

DUGWAY PERMIT

MODULE VII

ATTACHMENT 12

SOLID WASTE MANAGEMENT UNIT

SWMU 021

POST-CLOSURE PLAN

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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 Utah Administrative Code (Utah Admin. Code) R315-265, 40 Code of Federal Regulations (CFR) §264.117 incorporated by reference, 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 Solid Waste Management Unit (SWMU) 021, herein referred to as DPG-021. Post-closure requirements will continue for a minimum of 30 years after closure of DPG-021. The post-closure care period may be extended or shortened, as deemed necessary Utah Admin. Code R315-265 (40 CFR §264.117(a)(2) incorporated by reference).

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-021, 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 DPG-021 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 6.0, Module VII Table VII-3, and Module VII Form B
40 CFR §270.14(b)(6) Utah Admin. Code R315-270-14(b)(6)	Preparedness and Prevention	Section 3.0

Table 1 (Continued): Summary of DPG-021 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)(11)(i-ii, v) Utah Admin. Code R315-270-14(b)(11)(i-ii, v)	Facility Location Information Applicable seismic standard	Section 4.0
40 CFR §§270.14(b)(11)(iii-v) Utah Admin. Code R315-270-14(b)(11)(iii-v)	Facility Location Information 100-year floodplain	Section 5.0
40 CFR §270.14(b)(14) Utah Admin. Code R315-270-14(b)(14)	Copy of the Closure Proposal	RCRA Phase II RFI was approved on 04/28/2005. No public comments were received.
40 CFR §270.14(b)(16) Utah Admin. Code R315-270-14(b)(16)	Closure Certification and Notification	Section 2.7 and Appendix A.
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 3 (1 inch = 1000 feet).
40 CFR §§270.14(b)(11)(i-ii, v) Utah Admin. Code R315-270-14(b)(11)(i-ii, v)	Topographic Map 100-year floodplain area	Section 5.0; DPG-021 is not located within a verified 100-year floodplain area.
40 CFR §270.14(b)(19) Utah Admin. Code R315-270-14(b)(19)(iii)	Topographic Map Surface waters including intermittent streams	Figure 3
40 CFR §270.14(b)(19) Utah Admin. Code R315-270-14(b)(19)(iv)	Topographic Map Surrounding land uses	DPG-021 is within a military base. There are no nearby operations in the vicinity of DPG-021.
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-021. The closest residential area is English Village (approximately 13 miles away). A wind rose is not deemed necessary for DPG-021.
40 CFR §270.14(b)(19) Utah Admin. Code R315-270-14(b)(19)(vi)	Topographic Map Orientation of Map, North Arrow	Figure 3
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 3
40 CFR §270.14(b)(19) Utah Admin. Code R315-270-14(b)(19)(viii)	Topographic Map Access control, fence, gates	Figure 3. The site is not enclosed by a fence.
40 CFR §270.14(b)(19) Utah Admin. Code R315-270-14(b)(19)(ix)	Topographic Map Injection and withdrawal wells	Figures 2 and 3
40 CFR §270.14(b)(19)	Topographic Map	Figure 4. DPG-021 is graded to

Table 1 (Continued): Summary of DPG-021 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
Utah Admin. Code R315-270-14(b)(19)(xi)	Barriers for drainage or flood control	drain surface water away from the engineered covers. There are no barriers to drainage or flood control.
40 CFR §270.14(c) Utah Admin. Code R315-270-14(c)(1)	Groundwater Monitoring Information Summary of Groundwater Data	Final Phase II Resource Conservation and Recovery Act Facility Investigation (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-021 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-021 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-021 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-021 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-021 is not required.

2.0 FACILITY DESCRIPTION

The following provides a general description of DPG-021, also known as the Disposal Site at North Camelsback Ridge at DPG, as required by Utah Admin. Code R315-270-14(b)(1) (Figures 1 and 2).

2.1 DPG-021 LOCATION AND HISTORY

DPG-021 is a landfill site located north of Camel’s Back Mountain, approximately 2.8 miles southwest of the Ditto Technical Center (Figure 1). In 1993, warning signs were placed in the area for site control

purposes. Wells were installed into the shallow groundwater adjacent to the burial trenches. Four detonation craters were located to the south of the fenced area. The fenced area combined with the area of the detonation craters covered a total affected area (the portion of the DPG site where soil was potentially disturbed or otherwise affected by site activities) of 3.95 acres. The topography of this site has an average elevation of 4,330 feet (ft) above mean sea level (msl), sloping gently to the north. The disturbed area of the site included a large trench covered by a mound with several cave-in areas. Outside of the disturbed area were a metal debris pile and scattered wood, metal, glass, and plastic scrap material.

DPG-021 was divided into two subsections. Area 1 was designated as the fenced area at the northern end of the site, and encompasses the four backfilled trenches, two debris piles, and two areas where ordnance and explosive (OE) debris had been piled after range cleanup. Area 2 contained the four detonation craters at the southern end of the site.

2.2 PAST OPERATIONS

Past activities at DPG-021 were related to disposal operations potentially from grid activities and may have included the disposal of range clearance materials, OE debris, sampling devices, and other debris (Parsons, 1999). The Resource Conservation and Recovery Act (RCRA) Facility Assessment (RFA) stated that the landfill was used to dispose of chemical munitions during the 1950s (UDEQ, 1992). According to DPG personnel involved in disposal activities at this site, target grid agent samplers and lead acid batteries were decontaminated and disposed of at this site in the 1960s (Parsons, 1999). Remnants of OE were found on the ground surface, and the burial of ordnance and chemical munitions is believed to have occurred at this location. This site contained several features related to burial of waste. Two of the four backfilled trenches had depressions related to settling and caving.

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-021 in the Utah Division of Waste Management and Radiation Control (UDWMRC), formerly the 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-021 Investigations

Document Title	Received Date	UDWMRC Library No.
Parsons, 1999. <i>Final Phase I RCRA Facility Investigation, Investigation Report, Revision 1</i> . September.	09/99	
Parsons, 2004. <i>Final Phase II RCRA Facility Investigation Report, SWMU-21 Addendum</i> . June.	06/04	
Shaw Environmental, 2006a. <i>Corrective Measures Study Report, Firm Fixed-Price Remediation at Landfill Sites, Dugway Proving Ground, Dugway, Utah</i> . July.	07/06	
Shaw Environmental, 2006b. <i>Corrective Measures Implementation Plan, Firm Fixed-Price Remediation at Landfill Sites, Dugway Proving Ground, Dugway, Utah</i> . November.	11/06	
Shaw Environmental, Inc., 2007. <i>Final Corrective Measures Implementation Report (CMIR) For DPG-021</i> .	02/07	

2.4 CLOSURE ACTIVITIES

In accordance with Utah Admin. Code R315-265 (by reference 40 CFR §265) and the CMIP (Shaw, 2006b), closure at DPG-021 has been completed with the construction of an engineered cover system consisting of a geomembrane-supported geosynthetic clay liner (GCL) placed over the identified waste trenches. The closure activities are described in the CMIR (Shaw, 2007). Appendix A includes a copy of the DPG-021 Closure Certification signed and stamped by a Utah-licensed Professional Engineer.

The final cover system as designed and constructed satisfies the requirements of Utah Admin. Code R315-265 (by reference 40 CFR §265, Subpart N, 265.310) for the closure and post-closure of DPG-021, namely:

- Provide long-term minimization of migration of liquids through the closed landfill;
- Function with minimum maintenance;
- Promote drainage and minimize erosion or abrasion of the cover;
- Accommodate settling and subsidence so that the integrity of the cover is maintained; and
- Achieve a permeability less than or equal to the permeability of any bottom liner system or natural subsoils present.

In meeting the above performance standards, the major closure activities completed at DPG-021 included:

- Installation of the final engineered cover system; and
- Final grading of the site, including enhancement of drainage features, to help control erosion and minimize long-term maintenance requirements.

These measures will prevent human contact with the waste and provide for protection of groundwater, which are the long term or post closure objective for this site. An inspection checklist designed to insure that these objectives are maintained is presented in Module VII Form B.

2.5 HUMAN HEALTH AND ECOLOGICAL RISK ASSESSMENT

Human health and ecological risk assessments were conducted and indicated that no subsurface contamination was detected in soil (outside of the trenches). Low concentration contamination was detected in the groundwater at SWMU 21 but does not pose an unacceptable risk as defined in Utah Admin. Code R315-101. The risk assessment for soil focused on areas outside the constructed cover, but did take into consideration airborne particulates emanating from the landfill surface prior to remediation. Direct sampling of the contents of waste burial features TR-1 through TR-4 could not be conducted due to the potential presence of unexploded ordnance (UXO), chemical warfare material (CWM), and/or other OE debris. Despite the absence of direct sampling results, risks to intrusive site workers and burrowing ecological receptors associated with uncharacterized buried wastes are assumed to be unacceptable based on the types of materials potentially present. The industrial cancer risk based on sampling outside the covered trench areas is less than 1E-06 and the Hazard Index is less than 1.0. Ecological risks are expected to be minimal. Due to the risks associated with direct exposure to the waste, intrusive activities into the buried wastes must be avoided. The human and ecological risk assessments as presented in the Final Phase II RCRA Facility Investigation Report, DPG-021 Addendum (Parsons, 2004), are included in Appendix B of the DPG-021 CMIR.

2.6 SURFACE WATER AND GROUNDWATER

There are no defined surface water features within or near DPG-021. The general direction of surface water drainage in the area surrounding this unit is to the northwest, toward the Great Salt Lake Desert.

Low concentrations of volatile organic contamination are present in the groundwater, however groundwater monitoring is not required at this site.

2.7 CLOSURE NOTIFICATIONS

The Certification of Closure (Appendix A) was received and verified by the Executive Secretary of the Utah Solid and Hazardous Waste Control Board on July 2007.

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 conditions are applicable to DPG-021:

1. DPG-021 is located within a federal, military installation (DPG). As such, the installation is restricted for the common population.
2. At DPG-021, signs are present warning against unauthorized entry.
3. Security facilities are to be maintained and inspected throughout the post-closure care period. The security facilities (i.e., posted signs) will be inspected and the frequency of inspection is sated in Table 4. Dugway shall report to the UDWMRC any decrease of Dugway's Base Security, which could affect the security conditions as applicable to DPG-021.
4. Damaged or missing 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 Utah Admin. Code R315-264-15(c).

4.0 POST-CLOSURE OPERATIONS AND INSPECTIONS

4.1 INTRODUCTION

DPG-021 has been closed under the DPG RCRA part B Permit requirements and specifications of the Corrective Measures Implementation (CMI) Plan for Landfill Sites (Shaw, 2006). 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.

4.2 ROUTINE SITE INSPECTIONS

During its Post-Closure period general inspections of the former DPG-021 site shall be conducted annually by November 1st to ensure that the integrity of the engineered cap is maintained and to verify the Dugway Dig Permit process as described in Module VII.I has been followed. 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. A general post-closure site inspection checklist for landfill sites is included in Module VII as Form B. Completed inspection forms shall be filed with the Dugway Environmental Office.

4.2.1 Protective Soil Layer Inspections

Maintenance of the protective soil layer is an essential step in ensuring that the integrity of the final cover system is preserved. During each site visit, observations will be made to ensure that the protective soil layer is functioning as designed (i.e., protecting the underlying GCL). Repairs to the protective soil layer may include removal of vegetation species having top roots greater than 12 inches, regrading through the placement of fill in areas where a potential for ponding water on the cover exists due to settlement, or repair and stabilization of areas that have been eroded.

If signs of soil erosion are excessive (for example, cracks or rills greater than 2-inches wide) or continual (recurring in the same area), corrective action may be necessary. Significant cracks or rills that have the potential to impact the functionality of the cover system will be documented on the inspection forms. Corrective action may include filling in the eroded or cracked area, regrading slopes, establishing vegetation (if soil salinity is favorable) or adding mulch to the soil surface. Soil samples will be collected in accordance with Field Work Variance 119350-02-006 (August 6, 2007) and analyzed for salinity as a contingency in case erosion control is necessary in the future.

For most routine repairs, corrective action should be initiated as soon as possible after identifying the problem or as directed by DPG. If the corrective action requires substantial effort and/or a technical plan, a brief plan will be prepared to summarize the problem, the potential impacts, and the time-frame in which corrective action will be implemented and the planning involved.

4.2.2 Settlement Marker Inspections

During each visit, the settlement marker installed during remediation (Figure 4) will be inspected to determine if any damage has made its use questionable as a reference point. If missing or badly damaged, it will be replaced as soon as possible after discovery of the problem.

As part of the routine inspection, settlement marker location and elevation (denoted as SM-021 in Table 3) will be surveyed at least once per year for the first two years after construction. Once a settlement of 0.1 foot or less has been measured for two consecutive years, surveys can be scaled back to once every five years. The baseline northing, easting, and elevation of the DPG-021 settlement marker (SM-021) has been summarized in Table 3. In addition, the survey coordinates for locations around the perimeter of the cover system are presented for future reference.

Table 3: DPG-021 Survey Coordinates

Description	Northing (ft)	Easting (ft)	Elevation ^a (ft above msl)
Settlement Marker	7,230,366.10	1,230,451.84	4,335.0

(SM-021)			
2000	7,230,179.54	1,230,384.80	4,333.3
2001	7,230,093.41	1,230,461.81	4,333.8
2002	7,230,202.60	1,230,595.84	4,333.3
2003	7,230,295.53	1,230,616.76	4,334.0
2004	7,230,416.95	1,230,563.85	4,333.0
2005	7,230,449.32	1,230,606.36	4,333.0
2006	7,230,259.31	1,230,740.40	4,333.3
2007	7,229,990.89	1,230,434.76	4,333.0
2008	7,230,153.02	1,230,343.90	4,333.0
2009	7,230,115.91	1,230,489.43	4,333.3
2010	7,230,141.78	1,230,486.91	4,332.8
2011	7,230,157.16	1,230,508.88	4,333.0
2012	7,230,133.62	1,230,511.17	4,333.5

^aThe locations and elevations are design locations. The final location is provided in the 2008 Biennial report.

Table 4 summarizes the Post-Closure Inspection Schedule for DPG-021, and lists the items to be inspected. Inspection personnel shall note any problems found and shall inform appropriate Dugway representatives.

4.3 CONTINGENCY INSPECTIONS

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 DPG-021. Module VII Table VII-3 summarizes the type of closure and the required inspection form for DPG-021. The general post-closure site inspection checklist for landfill sites (Form B) should be used and is provided in Module VII.

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.

4.3.1 Earthquakes

Dugway Proving Ground is located in Seismic Zone 2 with a maximum acceleration of 0.2 gravity force (Hunt, 1984). DPG-021 is not located within 200 ft of any active faults. Although Utah is tectonically active, most of the earthquake activity occurs about 65 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 DPG-021.

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.

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.

Following an earthquake, the landfill and landfill cap will also be inspected for lateral shifting of debris. Settlement markers will be resurveyed to determine any horizontal or vertical movement of the cap.

4.3.2 Floods or Major Storms

DPG-021 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.

During the capping of DPG-021, the site was graded so that surface water from precipitation flows away from the capped area and to the northwest in the direction of the natural drainage flow. 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.

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. A general post-closure site inspection checklist for landfill sites (Form B) is included in Module VII. 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.

4.3.3 Fires

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, firefighting methods such as using foam or smothering with soil 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) included in Module VII, to ensure that the integrity of the soil cover has not been compromised and waste has not been exposed. If there is fire damage, DPG will implement corrective actions to ensure that contaminants are contained and human health is protected.

Table 4: DPG-021 Post-Closure Inspection Schedule

Inspection/ Monitoring Item	Method of Documentation	Frequency of Inspection
Landfill Caps	General Post-Closure Site Inspection	Annual

Inspection/ Monitoring Item	Method of Documentation	Frequency of Inspection
	Checklist for Landfill Sites(Form B, Module VII)	
Salinity Testing	General Post-Closure Site Inspection Checklist for Landfill Sites(Form B, Module VII)	Per Field Work Variance 119350-02-006 (August 6, 2007)
Settlement Markers	General Post-Closure Site Inspection Checklist for Landfill Sites(Form B, Module VII)	Annual / 5 year intervals
Signs	General Post-Closure Site Inspection Checklist for Landfill Sites(Form B, Module VII)	Annual
Drainage	General Post-Closure Site Inspection Checklist for Landfill Sites(Form B, Module VII)	Annual

4.4 INSPECTION FOLLOW-UP

Copies of completed general post-closure site inspection checklists for landfill sites (Form B, Module VII) 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 Final CMIR for DPG-021 (Shaw, 2007), post-closure inspection is required. Groundwater monitoring is not required for DPG-021.

5.1 NON-COMPLIANCE REPORTING

The conditions at DPG-021 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 R315-270-30(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 DPG-021 shall be due no later than March 1, 2008. Specifically for DPG-021, the Biennial Post-Closure Report shall include, at a minimum, the following:

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

5.3 REQUIRED SUBMITTALS

Table 5 summarizes the requirements for the Biennial Post-Closure Report for DPG-021 and reporting for any non-compliance.

Table 5: 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 UDWMRC no later than March, of the year the report is due. Reporting years are even numbered years beginning with March 2008, for the duration of the Post-Closure Monitoring Period.
<u>Non-Compliance Reporting</u> Anticipated Non-Compliance 24-hour Notification for information concerning the non-compliance, which may endanger public drinking water supplies or human health or the environment. 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. Written notification for information concerning the non-compliance, which does not endanger human health or the environment.	30 days advance notice of any change which may result in noncompliance Orally within 24 hours of discovery Within 5 days of discovery 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

- 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.
- Hunt, Roy E, 1984. *Geotechnical Engineering Investigation Manual*. New York, McGraw-Hill.
- Parsons, in preparation, 2007. *Final Hydrogeological Assessment and Regional Groundwater Management Plan, Volume III, Downrange Groundwater Management Area, Dugway Proving Ground, Dugway, Utah*.
- Parsons, 2004. *Final Phase II RCRA Facility Investigation Report, SWMU-21 Addendum*. June.
- Parsons, 1999. *Final Phase I RCRA Facility Investigation, Investigation Report, Revision 1*. September.
- Shaw Environmental, 2006b. *Corrective Measures Implementation Plan, Firm Fixed-Price Remediation at Landfill Sites, Dugway Proving Ground, Dugway, Utah*. November.
- Shaw, 2007. *Final Corrective Measures Implementation Report, for DPG-021, Dugway Proving Ground, Utah*.
- U.S. Army, 1994. *Old Chemical Weapons: Munitions Specification Report*. September.

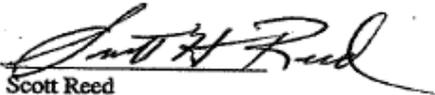
APPENDIX A

COPY OF
CERTIFICATION OF CLOSURE

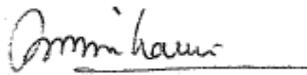
CERTIFICATION OF CLOSURE

The Closure Certification Report for DPG-021 at Dugway Proving Ground, Utah has been prepared by Shaw Environmental in accordance with the closure requirements specified under the DPG Part B RCRA Permit and the CML. The requirements of UAC R315-101 form the basis for the risk-based criteria in the closure of DPG-021. The site has been managed in accordance with the specifications in the approved CMIP, except for re-vegetation (Section 2.4.5).

In accordance with the DPG Part B RCRA Permit, the signature and seal certify that a licensed professional has reviewed the Corrective Measures Implementation Report in accordance with the above referenced regulatory requirements.
Respectfully submitted,



Scott Reed
Directorate of Environmental Programs
Dugway Proving Ground



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

