR	Code of Federal Regulations
CPT	Cone Penetrometer Testing
CS	0-chlorobanalmalonitrile or tear gas
CWA	Chemical Warfare Agents
DPG	Dugway Proving Ground
DSHW	Division of Solid and Hazardous Waste
Dugway	Dugway Proving Ground
ft	Feet
FWEC	Foster Wheeler Environmental Corporation
HHRA	Human Health Risk Assessment
HWMU	Hazardous Waste Management Unit
MCL	Maximum Contaminant Level
mg/L	Milligrams per Liter
msl	Mean Sea Level
Shaw	Shaw Environmental, Inc.
SWMU	Solid Waste Management Unit
TDS	Total Dissolved Solids
TERC	Total Environmental Restoration Contract
UAC	Utah Administrative Code
USGS	United States Geological Survey
USHWCB	Utah Solid and Hazardous Waste Control Board
UXO	Unexploded Ordnance

1.0 INTRODUCTION

The two objectives of this Post-Closure Plan are; 1) to ensure that Dugway Proving Grounds (DPG or Dugway) complies with the Post-Closure Permit issued by the State of Utah in accordance with 40 Code of Federal Regulations (CFR) §264.117, with respect to post-closure inspection requirements; and, 2) outline the requirements needed to prevent exposure or contact with waste left in place at this landfill site. To meet these objectives this post closure plan provides detailed information regarding the location, regulatory criteria, and post-closure inspections at Hazardous Waste Management Unit (HWMU) 37. Post-closure requirements will continue for a minimum of 30 years after closure of HWMU 37. The post-closure care period may be extended or shortened, as deemed necessary (40 CFR §265.117(a)(2)).

In accordance with Title 40 CFR §270.28 and Utah Administrative Code (UAC) R315-3-2.19, the Post-Closure Plan is required to include specific information for a closed facility. As applicable to HWMU 37, 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.

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

Table 1: Summary of HWMU 37 Post-Closure Information Requirements Under 40 CFR §270.14, UAC R315-3-2.19, and UAC R315-3-2.5

Regulation Citation	Requirement Description	Location Requirement is Addressed
40 CFR §270.14(b)(1) UAC R315-3-2.5(b)(1)	General Description of the Facility	Section 2.0.
40 CFR §270.14(b)(4) UAC R315-3-2.5(b)(4)	Description of Security Procedures	Section 3.0.
40 CFR §270.14(b)(5) UAC R315-3-2.5(b)(5)	General Inspection Schedule	Section 7.0, Module VII Table VII-3, and Module VII Form B
40 CFR §270.14(b)(6) UAC R315-3-2.5(b)(6)	Preparedness and Prevention	Section 4.0.
40 CFR §§270.14(b)(11)(i-ii, v) UAC R315-3-2.5(b)(11) (i-ii, v)	Facility Location Information Applicable seismic standard	Section 5.0.
40 CFR §§270.14(b)(11) (iii-v) UAC R315-3-2.5(b)(11) (iii-v)	Facility Location Information 100-year floodplain	Section 6.0.

Table 1: Summary of HWMU 37 Post-Closure Information Requirements Under 40 CFR §270.14, UAC R315-3-2.19, and UAC R315-3-2.5 (Continued)

Regulation Citation	Requirement Description	Location Requirement is Addressed
40 CFR §270.14(b)(13) UAC R315-3-2.5(b)(13)	Copy of the Closure Plan	Closure Plan variance request were open for public comment ending on May 20, 2005 with no comments received.
40 CFR §270.14(b)(14) UAC R315-3-2.5(b)(14)	Closure Certification and Notification	Section 8.0 and Appendix A.
40 CFR §270.14(b)(16) UAC R315-3-2.5(b)(16)	Post-Closure Cost Estimate	Federal Facilities are exempt from this requirement.
40 CFR §270.14(b)(18) UAC R315-3-2.5(b)(18)	Proof of Financial Coverage	Federal Facilities are exempt from this requirement.
40 CFR §270.14(b)(19) UAC R315-3-2.5(b)(19) (i)	Topographic Map Map Scale and Date	Figure 3 (1 inch = 1000 feet).
40 CFR §270.14(b)(19) UAC R315-3-2.5(b)(19) (ii)	Topographic Map 100-year floodplain area	Section 5.0; HWMU 37 is not located within a verified 100-year floodplain area.
40 CFR §270.14(b)(19) UAC R315-3-2.5(b)(19) (iii)	Topographic Map Surface waters including intermittent streams	Figure 3.
40 CFR §270.14(b)(19) UAC R315-3-2.5(b)(19) (iv)	Topographic Map Surrounding land uses	HWMU 37 is within a military base. There are no nearby operations in the vicinity of HWMU 37.
40 CFR §270.14(b)(19) UAC R315-3-2.5(b)(19) (v)	Topographic Map A wind rose (i.e., prevailing windspeed and direction)	There are no residential populations abutting HWMU 37. The closest residential area is English Village (approximately 10 miles away). A wind rose is not deemed necessary for HWMU 37.
40 CFR §270.14(b)(19) UAC R315-3-2.5(b)(19) (vi)	Topographic Map Orientation of Map, North Arrow	Figure 3.
40 CFR §270.14(b)(19) UAC R315-3-2.5(b)(19) (vii)	Topographic Map Legal boundaries of the hazardous waste management facility	Site boundaries are shown on Figure 2.
40 CFR §270.14(b)(19) UAC R315-3-2.5(b)(19) (viii)	Topographic Map Access control, fence, gates	The fenced area and access gates are shown on Figure 4.
40 CFR §270.14(b)(19) UAC R315-3-2.5(b)(19) (ix)	Topographic Map Injection and withdrawal wells	Figure 3. There are no injection or withdrawal wells in the vicinity of HWMU 37.

Table 1: Summary of HWMU 37 Post-Closure Information Requirements Under 40 CFR §270.14, UAC R315-3-2.19, and UAC R315-3-2.5 (Continued)

Regulation Citation	Requirement Description	Location Requirement is Addressed
40 CFR §270.14(b)(19) UAC R315-3-2.5(b)(19) (xi)	Topographic Map Barriers for drainage or flood control	Figure 4. HWMU 37 is graded to drain surface water away from the trench covers. There are no barriers to drainage or flood control
40 CFR §270.14(c) UAC R315-3-2.5(c)(1)	Groundwater Monitoring Information Summary of Groundwater Data	Not Applicable. Post-closure groundwater monitoring is not required at HWMU 37.
40 CFR §270.14(c) UAC R315-3-2.5(c)(2)	Groundwater Monitoring Information Identification of uppermost aquifer	Not Applicable. Post-closure groundwater monitoring is not required at HWMU 37.
40 CFR §270.14(c) UAC R315-3-2.5(c)(3)	Groundwater Monitoring Information Delineation of the Waste Management Area	Not Applicable. Post-closure groundwater monitoring is not required at HWMU 37.
40 CFR §270.14(c) UAC R315-3-2.5(c)(4)	Groundwater Monitoring Information Extent of Plume	Not Applicable. Post-closure groundwater monitoring is not required at HWMU 37.
40 CFR §270.14(c) UAC R315-3-2.5(c)(5)	Groundwater Monitoring Information Detailed Plans/Engineering Report for Proposed Groundwater Program	Not Applicable. Post-closure groundwater monitoring is not required at HWMU 37.
40 CFR §270.14(c) UAC R315-3-2.5(c)(6)(i)	Groundwater Monitoring Information Proposed List of Parameters	Not Applicable. Post-closure groundwater monitoring is not required at HWMU 37.
40 CFR §270.14(c) UAC R315-3-2.5(c)(6)(ii)	Groundwater Monitoring Information Proposed Groundwater Monitoring System	Not Applicable. Post-closure groundwater monitoring is not required at HWMU 37.
40 CFR §270.14(c) UAC R315-3-2.5(c)(6)(iii)	Groundwater Monitoring Information Background Values	Not Applicable. Post-closure groundwater monitoring is not required at HWMU 37.
40 CFR §270.14(c) UAC R315-3-2.5(c)(6)(iv)	Groundwater Monitoring Information A description of the Proposed Sampling	Not Applicable. Post-closure groundwater monitoring is not required at HWMU 37.

2.0 FACILITY DESCRIPTION

The following provides a general description of HWMU 37, also known as the Ditto Landfill at DPG, as required by UAC R315-3-2.5(b)(1) (Figures 1 and 2).

2.1 HWMU 37 LOCATION AND HISTORY

HWMU 37, an inactive landfill located approximately 1,400 feet (ft) southwest of the Ditto Technical Center, is one of the HWMUs included in the Stipulation and Consent Order. Figure 2 shows the location of HWMU 37 with respect to the Ditto Technical Center. HWMU 37 consists primarily of the Ditto Landfill but also includes several other small features, including Solid Waste Management Unit (SWMUs) 87 and 89. Most of HWMU 37 and the Ditto Landfill are enclosed within a fenced area. Access to the area is controlled by Range Control located at the Ditto Technical Center. There are several unimproved roadways within and surrounding the landfill. The landfill itself contains no structures and, like the surrounding area, has little vegetation. Travel and operations within the Ditto Landfill and other features of the HWMU are subject to potential safety and explosive hazards.

2.2 PAST OPERATIONS

The landfill became operational in 1942, along with the nearby Ditto Technical Center. Ditto landfill was abandoned in 1985 (Ebasco Services Inc., 1993). Prior to closure, there were numerous mounds and depressions within the landfill boundary. Trench-and-fill operations were conducted at the landfill. During its operation, HWMU 37 received a variety of wastes, reportedly including cafeteria waste, used oil, tear gas (CS or 0-chlorobanalmalonitrile), unexploded ordnance (UXO) and waste from the Ditto Chemical Laboratory that included used paper products and rags, gloves and glassware, and miscellaneous empty containers, all potentially contaminated with chemical warfare agent (CWA).

2.3 PREVIOUS INVESTIGATIONS DOCUMENTATION

The detailed results of previous material, soil, and groundwater sampling, and closure information including the risk assessment are available, for HWMU 37, in the Division of Solid and Hazardous Waste (DSHW) public documents listed below in Table 2 (UAC R315-3-2.5(b)(13)).

Table 2: DSHW Library Documents Detailing HWMU 37 Investigations

Document Title	Received Date	DSHW Library No.
Ebasco Services Incorporated, 1993. <i>Final Nature and Extent Investigation Plan No. 9 – SWMUs 20, 37, 39, 42, and 43.</i> April.	04/93	00044
Foster Wheeler Environmental Corporation (FWEC), 1995. <i>SWMU Closures at Dugway Proving Ground, Interim Report, Volume 4, Appendix F-Results of Data Validation.</i>	1995	00027
FWEC, 1998. <i>Dugway Proving Ground Closure Plan, Module 3, HWMU 37 Final.</i> May.	05/98	00029
Shaw Environmental, Inc. (Shaw), 2004. <i>Final Closure Plan and No-Cap Variance Proposal for HWMU 37, Ditto Landfill.</i> December.	12/04	XX
Shaw, Environmental, Inc., 2005. <i>Final Remedial Action Plan for HWMU 37, Ditto Landfill.</i> August.	08/05	XX
Shaw Environmental, Inc., 2006. <i>Final Closure Certification Report For HWMU 37 Ditto Landfill.</i> March.	03/06	00486

2.4 CLOSURE ACTIVITIES

In accordance with UAC R315-7-14, closure of a landfill must be accomplished by either removal of all wastes or closure in-place by installation of a landfill cover and long-term monitoring. UAC R315-7-21.4 regulates performance criteria of the landfill cover. For HWMU 37, a variance to UAC R315-7-21.4 was approved by the Utah Solid and Hazardous Waste Control Board (USHWCB) on June 9, 2005. Given the arid site conditions and the fact that the waste in the landfill trenches is already in contact with the groundwater, an engineered landfill cover will not provide significant additional impediment to water migration through the waste. Removal of waste is not a viable option at HWMU 37 due to the possibility of UXO and/or CWA that may be present in the landfill trenches.

The following activities were completed to meet the requirements of the approved no-cover variance for HWMU 37:

- Miscellaneous debris scattered between the trenches was removed and disposed of in a previously excavated area (area C) and covered with a soil cover;
- Above-ground debris piles were removed and disposed of at previously excavated depression C and covered with a soil cover;
- Ordnance waste, previously identified as the “ordnance mound”, was spread in place and covered as part of trench L;
- A cover was placed over the burn area;
- Existing trench soil covers were supplemented with additional soil as appropriate, graded to drain, and covered with a protective rock layer;
- Existing perimeter fence was realigned to allow access to monitoring wells and to encompass two trenches that were located beyond existing fence; and
- Disturbed areas between the covered trenches were hydroseeded to minimize erosion.

Approval for the HWMU 37 Final Closure Certification Report (Shaw, 2005) was received in a letter dated May 31, 2006, from Mr. Dennis R. Downs, USHWCB. Appendix A includes a copy of the HWMU 37 Closure Certification signed and stamped by a Utah-licensed Professional Engineer. An inspection checklist designed to insure that post-closure care is maintained is presented in Module VII, Form B.

Figure 4 shows the final site location with the completed perimeter security fence and all entrance gates.

The investigative and closure activities performed at HWMU 37 are described in detail in the Final Closure Certification Report (Shaw, 2006).

2.5 HUMAN HEALTH AND ECOLOGICAL RISK ASSESSMENT

A human health risk assessment (HHRA) was prepared using the existing data under the assumption that a soil cover would not be installed at HWMU 37. Thus, the calculated risk represents the exposure prior to cover installation. Because current and future site-use restrictions preclude exposure to subsurface soil or shallow groundwater due to the potential for UXO and CWM buried in the trenches, surface soil was determined to be the only medium of concern. A HHRA was performed to evaluate the potential risks to human health under current and future site-use assumptions, i.e., HWMU 37 will remain an inactive landfill, and to determine closure options for HWMU 37. The industrial cancer risk is less than $1E-04$ and the Hazard Index is less than 1, thus the site does not pose an unacceptable risk as defined in UAC R315-101.

Based on the methodology described in the Risk Assumptions Document for the Phase II RCRA Facility Investigations (PES, 2002), Tier 1 and Tier 2 ecological risk assessments were performed on soil data from HWMU 37, as required in regulation UAC R315-101. Ecological risks are expected to be minimal.

2.6 SURFACE WATER AND GROUNDWATER

HWMU 37 is about 4,330 ft above mean sea level (msl) and the ground surface slopes gently westward at about a 1-foot drop per 800-foot run. The topography of the area is minimal and relief does not exceed five feet within the HWMU. The only prominent drainage feature in the area is an east-west trending unlined drainage ditch along the northern boundary of the landfill.

The recent groundwater investigation did not show that significant organic contamination was present and all inorganic detections were below current Maximum Contaminant Level (MCLs). In addition, arsenic detected in upgradient well 037MW01 is at a higher concentration than the arsenic detected in the downgradient wells. These findings suggest that the wastes are not a significant source of future groundwater contamination even though they are in contact with groundwater in several locations and there is no engineered soil cover installed. The installation of an engineered soil cover will not provide additional protection to the shallow groundwater.

2.7 CLOSURE NOTIFICATIONS

The Certification of Closure (Appendix A) was received and verified by the Executive Secretary of the USHWCB on July 2007.

Federal facilities are exempt from submitting notifications to the local zoning authority as required by 40 CFR §§264.116 and 264.119, which are incorporated by reference in UAC R315-8-7.

3.0 SECURITY REQUIREMENTS

The Permittee shall comply with the following security conditions as applicable to HWMU 37:

1. HWMU 37 is located within a federal, military installation (DPG). As such, the installation is restricted for the common population.
2. In addition at HWMU 37, a fence is present around the Facility. Signs are present warning against unauthorized entry.
3. Verify that Security facilities are maintained and inspected throughout the post-closure care period. Dugway shall report to the DSHW any decrease of Dugway's Base Security, which could affect the security conditions as applicable to HWMU 37.
4. Damaged security facilities shall be noted in the inspection checklist. Repairs shall be completed as soon as practicable after the problem is discovered, in compliance with UAC R315-8-2.6(c).

3.1 CONTINGENCY PLAN

This section provides information about emergency response inspection procedures to be implemented in the event of any natural disaster in the DPG area that may affect the soil cover at HWMU 37. The general post-closure site inspection checklist for landfill sites (Form B) provided in Module VII should be used.

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 phone and a First Aid kit available during inspections.

3.1.1 Earthquakes

Dugway Proving Ground is located in Seismic Zone 2 with a maximum acceleration of 0.2 gravity force. In the event of a 6.5-magnitude or higher earthquake centered within 50 miles of the site, qualified personnel will visually inspect the landfill cap for signs of damage as soon as it is safe and practical to do so. Any damage to the landfill cap will be repaired to ensure the integrity of the cap. If the landfill cap has sustained extensive damage, Dugway will implement corrective actions to ensure that contaminants are contained and human health is protected. Post-earthquake site inspection records will be submitted to the Dugway Environmental Department.

3.1.2 Floods or Major Storms

In the event of a flood or major storm, Dugway will inspect the landfill cap to ensure its integrity within 72 business hours of the event. The general post-closure site inspection checklist for landfill sites (Form B) provided in Module VII should be used. A major storm is defined in this plan as a storm with one inch of precipitation or more over a 24-hour period. Any damage to the landfill cap will be repaired as soon as possible to ensure the integrity of the cap.

3.1.3 Fire

In the event of a surface fire near the landfill cap, the Dugway fire department will be notified and the Dugway integrated contingency plan will be implemented. In the event of a landfill fire, if the cap is observed to have been breached, other firefighting methods (such as using foam or smothering with dirt) will be considered and used, as appropriate. Following the incident, Dugway will perform a thorough inspection of the landfill cap using the general post-closure site inspection checklist for landfill sites (Form B) provided in Module VII, to ensure that the integrity of the soil cover has not been compromised and waste is not exposed. If there is fire damage, DPG will implement corrective actions to ensure that contaminants are contained and human health is protected.

4.0 SEISMIC STANDARD

HWMU 37 is not located within 200 ft of any active faults. Although Utah is tectonically active, most of the earthquake activity occurs about 55 miles to the east along the Wasatch Range Foothills.

A geologic map completed in a 1988 study by the United States Geological Survey (USGS) (Barnhard and Dodge, 1988), was used to determine the distribution, relative age, and amount and extent of surface rupture on Quaternary fault scarps, in the area of HWMU 37.

The USGS study (Barnhard and Dodge, 1988) concluded that morphologic and geologic data collected along the fault scarps in the area indicate that all were formed during the later Pleistocene era and there is not any clear evidence of Holocene surface rupture. Several faults inferred on geophysical evidence are located at DPG; however, there is no evidence of displacement during Holocene time.

5.0 FLOODPLAIN STANDARD

HWMU 37 is not located within a 100-year verified floodplain. The National Flood Insurance Rate Map, identifying the boundary of the 100-year flood, does not include DPG. There are no permanent streams or other surface water bodies on DPG.

The trench covers were constructed to cause precipitation to flow away from the covers. Most of the surface water evaporates rather than percolating into the ground. Like other arid regions, DPG is subject to flash flooding following high-precipitation events. Flash floods have occurred only four times in the history of the installation, in 1944, 1952, 1973, and 1983. The major area affected during flash floods has been the Government Creek drainage channel, which has overflowed and caused minor inundation of roads at the Ditto Technical Center.

6.0 POST-CLOSURE OPERATIONS AND INSPECTIONS

6.1 INTRODUCTION

HWMU 37 has been closed under the interim status landfill closure requirements. Disturbance of the waste will not be allowed. To ensure that the area is not reused or developed, annual site inspections and a biennial post-closure report shall be required.

6.2 GROUNDWATER MONITORING

Post-closure management of HWMU 37 does not require groundwater monitoring.

6.3 SITE INSPECTIONS

General site inspections of the former HWMU 37 site shall be conducted annually by November 1st and within 72 business hours after major storm events to ensure that the integrity of the engineered caps is maintained and to verify the Dugway Dig Permit process as described in Module VII.I has been followed. A major storm is defined as one-inch or more of precipitation over a 24-hour period as measured at the Ditto Technical Center. Any modifications to the frequency of inspections will be in accordance with amendments submitted in the form of proposed permit modifications. Site inspections will consist of a complete walkthrough and visual inspection of the covered areas as well as surface water drainage features. The general post-closure site inspection checklist for landfill sites (Form B) is provided in Module VII. Completed inspection forms shall be filed with the Dugway Environmental Office.

The post-closure inspection requirements for HWMU-37 do not include surveying of monument markers or salinity testing. Question numbers 7 through 10 on Form B are not applicable for HWMU-37.

6.4 INSPECTION FOLLOW-UP

Copies of completed site inspection checklists (Module VII Form B) 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 after identifying the problem, or as directed by Dugway. If the corrective action requires substantial effort, 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 under this Permit. This plan shall be approved by the Executive Secretary and shall be submitted within 30 days of Dugway's decision to implement corrective action.

7.0 SUBMITTALS/REPORTING

Based on the evaluation presented in the Final Closure Certification Report for HWMU 37, post-closure inspection is required for HWMU 37. Groundwater monitoring is not required.

7.1 NON-COMPLIANCE REPORTING

The conditions at HWMU 37 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.

7.2 BIENNIAL POST-CLOSURE REPORT

In accordance with UAC R315-3-3.1(1)(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 HWMU 37 shall be due by March 2007. After this first period, reporting years shall change to odd numbered years, with subsequent biennial reports due by March 1st of even numbered years, beginning in 2008. Specifically for HWMU 37, the Biennial Post-Closure Report shall include, at a minimum, the following:

- General site description and conditions;
- Areas of cap repair; and
- Inspection records.

7.3 REQUIRED SUBMITTALS

Table 3 summarizes the requirements for the Biennial Post-Closure Report for HWMU 37 and reporting for any non-compliance issues.

Table 3: Summary Table of Required Submittals

Required Submittals	Frequency and Submittal Date
<u>Biennial Post-Closure Report</u>	Post-Closure Reports shall be submitted to the Division of Solid and Hazardous Waste no later than March, of the year the report is due. Reporting years are even numbered years beginning with 2006 and odd numbered years beginning 2007 for the duration of the Post-Closure Monitoring Period.

<u>Non-Compliance Reporting</u>	
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
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 Executive Secretary 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.

8.0 POST-CLOSURE CERTIFICATION

No later than 60 days after post-closure activities are completed and approved by the Executive Secretary, 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.

9.0 REFERENCES

Barnhard, T.P. and R.L. Dodge, 1988. *Map of Fault Scarps Formed on Unconsolidated Sediments, Tooele 1° x 2° Quadrangle, Northwestern Utah*, United States Geological Survey.

Ebasco Services Incorporated (Ebasco), 1993. *Final Nature and Extent Investigation Plan No. 9 – SWMUs 20, 37, 39, 42, and 43*. April.

Foster Wheeler Environmental Corporation (FWEC), 1995. *SWMU Closures at Dugway Proving Ground, Interim Report, Volume 4, Appendix F-Results of Data Validation*.

FWEC, 1998. *Dugway Proving Ground Closure Plan, Module 3, HWMU 37 Final*. May.

Parsons Engineering Science, (PES), 2002. *Final Phase II RCRA Facility Investigation Risk Assumptions Document, Dugway Proving Ground, Dugway, Utah, Revision 2*. Denver, Colorado. May.

Shaw Environmental, Inc. (Shaw), 2005. *Final Remedial Action Plan for HWMU 37 Dugway Proving Ground, Dugway, Utah, Rev. 0*. August.

Shaw, 2006. *Final Closure Certification Report, for HWMU 37 Ditto Landfill, Dugway Proving Ground, Utah*. March.

APPENDIX A

COPY OF

CERTIFICATION OF CLOSURE

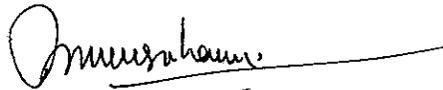
CERTIFICATION OF CLOSURE

The Closure Report for Hazardous Waste Management Unit (HWMU) 37 at Dugway Proving Ground, Utah has been prepared by Shaw Environmental, Inc. in accordance with the closure requirements specified under the Utah Administrative Code (UAC) 315-7-14 and 40 Code of Federal Regulations 265, Subpart G. The requirements of UAC 315-101 form the basis for the risk-based criteria in the closure of HWMU 37.

In accordance with 40 CFR 265.115, the signature and seal certify that a licensed professional has reviewed the Closure Report in accordance with the above referenced regulatory requirements.

Respectfully submitted,

Scott Reed
Directorate of Environmental Programs
Dugway Proving Ground



Sunil Kishnani, Ph.D., P.E.
Utah Registered Civil Engineer No. 6027103
Shaw Environmental, Inc.

