APPENDIX A

SITE INSPECTION DOCUMENTATION

GROUNDWATER TREATMENT PLANT

Five-Year Review Site Inspection Checklist (Draft)

(Working document for site inspection. Information may be completed by hand and attached to the Five-Year Review report as supporting documentation of site status. "N/A" refers to "not applicable." USEPA, Comprehensive Five-Year Review Guidance, June 2001)

I. SITE INFORMATION	
Site name: GWTP	**Date of inspection:** 29 May 2003
Location and Region: McClellan AFB	**EPA ID:**
Agency, office, or company leading the five-year review:	**Weather/temperature:** Sunny, hot, 80s

Remedy Includes: (Check all that apply)

- ☐ Landfill cover/containment
- ☒ Access controls
- ☒ Institutional controls
- ☒ Groundwater pump and treatment
- ☐ Surface water collection and treatment
- ☐ Vadose Zone Remedial Actions
- ☐ Other _____
- ☐ Monitored natural attenuation
- ☒ Groundwater containment
- ☐ Vertical barrier walls

Attachments: ☐ Inspection team roster attached ☐ Site map attached

II. INTERVIEWS (Check all that apply)

1. **O&M site manager** Darren Ross (Name) UPS O&M Manager (Title) 5/29/03 (Date)
   Interviewed ☐ at site ☐ at office ☐ by phone Phone no. 916 8261556
   Problems, suggestions; ☐ Report attached _____

2. **O&M staff** Jeremey Scott (Name) UPS Project Engineer (Title) 5/29/03 (Date)
   Interviewed ☐ at site ☐ at office ☐ by phone Phone no. 916 8261572
   Problems, suggestions; ☐ Report attached _____

3. **Local regulatory authorities and response agencies** (i.e., State and Tribal offices, emergency response office, police department, office of public health or environmental health, zoning office, recorder of deeds, or other city and county offices, etc.) Fill in all that apply.

Agency _____
Contact _____ _____ _____ _____
Name Title Date Phone no.
Problems; suggestions; ☐ Report attached _____

Agency _____
Contact _____ _____ _____ _____
Name Title Date Phone no.
Problems; suggestions; ☐ Report attached _____

Agency _____
Contact _____ _____ _____ _____
Name Title Date Phone no.
Problems; suggestions; ☐ Report attached _____

Agency _____
Contact _____ _____ _____ _____
Name Title Date Phone no.
Problems; suggestions; ☐ Report attached _____

4. **Other interviews** (optional) ☐ Report attached.

See Appendix B

III. ON-SITE DOCUMENTS & RECORDS VERIFIED (Check all that apply)

1.	**O&M Documents**			
	☒ O&M manual	☒ Readily available	☐ Up to date	☐ N/A
	☒ As-built drawings	☒ Readily available	☐ Up to date	☒ N/A
	☒ Maintenance logs	☒ Readily available	☐ Up to date	☐ N/A
	Remarks			
2.	**Site-Specific Health and Safety Plan**	☒ Readily available	☐ Up to date	☐ N/A
	☒ Contingency plan/emergency response plan	☒ Readily available	☐ Up to date	☐ N/A
	Remarks			
3.	**O&M and OSHA Training Records**	☒ Readily available	☐ Up to date	☐ N/A
	Remarks			
4.	**Permits and Service Agreements**			
	☐ Air discharge permit	☐ Readily available	☐ Up to date	☐ N/A
	☒ Effluent discharge	☒ Readily available	☒ Up to date	☐ N/A
	☐ Waste disposal, POTW	☐ Readily available	☐ Up to date	☐ N/A
	☐ Other permits	☐ Readily available	☐ Up to date	☐ N/A
	Remarks			
5.	**Gas Generation Records**	☐ Readily available	☐ Up to date	☒ N/A
	Remarks			
6.	**Settlement Monument Records**	☐ Readily available	☐ Up to date	☒ N/A
	Remarks			
7.	**Groundwater Monitoring Records**	☒ Readily available	☒ Up to date	☐ N/A
	Remarks			
8.	**Leachate Extraction Records**	☐ Readily available	☐ Up to date	☒ N/A
	Remarks			
9.	**Discharge Compliance Records**			
	☒ Air	☒ Readily available	☒ Up to date	☐ N/A
	☒ Water (effluent)	☒ Readily available	☒ Up to date	☐ N/A
	Remarks			
10.	**Daily Access/Security Logs**	☐ Readily available	☐ Up to date	☒ N/A
	Remarks			

IV. O&M COSTS

1. **O&M Organization**

☐ State in-house ☐ Contractor for State
☐ PRP in-house ☒ Contractor for PRP
☐ Federal Facility in-house G Contractor for Federal Facility
☐ Other_____

2. **O&M Cost Records**

☐ Readily available ☐ Up to date
☐ Funding mechanism/agreement in place
Original O&M cost estimate_____ ☐ Breakdown attached

Total annual cost by year for review period if available

From_____ To_____ _____ ☐ Breakdown attached
Date Date Total cost

From_____ To_____ _____ ☐ Breakdown attached
Date Date Total cost

From_____ To_____ _____ ☐ Breakdown attached
Date Date Total cost

From_____ To_____ _____ ☐ Breakdown attached
Date Date Total cost

From_____ To_____ _____ ☐ Breakdown attached
Date Date Total cost

3. **Unanticipated or Unusually High O&M Costs During Review Period**

Describe costs and reasons: _____

V. ACCESS AND INSTITUTIONAL CONTROLS ☒ Applicable ☐ N/A

A. Fencing

1. **Fencing damaged** ☐ Location shown on site map ☒ Gates secured ☐ N/A
Remarks_____

B. Other Access Restrictions

1. **Signs and other security measures** ☐ Location shown on site map ☐ N/A
Remarks_____

C. Institutional Controls (ICs)

1. **Implementation and enforcement**

Site conditions imply ICs not properly implemented ☐ Yes ☒ No ☐ N/A
Site conditions imply ICs not being fully enforced ☐ Yes ☒ No ☐ N/A

Type of monitoring (*e.g.*, self-reporting, drive by) drive by
Frequency daily
Responsible party/agency URS
Contact Darren Ross (Name) URS Pdm (Title) 5/29/03 (Date) 916F261556 (Phone no.)

Reporting is up-to-date ☒ Yes ☐ No ☐ N/A
Reports are verified by the lead agency ☐ Yes ☐ No ☐ N/A

Specific requirements in deed or decision documents have been met ☐ Yes ☐ No ☐ N/A
Violations have been reported ☐ Yes ☐ No ☐ N/A
Other problems or suggestions: G Report attached

2. **Adequacy** ☒ ICs are adequate ☐ ICs are inadequate ☐ N/A
Remarks

D. General

1. **Vandalism/trespassing** ☐ Location shown on site map ☒ No vandalism evident
Remarks

2. **Land use changes on site** ☒ N/A
Remarks

3. **Land use changes off site** ☒ N/A
Remarks

VI. GENERAL SITE CONDITIONS

A. Roads ☒ Applicable ☐ N/A

1. **Roads damaged** ☐ Location shown on site map ☒ Roads adequate ☐ N/A
Remarks

B. Other Site Conditions

Remarks _____

VII. LANDFILL COVERS G Applicable ☒ N/A

A. Landfill Surface

1. **Settlement** (Low spots) ☐ Location shown on site map ☐ Settlement not evident
   Areal extent_____ Depth_____
   Remarks_____

2. **Cracks** ☐ Location shown on site map ☐ Cracking not evident
   Lengths_____ Widths_____ Depths_____
   Remarks_____

3. **Erosion** ☐ Location shown on site map ☐ Erosion not evident
   Areal extent_____ Depth_____
   Remarks_____

4. **Holes** ☐ Location shown on site map ☐ Holes not evident
   Areal extent_____ Depth_____
   Remarks_____

5. **Vegetative Cover** ☐ Grass ☐ Cover properly established ☐ No signs of stress
   ☐ Trees/Shrubs (indicate size and locations on a diagram)
   Remarks_____

6. **Alternative Cover (armored rock, concrete, etc.)** ☐ N/A
   Remarks_____

7. **Bulges** ☐ Location shown on site map ☐ Bulges not evident
   Areal extent_____ Height_____
   Remarks_____

8. **Wet Areas/Water Damage** ☐ Wet areas/water damage not evident
   ☐ Wet areas ☐ Location shown on site map Areal extent_____
   ☐ Ponding ☐ Location shown on site map Areal extent_____
   ☐ Seeps ☐ Location shown on site map Areal extent_____
   ☐ Soft subgrade ☐ Location shown on site map Areal extent_____
   Remarks_____

9.	**Slope Instability**	☐ Slides	☐Location shown on site map ☐ No evidence of slope instability
	Areal extent_____		
	Remarks_____		
B. Benches		☐Applicable	☐N/A
	(Horizontally constructed mounds of earth placed across a steep landfill side slope to interrupt the slope in order to slow down the velocity of surface runoff and intercept and convey the runoff to a lined channel.)		
1.	**Flows Bypass Bench**	☐ Location shown on site map	☐ N/A or okay
	Remarks_____		
2.	**Bench Breached**	☐Location shown on site map	☐ N/A or okay
	Remarks_____		
3.	**Bench Overtopped**	☐ Location shown on site map	☐N/A or okay
	Remarks_____		
C. Letdown Channels		☐ Applicable	☐ N/A
	(Channel lined with erosion control mats, riprap, grout bags, or gabions that descend down the steep side slope of the cover and will allow the runoff water collected by the benches to move off of the landfill cover without creating erosion gullies.)		
1.	**Settlement**	☐Location shown on site map	☐No evidence of settlement
	Areal extent_____	Depth_____	
	Remarks_____		
2.	**Material Degradation**	☐ Location shown on site map	☐ No evidence of degradation
	Material type_____	Areal extent_____	
	Remarks_____		
3.	**Erosion**	☐ Location shown on site map	☐ No evidence of erosion
	Areal extent_____	Depth_____	
	Remarks_____		

4. **Undercutting** ☐ Location shown on site map ☐ No evidence of undercutting
Areal extent_____ Depth_____
Remarks_____

5. **Obstructions** Type_____ ☐ No obstructions
☐ Location shown on site map Areal extent_____
Size_____
Remarks_____

6. **Excessive Vegetative Growth** Type_____
☐ No evidence of excessive growth
☐ Vegetation in channels does not obstruct flow
☐ Location shown on site map Areal extent_____
Remarks_____

D. Cover Penetrations G Applicable ☑ N/A

1. **Gas Vents** ☐ Active G Passive
☐ Properly secured/locked ☐Functioning ☐ Routinely sampled ☐ Good condition
☐ Evidence of leakage at penetration ☐Needs Maintenance
☐ N/A
Remarks_____

2. **Gas Monitoring Probes**
☐ Properly secured/locked ☐ Functioning ☐ Routinely sampled ☐ Good condition
☐ Evidence of leakage at penetration ☐ Needs Maintenance ☐ N/A
Remarks_____

3. **Monitoring Wells** (within surface area of landfill)
☐ Properly secured/locked ☐ Functioning ☐ Routinely sampled ☐ Good condition
☐ Evidence of leakage at penetration ☐ Needs Maintenance ☐ N/A
Remarks_____

4. **Leachate Extraction Wells**
☐ Properly secured/locked ☐ Functioning ☐ Routinely sampled ☐ Good condition
☐ Evidence of leakage at penetration ☐ Needs Maintenance ☐ N/A
Remarks_____

5. **Settlement Monuments** ☐ Located ☐ Routinely surveyed ☐ N/A
Remarks_____

E. Gas Collection and Treatment ☐ Applicable ☒ N/A

1. **Gas Treatment Facilities**
   ☐ Flaring ☐ Thermal destruction ☐ Collection for reuse
   ☐ Good condition ☐ Needs Maintenance
   Remarks_____

2. **Gas Collection Wells, Manifolds and Piping**
   ☐ Good condition ☐ Needs Maintenance
   Remarks_____

3. **Gas Monitoring Facilities** (*e.g.*, gas monitoring of adjacent homes or buildings)
   ☐ Good condition ☐ Needs Maintenance ☐ N/A
   Remarks_____

F. Cover Drainage Layer ☐ Applicable ☒ N/A

1. **Outlet Pipes Inspected** ☐ Functioning ☐ N/A
   Remarks_____

2. **Outlet Rock Inspected** ☐ Functioning ☐ N/A
   Remarks_____

G. Detention/Sedimentation Ponds ☐ Applicable ☒ N/A

1. **Siltation** Areal extent_____ Depth_____ ☐ N/A
   ☐ Siltation not evident
   Remarks_____

2. **Erosion** Areal extent_____ Depth_____
   ☐ Erosion not evident
   Remarks_____

3. **Outlet Works** ☐ Functioning ☐ N/A
   Remarks_____

4. **Dam** ☐ Functioning ☐ N/A
   Remarks_____

H. Retaining Walls ☐ Applicable ☒ N/A

1. **Deformations** ☐ Location shown on site map ☐ Deformation not evident
   Horizontal displacement_____ Vertical displacement_____
   Rotational displacement_____
   Remarks_____

2. **Degradation** ☐ Location shown on site map ☐ Degradation not evident
   Remarks_____

I. Perimeter Ditches/Off-Site Discharge ☐ Applicable ☒ N/A

1. **Siltation** ☐ Location shown on site map ☐ Siltation not evident
   Areal extent_____ Depth_____
   Remarks_____

2. **Vegetative Growth** ☐ Location shown on site map ☐ N/A
   ☐ Vegetation does not impede flow
   Areal extent_____ Type_____
   Remarks_____

3. **Erosion** ☐ Location shown on site map ☐ Erosion not evident
   Areal extent_____ Depth_____
   Remarks_____

4. **Discharge Structure** ☐ Functioning ☐ N/A
   Remarks_____

VIII. VERTICAL BARRIER WALLS ☐ Applicable ☒ N/A

1. **Settlement** ☐ Location shown on site map ☐ Settlement not evident
   Areal extent_____ Depth_____
   Remarks_____

2. **Performance Monitoring** Type of monitoring_____
   ☐ Performance not monitored
   Frequency_____ ☐ Evidence of breaching
   Head differential_____
   Remarks_____

IX. GROUNDWATER/SURFACE WATER REMEDIES ☒ Applicable ☐ N/A

A. Groundwater Extraction Wells, Pumps, and Pipelines ☒ Applicable ☐ N/A

1. **Pumps, Wellhead Plumbing, and Electrical**
   ☒ Good condition ☐ All required wells properly operating ☐ Needs Maintenance ☐ N/A
   Remarks_____

2. **Extraction System Pipelines, Valves, Valve Boxes, and Other Appurtenances**
   ☒ Good condition ☐ Needs Maintenance
   Remarks_____

3. **Spare Parts and Equipment**
   ☐ Readily available ☐ Good condition ☐ Requires upgrade ☐ Needs to be provided
   Remarks_____

B. Surface Water Collection Structures, Pumps, and Pipelines ☒ Applicable ☐ N/A

1. **Collection Structures, Pumps, and Electrical**
   ☒ Good condition ☐ Needs Maintenance
   Remarks_____

2. **Surface Water Collection System Pipelines, Valves, Valve Boxes, and Other Appurtenances**
   ☒ Good condition ☐ Needs Maintenance
   Remarks_____

3. **Spare Parts and Equipment**
   ☐ Readily available ☐ Good condition ☐ Requires upgrade ☐ Needs to be provided
   Remarks_____

C. Treatment System ☒ Applicable ☐ N/A

1. **Treatment Train** (Check components that apply)
   ☒ Metals removal ☐ Oil/water separation ☐ Bioremediation
   ☒ Air stripping ☒ Carbon adsorbers
   ☐ Filters_____
   ☐ Additive (*e.g.*, chelation agent, flocculent)_____
   ☐ Others_____
   ☒ Good condition ☐ Needs Maintenance
   ☐ Sampling ports properly marked and functional
   ☐ Sampling/maintenance log displayed and up to date
   ☒ Equipment properly identified
   ☒ Quantity of groundwater treated annually_____
   ☐ Quantity of surface water treated annually_____
   Remarks_____

2. **Electrical Enclosures and Panels** (properly rated and functional)
   ☒ N/A ☐ Good condition ☐ Needs Maintenance
   Remarks_____

3. **Tanks, Vaults, Storage Vessels**
   ☒ N/A ☐ Good condition ☐ Proper secondary containment ☐ Needs Maintenance
   Remarks_____

4. **Discharge Structure and Appurtenances**
   ☐ N/A ☒ Good condition ☐ Needs Maintenance
   Remarks_____

5. **Treatment Building(s)**
   ☐ N/A ☒ Good condition (esp. roof and doorways) ☐ Needs repair
   ☐ Chemicals and equipment properly stored
   Remarks_____

6. **Monitoring Wells** (pump and treatment remedy)
   ☐ Properly secured/locked ☐ Functioning ☐ Routinely sampled ☐ Good condition
   ☐ All required wells located ☐ Needs Maintenance ☐ N/A
   Remarks no inspection conducted

D. Monitoring Data

1. Monitoring Data
   ☐ Is routinely submitted on time ☐ Is of acceptable quality

2. Monitoring data suggests:
   ☒ Groundwater plume is effectively contained ☐ Contaminant concentrations are declining

D. Monitored Natural Attenuation

1. **Monitoring Wells** (natural attenuation remedy)

☐ Properly secured/locked ☐ Functioning ☐ Routinely sampled ☐ Good condition

☐ All required wells located ☐ Needs Maintenance ☐ N/A

Remarks_____

X. OTHER REMEDIES

If there are remedies applied at the site which are not covered above, attach an inspection sheet describing the physical nature and condition of any facility associated with the remedy. An example would be soil vapor extraction.

XI. OVERALL OBSERVATIONS

A. Implementation of the Remedy

Describe issues and observations relating to whether the remedy is effective and functioning as designed. Begin with a brief statement of what the remedy is to accomplish (i.e., to contain contaminant plume, minimize infiltration and gas emission, etc.).

B. Adequacy of O&M

Describe issues and observations related to the implementation and scope of O&M procedures. In particular, discuss their relationship to the current and long-term protectiveness of the remedy.

C.	**Early Indicators of Potential Remedy Problems**
	Describe issues and observations such as unexpected changes in the cost or scope of O&M or a high frequency of unscheduled repairs, that suggest that the protectiveness of the remedy may be compromised in the future.

D.	**Opportunities for Optimization**
	Describe possible opportunities for optimization in monitoring tasks or the operation of the remedy.

USEPA, Comprehensive Five-Year Review Guidance, June 2001.

GWTP AIR STRIPPER AND ALZETA THERMOX UNIT

GWTP PHASE II EXPANSION AIR STRIPPER WITH OLD PHASE I STRIPPER IN THE BACKGROUND

UV/OX SYSTEM

DISCHARGE TO MAGPIE CREEK

McCLELLAN SVE SITES

Five-Year Review Site Inspection Checklist (Draft)

(Working document for site inspection. Information may be completed by hand and attached to the Five-Year Review report as supporting documentation of site status. "N/A" refers to "not applicable.")

I. SITE INFORMATION	
Site name: McClellan SVE Sites	**Date of inspection:** 5/13/03
Location and Region: Former McClellan AFB	**EPA ID:**
Agency, office, or company leading the five-year review: AFRPA	**Weather/temperature:** Sunny/75°F

Remedy Includes: (Check all that apply)

- ☐ Landfill cover/containment
- ☐ Access controls
- ☐ Institutional controls
- ☐ Groundwater pump and treatment
- ☐ Surface water collection and treatment
- ☑ Vadose Zone Remedial Actions
- ☐ Other_____
- ☐ Monitored natural attenuation
- ☐ Groundwater containment
- ☐ Vertical barrier walls

Attachments: ☐ Inspection team roster attached ☐ Site map attached

II. INTERVIEWS (Check all that apply)

1. **O&M site manager** Stuart Freeman (Name) Field Engineer/Manager (Title) 5/13/03 (Date)
   Interviewed ☑ at site ☐ at office ☐ by phone Phone no. _____
   Problems, suggestions; ☐ Report attached _____

2. **O&M staff** _____ (Name) _____ (Title) _____ (Date)
   Interviewed ☐ at site ☐ at office ☐ by phone Phone no. _____
   Problems, suggestions; ☐ Report attached _____

MWH

3. **Local regulatory authorities and response agencies** (i.e., State and Tribal offices, emergency response office, police department, office of public health or environmental health, zoning office, recorder of deeds, or other city and county offices, etc.) Fill in all that apply.

Agency _____
Contact _____ _____ _____ _____
Name Title Date Phone no.
Problems; suggestions; ☐ Report attached _____
_____

Agency _____
Contact _____ _____ _____ _____
Name Title Date Phone no.
Problems; suggestions; ☐ Report attached _____
_____

Agency _____
Contact _____ _____ _____ _____
Name Title Date Phone no.
Problems; suggestions; ☐ Report attached _____
_____

Agency _____
Contact _____ _____ _____ _____
Name Title Date Phone no.
Problems; suggestions; ☐ Report attached _____
_____

4. **Other interviews** (optional) ☐ Report attached.

III. ON-SITE DOCUMENTS & RECORDS VERIFIED (Check all that apply)

1. **O&M Documents**
   - ☑ O&M manual — ☑ Readily available ☐ Up to date ☐ N/A
   - ☐ As-built drawings — ☐ Readily available ☐ Up to date ☑ N/A
   - ☑ Maintenance logs — ☑ Readily available ☑ Up to date ☐ N/A

   Remarks_____

2. **Site-Specific Health and Safety Plan** — ☑ Readily available ☐ Up to date ☐ N/A
   - ☐ Contingency plan/emergency response plan — ☐ Readily available ☐ Up to date ☑ N/A

   Remarks_____

3. **O&M and OSHA Training Records** — ☐ Readily available ☐ Up to date ☑ N/A

   Remarks_____

4. **Permits and Service Agreements**
   - ☐ Air discharge permit — ☐ Readily available ☐ Up to date ☑ N/A
   - ☐ Effluent discharge — ☐ Readily available ☐ Up to date ☑ N/A
   - ☐ Waste disposal, POTW — ☐ Readily available ☐ Up to date ☑ N/A
   - ☐ Other permits_____ — ☐ Readily available ☐ Up to date ☑ N/A

   Remarks_____

5. **Gas Generation Records** — ☐ Readily available ☐ Up to date ☑ N/A

   Remarks_____

6. **Settlement Monument Records** — ☐ Readily available ☐ Up to date ☑ N/A

   Remarks_____

7. **Groundwater Monitoring Records** — ☐ Readily available ☐ Up to date ☑ N/A

   Remarks_____

8. **Leachate Extraction Records** — ☐ Readily available ☐ Up to date ☑ N/A

   Remarks_____

9. **Discharge Compliance Records**
   - ☑ Air — ☑ Readily available ☐ Up to date ☐ N/A
   - ☐ Water (effluent) — ☐ Readily available ☐ Up to date ☑ N/A

   Remarks_____

10. **Daily Access/Security Logs** — ☐ Readily available ☐ Up to date ☑ N/A

    Remarks_____

IV. O&M COSTS

1. **O&M Organization**

☐ State in-house ☐ Contractor for State
☐ PRP in-house ☐Contractor for PRP
☐Federal Facility in-house G Contractor for Federal Facility
☐ Other_____

2. **O&M Cost Records**

☐Readily available ☐Up to date
☐ Funding mechanism/agreement in place
Original O&M cost estimate_____☐Breakdown attached

Total annual cost by year for review period if available

From_____ To_____ _____ ☐ Breakdown attached
Date Date Total cost
From_____ To_____ _____ ☐ Breakdown attached
Date Date Total cost
From_____ To_____ _____ ☐ Breakdown attached
Date Date Total cost
From_____ To_____ _____ ☐ Breakdown attached
Date Date Total cost
From_____ To_____ _____ ☐ Breakdown attached
Date Date Total cost

3. **Unanticipated or Unusually High O&M Costs During Review Period**

Describe costs and reasons: _____

V. ACCESS AND INSTITUTIONAL CONTROLS ☑ Applicable ☐ N/A

A. Fencing

1. **Fencing damaged** ☐ Location shown on site map ☑ Gates secured ☐ N/A

Remarks_____

B. Other Access Restrictions

1. **Signs and other security measures** ☐ Location shown on site map ☐ N/A

Remarks Motion detectors for security lighting at most sites
signage at all sites

MWH

C. Institutional Controls (ICs)

1. **Implementation and enforcement**

Site conditions imply ICs not properly implemented ☐ Yes ☐ No ☐ N/A
Site conditions imply ICs not being fully enforced ☐ Yes ☐ No ☐ N/A

Type of monitoring (*e.g.*, self-reporting, drive by) _____
Frequency daily - on week days
Responsible party/agency URS
Contact Paul Graff Senior Geologist _____
Name Title Date Phone no.

Reporting is up-to-date ☑ Yes ☐ No ☐ N/A
Reports are verified by the lead agency ☐ Yes ☐ No ☑ N/A

Specific requirements in deed or decision documents have been met ☐ Yes ☐ No ☐ N/A
Violations have been reported ☐ Yes ☐ No ☐ N/A
Other problems or suggestions: G Report attached

2. **Adequacy** ☐ ICs are adequate ☐ ICs are inadequate ☐ N/A
Remarks

D. General

1. **Vandalism/trespassing** ☐ Location shown on site map ☑ No vandalism evident
Remarks URS spoke of a couple events where tools were stolen from sites

2. **Land use changes on site** ☑ N/A
Remarks

3. **Land use changes off site** ☑ N/A
Remarks

VI. GENERAL SITE CONDITIONS

A. Roads ☑ Applicable ☐ N/A

1. **Roads damaged** ☐ Location shown on site map ☑ Roads adequate ☐ N/A
Remarks

MWH

B. Other Site Conditions

Remarks _____

VII. LANDFILL COVERS G Applicable ☒ N/A

A. Landfill Surface

1. **Settlement** (Low spots) ☐ Location shown on site map ☐Settlement not evident
   Areal extent_____ Depth_____
   Remarks_____

2. **Cracks** ☐ Location shown on site map ☐Cracking not evident
   Lengths_____ Widths_____ Depths_____
   Remarks_____

3. **Erosion** ☐ Location shown on site map ☐Erosion not evident
   Areal extent_____ Depth_____
   Remarks_____

4. **Holes** ☐ Location shown on site map ☐ Holes not evident
   Areal extent_____ Depth_____
   Remarks_____

5. **Vegetative Cover** ☐ Grass ☐ Cover properly established ☐ No signs of stress
   ☐ Trees/Shrubs (indicate size and locations on a diagram)
   Remarks_____

6. **Alternative Cover (armored rock, concrete, etc.)** ☐ N/A
   Remarks_____

7. **Bulges** ☐ Location shown on site map ☐ Bulges not evident
   Areal extent_____ Height_____
   Remarks_____

8. **Wet Areas/Water Damage** ☐Wet areas/water damage not evident
   ☐ Wet areas ☐ Location shown on site map Areal extent_____
   ☐ Ponding ☐Location shown on site map Areal extent_____
   ☐ Seeps ☐Location shown on site map Areal extent_____
   ☐ Soft subgrade ☐Location shown on site map Areal extent_____
   Remarks_____

MWH

9.	**Slope Instability** ☐ Slides ☐Location shown on site map ☐ No evidence of slope instability Areal extent_____ Remarks_____
B. Benches	☐Applicable ☑N/A (Horizontally constructed mounds of earth placed across a steep landfill side slope to interrupt the slope in order to slow down the velocity of surface runoff and intercept and convey the runoff to a lined channel.)
1.	**Flows Bypass Bench** ☐ Location shown on site map ☐ N/A or okay Remarks_____
2.	**Bench Breached** ☐Location shown on site map ☐ N/A or okay Remarks_____
3.	**Bench Overtopped** ☐ Location shown on site map ☐N/A or okay Remarks_____
C. Letdown Channels	☐ Applicable ☑ N/A (Channel lined with erosion control mats, riprap, grout bags, or gabions that descend down the steep side slope of the cover and will allow the runoff water collected by the benches to move off of the landfill cover without creating erosion gullies.)
1.	**Settlement** ☐Location shown on site map ☐No evidence of settlement Areal extent_____ Depth_____ Remarks_____
2.	**Material Degradation** ☐ Location shown on site map ☐ No evidence of degradation Material type_____ Areal extent_____ Remarks_____
3.	**Erosion** ☐ Location shown on site map ☐ No evidence of erosion Areal extent_____ Depth_____ Remarks_____

4. **Undercutting** ☐ Location shown on site map ☐ No evidence of undercutting
Areal extent_____ Depth_____
Remarks_____
_____

5. **Obstructions** Type_____ ☐ No obstructions
☐ Location shown on site map Areal extent_____
Size_____
Remarks_____
_____

6. **Excessive Vegetative Growth** Type_____
☐ No evidence of excessive growth
☐ Vegetation in channels does not obstruct flow
☐ Location shown on site map Areal extent_____
Remarks_____
_____

D. Cover Penetrations G Applicable ~~G~~ N/A

1. **Gas Vents** ☐ Active G Passive
☐ Properly secured/locked ☐Functioning ☐ Routinely sampled ☐ Good condition
☐ Evidence of leakage at penetration ☐Needs Maintenance
☐ N/A
Remarks_____
_____

2. **Gas Monitoring Probes**
☐ Properly secured/locked ☐ Functioning ☐ Routinely sampled ☐ Good condition
☐ Evidence of leakage at penetration ☐ Needs Maintenance ☐ N/A
Remarks_____
_____

3. **Monitoring Wells** (within surface area of landfill)
☐ Properly secured/locked ☐ Functioning ☐ Routinely sampled ☐ Good condition
☐ Evidence of leakage at penetration ☐ Needs Maintenance ☐ N/A
Remarks_____
_____

4. **Leachate Extraction Wells**
☐ Properly secured/locked ☐ Functioning ☐ Routinely sampled ☐ Good condition
☐ Evidence of leakage at penetration ☐ Needs Maintenance ☐ N/A
Remarks_____
_____

5. **Settlement Monuments** ☐ Located ☐ Routinely surveyed ☐ N/A
Remarks_____
_____

E. Gas Collection and Treatment ☐ Applicable ☑ N/A

1. **Gas Treatment Facilities**
   ☐ Flaring ☐ Thermal destruction ☐ Collection for reuse
   ☐ Good condition ☐ Needs Maintenance
   Remarks_____

2. **Gas Collection Wells, Manifolds and Piping**
   ☐ Good condition ☐ Needs Maintenance
   Remarks_____

3. **Gas Monitoring Facilities** (*e.g.*, gas monitoring of adjacent homes or buildings)
   ☐ Good condition ☐ Needs Maintenance ☐ N/A
   Remarks_____

F. Cover Drainage Layer ☐ Applicable ☑ N/A

1. **Outlet Pipes Inspected** ☐ Functioning ☐ N/A
   Remarks_____

2. **Outlet Rock Inspected** ☐ Functioning ☐ N/A
   Remarks_____

G. Detention/Sedimentation Ponds ☐ Applicable ☑ N/A

1. **Siltation** Areal extent_____ Depth_____ ☐ N/A
   ☐ Siltation not evident
   Remarks_____

2. **Erosion** Areal extent_____ Depth_____
   ☐ Erosion not evident
   Remarks_____

3. **Outlet Works** ☐ Functioning ☐ N/A
   Remarks_____

4. **Dam** ☐ Functioning ☐ N/A
   Remarks_____

H. Retaining Walls ☐ Applicable ☑ N/A

1. **Deformations** ☐ Location shown on site map ☐ Deformation not evident
   Horizontal displacement_____ Vertical displacement_____
   Rotational displacement_____
   Remarks_____

2. **Degradation** ☐ Location shown on site map ☐ Degradation not evident
   Remarks_____

I. Perimeter Ditches/Off-Site Discharge ☐ Applicable ☑ N/A

1. **Siltation** ☐ Location shown on site map ☐ Siltation not evident
   Areal extent_____ Depth_____
   Remarks_____

2. **Vegetative Growth** ☐ Location shown on site map ☐ N/A
   ☐ Vegetation does not impede flow
   Areal extent_____ Type_____
   Remarks_____

3. **Erosion** ☐ Location shown on site map ☐ Erosion not evident
   Areal extent_____ Depth_____
   Remarks_____

4. **Discharge Structure** ☐ Functioning ☐ N/A
   Remarks_____

VIII. VERTICAL BARRIER WALLS ☐ Applicable ☑ N/A

1. **Settlement** ☐ Location shown on site map ☐ Settlement not evident
   Areal extent_____ Depth_____
   Remarks_____

2. **Performance Monitoring** Type of monitoring_____
   ☐ Performance not monitored
   Frequency_____ ☐ Evidence of breaching
   Head differential_____
   Remarks_____

IX. GROUNDWATER/SURFACE WATER REMEDIES ☐ Applicable ☑ N/A	
A. Groundwater Extraction Wells, Pumps, and Pipelines ☐ Applicable ☑ N/A	
1.	**Pumps, Wellhead Plumbing, and Electrical** ☐ Good condition ☐ All required wells properly operating ☐ Needs Maintenance ☐ N/A Remarks_____
2.	**Extraction System Pipelines, Valves, Valve Boxes, and Other Appurtenances** ☐ Good condition ☐ Needs Maintenance Remarks_____
3.	**Spare Parts and Equipment** ☐ Readily available ☐ Good condition ☐ Requires upgrade ☐ Needs to be provided Remarks_____
B. Surface Water Collection Structures, Pumps, and Pipelines ☐ Applicable ☑ N/A	
1.	**Collection Structures, Pumps, and Electrical** ☐ Good condition ☐ Needs Maintenance Remarks_____
2.	**Surface Water Collection System Pipelines, Valves, Valve Boxes, and Other Appurtenances** ☐ Good condition ☐ Needs Maintenance Remarks_____
3.	**Spare Parts and Equipment** ☐ Readily available ☐ Good condition ☐ Requires upgrade ☐ Needs to be provided Remarks_____

C. Treatment System ☑ Applicable ☐ N/A

1. **Treatment Train** (Check components that apply)
   ☐ Metals removal ☐ Oil/water separation ☑ Bioremediation
   ☐ Air stripping ☑ Carbon adsorbers
   ☐ Filters_____
   ☐ Additive (*e.g.*, chelation agent, flocculent)_____
   ☐ Others_____
   ☐ Good condition ☐ Needs Maintenance
   ☐ Sampling ports properly marked and functional
   ☐ Sampling/maintenance log displayed and up to date
   ☐ Equipment properly identified
   ☐ Quantity of groundwater treated annually_____
   ☐ Quantity of surface water treated annually_____
   Remarks SVE

2. **Electrical Enclosures and Panels** (properly rated and functional)
   ☐ N/A ☑ Good condition ☐ Needs Maintenance
   Remarks_____

3. **Tanks, Vaults, Storage Vessels**
   ☐ N/A ☑ Good condition ☐ Proper secondary containment ☐ Needs Maintenance
   Remarks_____

4. **Discharge Structure and Appurtenances**
   ☑ N/A ☐ Good condition ☐ Needs Maintenance
   Remarks_____

5. **Treatment Building(s)**
   ☑ N/A ☐ Good condition (esp. roof and doorways) ☐ Needs repair
   ☐ Chemicals and equipment properly stored
   Remarks_____

6. **Monitoring Wells** ~~(pump and treatment remedy)~~ SVE
   ☑ Properly secured/locked ☑ Functioning ☑ Routinely sampled ☑ Good condition
   ☐ All required wells located ☐ Needs Maintenance ☐ N/A
   Remarks_____

D. Monitoring Data

1. Monitoring Data
   ☑ Is routinely submitted on time ☐ Is of acceptable quality

2. Monitoring data suggests:
   ☐ Groundwater plume is effectively contained ☐ Contaminant concentrations are declining

MWH

D. Monitored Natural Attenuation

1. **Monitoring Wells** (natural attenuation remedy)

☑ Properly secured/locked ☑ Functioning ☑ Routinely sampled ☑ Good condition

☐ All required wells located ☐ Needs Maintenance ☐ N/A

Remarks_____

X. OTHER REMEDIES

If there are remedies applied at the site which are not covered above, attach an inspection sheet describing the physical nature and condition of any facility associated with the remedy. An example would be soil vapor extraction.

XI. OVERALL OBSERVATIONS

A. Implementation of the Remedy

Describe issues and observations relating to whether the remedy is effective and functioning as designed. Begin with a brief statement of what the remedy is to accomplish (i.e., to contain contaminant plume, minimize infiltration and gas emission, etc.).

B. Adequacy of O&M

Describe issues and observations related to the implementation and scope of O&M procedures. In particular, discuss their relationship to the current and long-term protectiveness of the remedy.

C.	**Early Indicators of Potential Remedy Problems**
	Describe issues and observations such as unexpected changes in the cost or scope of O&M or a high frequency of unscheduled repairs, that suggest that the protectiveness of the remedy may be compromised in the future. _____ _____ _____ _____ _____ _____ _____ _____ _____
D.	**Opportunities for Optimization**
	Describe possible opportunities for optimization in monitoring tasks or the operation of the remedy. _____ _____ _____ _____ _____ _____ _____ _____ _____

OU D SVE

OU-C1 SVE

Source: McClellan AFB, June 2003

IC-1 SVE GAC

SSA-2

Source: McClellan AFB, June 2003

IC-43 FTO & GAC

IC-35 SVE

Source: McClellan AFB, June 2003

IC-29 DUAL PHASE & IC-31 SVE

IC-27 SVE GAC

Source: McClellan AFB, June 2003

PRL T-44 SVE

IC-23 GAC

Source: McClellan AFB, June 2003

OPERABLE UNIT B1

Five-Year Review Site Inspection Checklist (Draft)

(Working document for site inspection. Information may be completed by hand and attached to the Five-Year Review report as supporting documentation of site status. "N/A" refers to "not applicable." USEPA, Comprehensive Five-Year Review Guidance, June 2001)

I. SITE INFORMATION	
Site name: OU B1	**Date of inspection:** 5/6/03
Location and Region:	**EPA ID:**
Agency, office, or company leading the five-year review: AFCEE	**Weather/temperature:** Sunny, windy

Remedy Includes: (Check all that apply)

- ☐ Landfill cover/containment
- ☒ Access controls
- ☒ Institutional controls
- ☐ Groundwater pump and treatment
- ☐ Surface water collection and treatment
- ☐ Vadose Zone Remedial Actions
- ☐ Other asphalt Cap
- ☐ Monitored natural attenuation
- ☐ Groundwater containment
- ☐ Vertical barrier walls

Attachments: ☐ Inspection team roster attached ☐ Site map attached

II. INTERVIEWS (Check all that apply)

1. **O&M site manager** Paul Bernhesal (Name) AFCEE (Title) 5/6/03 (Date)
   Interviewed ☒ at site ☒ at office ☐ by phone Phone no. 916 635 0830 x 240
   Problems, suggestions; ☐ Report attached

2. **O&M staff** Steve Burkhard (Name) AFCEE (Title) 5/6/03 (Date)
   Interviewed ☒ at site ☐ at office ☐ by phone Phone no. 916 693 0830 x 243
   Problems, suggestions; ☐ Report attached

3. **Local regulatory authorities and response agencies** (i.e., State and Tribal offices, emergency response office, police department, office of public health or environmental health, zoning office, recorder of deeds, or other city and county offices, etc.) Fill in all that apply.

Agency _____
Contact _____ _____ _____ _____
Name Title Date Phone no.
Problems; suggestions; ☐ Report attached _____
_____

Agency _____
Contact _____ _____ _____ _____
Name Title Date Phone no.
Problems; suggestions; ☐ Report attached _____
_____

Agency _____
Contact _____ _____ _____ _____
Name Title Date Phone no.
Problems; suggestions; ☐ Report attached _____
_____

Agency _____
Contact _____ _____ _____ _____
Name Title Date Phone no.
Problems; suggestions; ☐ Report attached _____
_____

4. **Other interviews** (optional) ☐ Report attached.

See Appendix A

III. ON-SITE DOCUMENTS & RECORDS VERIFIED (Check all that apply)				
1.	**O&M Documents**			
	☒ O&M manual	☐ Readily available	☐ Up to date	☐ N/A
	☐ As-built drawings	☐ Readily available	☐ Up to date	☐ N/A
	☐ Maintenance logs	☐ Readily available	☐ Up to date	☐ N/A
	Remarks Minor cracks are main issue Cracks are repaired			
2.	**Site-Specific Health and Safety Plan**	☐ Readily available	☐ Up to date	☒ N/A
	☐ Contingency plan/emergency response plan	☐ Readily available	☐ Up to date	☒ N/A
	Remarks			
3.	**O&M and OSHA Training Records**	☐ Readily available	☐ Up to date	☒ N/A
	Remarks			
4.	**Permits and Service Agreements**			
	☐ Air discharge permit	☐ Readily available	☐ Up to date	☒ N/A
	☐ Effluent discharge	☐ Readily available	☐ Up to date	☒ N/A
	☐ Waste disposal, POTW	☐ Readily available	☐ Up to date	☒ N/A
	☐ Other permits	☐ Readily available	☐ Up to date	☒ N/A
	Remarks			
5.	**Gas Generation Records**	☐ Readily available	☐ Up to date	☒ N/A
	Remarks			
6.	**Settlement Monument Records**	☐ Readily available	☐ Up to date	☒ N/A
	Remarks			
7.	**Groundwater Monitoring Records**	☐ Readily available	☐ Up to date	☒ N/A
	Remarks			
8.	**Leachate Extraction Records**	☐ Readily available	☐ Up to date	☒ N/A
	Remarks			
9.	**Discharge Compliance Records**			
	☐ Air	☐ Readily available	☐ Up to date	☒ N/A
	☐ Water (effluent)	☐ Readily available	☐ Up to date	☒ N/A
	Remarks			
10.	**Daily Access/Security Logs**	☐ Readily available	☐ Up to date	☒ N/A
	Remarks			

IV. O&M COSTS

1. **O&M Organization**

☐ State in-house ☐ Contractor for State
☐ PRP in-house ☐Contractor for PRP
☐Federal Facility in-house G Contractor for Federal Facility
☐ Other AFCEE oversees all O&M

2. **O&M Cost Records**

☐Readily available ☐Up to date
☐ Funding mechanism/agreement in place
Original O&M cost estimate_____☐Breakdown attached

Total annual cost by year for review period if available

From_____ To_____ _____ ☐ Breakdown attached
Date Date Total cost
From_____ To_____ _____ ☐ Breakdown attached
Date Date Total cost
From_____ To_____ _____ ☐ Breakdown attached
Date Date Total cost
From_____ To_____ _____ ☐ Breakdown attached
Date Date Total cost
From_____ To_____ _____ ☐ Breakdown attached
Date Date Total cost

3. **Unanticipated or Unusually High O&M Costs During Review Period**

Describe costs and reasons: _____

V. ACCESS AND INSTITUTIONAL CONTROLS ☐ Applicable ☐ N/A

A. Fencing

1. **Fencing damaged** ☐ Location shown on site map ☒Gates secured ☐ N/A
Remarks_____

B. Other Access Restrictions

1. **Signs and other security measures** ☐ Location shown on site map ☐ N/A
Remarks gates are locked and access given to tenant

C. Institutional Controls (ICs)

1. **Implementation and enforcement**

Site conditions imply ICs not properly implemented ☐ Yes ☒ No ☐ N/A
Site conditions imply ICs not being fully enforced ☐ Yes ☐ No ☐ N/A

Type of monitoring (*e.g.*, self-reporting, drive by) AFCEE field team drive by
Frequency daily
Responsible party/agency AFCEE
Contact Paul Bernhesal AFCEE 5/6/03 916 64 30 of 30 x 240
Name Title Date Phone no.

Reporting is up-to-date ☒ Yes ☐ No ☐ N/A
Reports are verified by the lead agency ☐ Yes ☐ No ☒ N/A

Specific requirements in deed or decision documents have been met ☒ Yes ☐ No ☐ N/A
Violations have been reported ☒ Yes ☐ No ☐ N/A
Other problems or suggestions: G Report attached

2. **Adequacy** ☒ ICs are adequate ☐ ICs are inadequate ☐ N/A
Remarks

D. General

1. **Vandalism/trespassing** ☐ Location shown on site map ☒ No vandalism evident
Remarks

2. **Land use changes on site** ☐ N/A
Remarks none

3. **Land use changes off site** ☐ N/A
Remarks none

VI. GENERAL SITE CONDITIONS

A. Roads ☐ Applicable ☒ N/A

1. **Roads damaged** ☐ Location shown on site map ☐ Roads adequate ☐ N/A
Remarks

B. Other Site Conditions

Remarks _____

_____

_____

_____

_____

_____

VII. LANDFILL COVERS G Applicable G N/A

A. Landfill Surface

1. **Settlement** (Low spots) ☐ Location shown on site map ☐Settlement not evident
   Areal extent_____ Depth_____
   Remarks_____

2. **Cracks** ☐ Location shown on site map ☐Cracking not evident
   Lengths_____ Widths_____ Depths_____
   Remarks_____

3. **Erosion** ☐ Location shown on site map ☐Erosion not evident
   Areal extent_____ Depth_____
   Remarks_____

4. **Holes** ☐ Location shown on site map ☐ Holes not evident
   Areal extent_____ Depth_____
   Remarks_____

5. **Vegetative Cover** ☐ Grass ☐ Cover properly established ☐ No signs of stress
   ☐ Trees/Shrubs (indicate size and locations on a diagram)
   Remarks_____

6. **Alternative Cover (armored rock, concrete, etc.)** ☐ N/A
   Remarks asphalt cover

7. **Bulges** ☐ Location shown on site map ☐ Bulges not evident
   Areal extent_____ Height_____
   Remarks_____

8. **Wet Areas/Water Damage** ☐Wet areas/water damage not evident
   ☐ Wet areas ☐ Location shown on site map Areal extent_____
   ☐ Ponding ☐Location shown on site map Areal extent_____
   ☐ Seeps ☐Location shown on site map Areal extent_____
   ☐ Soft subgrade ☐Location shown on site map Areal extent_____
   Remarks_____

9.	**Slope Instability** ☐ Slides ☐Location shown on site map ☐ No evidence of slope instability Areal extent_____ Remarks_____
B. Benches	☐Applicable ☐N/A (Horizontally constructed mounds of earth placed across a steep landfill side slope to interrupt the slope in order to slow down the velocity of surface runoff and intercept and convey the runoff to a lined channel.)
1.	**Flows Bypass Bench** ☐ Location shown on site map ☐ N/A or okay Remarks_____
2.	**Bench Breached** ☐Location shown on site map ☐ N/A or okay Remarks_____
3.	**Bench Overtopped** ☐ Location shown on site map ☐N/A or okay Remarks_____
C. Letdown Channels	☐ Applicable ☐ N/A (Channel lined with erosion control mats, riprap, grout bags, or gabions that descend down the steep side slope of the cover and will allow the runoff water collected by the benches to move off of the landfill cover without creating erosion gullies.)
1.	**Settlement** ☐Location shown on site map ☐No evidence of settlement Areal extent_____ Depth_____ Remarks_____
2.	**Material Degradation** ☐ Location shown on site map ☐ No evidence of degradation Material type_____ Areal extent_____ Remarks_____
3.	**Erosion** ☐ Location shown on site map ☐ No evidence of erosion Areal extent_____ Depth_____ Remarks_____

4. **Undercutting** ☐ Location shown on site map ☐ No evidence of undercutting
Areal extent_____ Depth_____
Remarks_____

5. **Obstructions** Type_____ ☐ No obstructions
☐ Location shown on site map Areal extent_____
Size_____
Remarks_____

6. **Excessive Vegetative Growth** Type_____
☐ No evidence of excessive growth
☐ Vegetation in channels does not obstruct flow
☐ Location shown on site map Areal extent_____
Remarks_____

D. Cover Penetrations G Applicable (G N/A)

1. **Gas Vents** ☐ Active G Passive
☐ Properly secured/locked ☐Functioning ☐ Routinely sampled ☐ Good condition
☐ Evidence of leakage at penetration ☐Needs Maintenance
☐ N/A
Remarks_____

2. **Gas Monitoring Probes**
☐ Properly secured/locked ☐ Functioning ☐ Routinely sampled ☐ Good condition
☐ Evidence of leakage at penetration ☐ Needs Maintenance ☐ N/A
Remarks_____

3. **Monitoring Wells** (within surface area of landfill)
☐ Properly secured/locked ☐ Functioning ☐ Routinely sampled ☐ Good condition
☐ Evidence of leakage at penetration ☐ Needs Maintenance ☐ N/A
Remarks_____

4. **Leachate Extraction Wells**
☐ Properly secured/locked ☐ Functioning ☐ Routinely sampled ☐ Good condition
☐ Evidence of leakage at penetration ☐ Needs Maintenance ☐ N/A
Remarks_____

5. **Settlement Monuments** ☐ Located ☐ Routinely surveyed ☐ N/A
Remarks_____

E. Gas Collection and Treatment ☐ Applicable ☐ N/A

1. **Gas Treatment Facilities**
   ☐ Flaring ☐ Thermal destruction ☐ Collection for reuse
   ☐ Good condition ☐ Needs Maintenance
   Remarks_____

2. **Gas Collection Wells, Manifolds and Piping**
   ☐ Good condition ☐ Needs Maintenance
   Remarks_____

3. **Gas Monitoring Facilities** (*e.g.*, gas monitoring of adjacent homes or buildings)
   ☐ Good condition ☐ Needs Maintenance ☐ N/A
   Remarks_____

F. Cover Drainage Layer ☐ Applicable ☐ N/A

1. **Outlet Pipes Inspected** ☐ Functioning ☐ N/A
   Remarks_____

2. **Outlet Rock Inspected** ☐ Functioning ☐ N/A
   Remarks_____

G. Detention/Sedimentation Ponds ☐ Applicable ☐ N/A

1. **Siltation** Areal extent_____ Depth_____ ☐ N/A
   ☐ Siltation not evident
   Remarks_____

2. **Erosion** Areal extent_____ Depth_____
   ☐ Erosion not evident
   Remarks_____

3. **Outlet Works** ☐ Functioning ☐ N/A
   Remarks_____

4. **Dam** ☐ Functioning ☐ N/A
   Remarks_____

H. Retaining Walls ☐ Applicable ☒ N/A

1. **Deformations** ☐ Location shown on site map ☐ Deformation not evident
Horizontal displacement_____ Vertical displacement_____
Rotational displacement_____
Remarks_____

2. **Degradation** ☐ Location shown on site map ☐ Degradation not evident
Remarks_____

I. Perimeter Ditches/Off-Site Discharge ☒ Applicable ☐ N/A

1. **Siltation** ☐ Location shown on site map ☒ Siltation not evident
Areal extent_____ Depth_____
Remarks The ditches are cleared quarterly of vegetation & sediment - they appear clean

2. **Vegetative Growth** ☐ Location shown on site map ☐ N/A
☒ Vegetation does not impede flow
Areal extent_____ Type_____
Remarks_____

3. **Erosion** ☐ Location shown on site map ☒ Erosion not evident
Areal extent_____ Depth_____
Remarks_____

4. **Discharge Structure** ☒ Functioning ☐ N/A
Remarks_____

VIII. VERTICAL BARRIER WALLS ☐ Applicable ☒ N/A

1. **Settlement** ☐ Location shown on site map ☐ Settlement not evident
Areal extent_____ Depth_____
Remarks_____

2. **Performance Monitoring** Type of monitoring_____
☐ Performance not monitored
Frequency_____ ☐ Evidence of breaching
Head differential_____
Remarks_____

IX. GROUNDWATER/SURFACE WATER REMEDIES ☐ Applicable ☐ N/A

A. Groundwater Extraction Wells, Pumps, and Pipelines ☐ Applicable ☐ N/A

1. **Pumps, Wellhead Plumbing, and Electrical**
   ☐ Good condition ☐ All required wells properly operating ☐ Needs Maintenance ☐ N/A
   Remarks_____

2. **Extraction System Pipelines, Valves, Valve Boxes, and Other Appurtenances**
   ☐ Good condition ☐ Needs Maintenance
   Remarks_____

3. **Spare Parts and Equipment**
   ☐ Readily available ☐ Good condition ☐ Requires upgrade ☐ Needs to be provided
   Remarks_____

B. Surface Water Collection Structures, Pumps, and Pipelines ☐ Applicable ☐ N/A

1. **Collection Structures, Pumps, and Electrical**
   ☐ Good condition ☐ Needs Maintenance
   Remarks_____

2. **Surface Water Collection System Pipelines, Valves, Valve Boxes, and Other Appurtenances**
   ☐ Good condition ☐ Needs Maintenance
   Remarks_____

3. **Spare Parts and Equipment** n/a
   ☐ Readily available ☐ Good condition ☐ Requires upgrade ☐ Needs to be provided
   Remarks_____

C. Treatment System ☐ Applicable ☐ N/A

1. **Treatment Train** (Check components that apply)
   ☐ Metals removal ☐ Oil/water separation ☐ Bioremediation
   ☐ Air stripping ☐ Carbon adsorbers
   ☐ Filters_____
   ☐ Additive (*e.g.*, chelation agent, flocculent)_____
   ☐ Others_____
   ☐ Good condition ☐ Needs Maintenance
   ☐ Sampling ports properly marked and functional
   ☐ Sampling/maintenance log displayed and up to date
   ☐ Equipment properly identified
   ☐ Quantity of groundwater treated annually_____
   ☐ Quantity of surface water treated annually_____
   Remarks_____

2. **Electrical Enclosures and Panels** (properly rated and functional)
   ☐ N/A ☐ Good condition ☐ Needs Maintenance
   Remarks_____

3. **Tanks, Vaults, Storage Vessels**
   ☐ N/A ☐ Good condition ☐ Proper secondary containment ☐ Needs Maintenance
   Remarks_____

4. **Discharge Structure and Appurtenances**
   ☐ N/A ☐ Good condition ☐ Needs Maintenance
   Remarks_____

5. **Treatment Building(s)**
   ☐ N/A ☐ Good condition (esp. roof and doorways) ☐ Needs repair
   ☐ Chemicals and equipment properly stored
   Remarks_____

6. **Monitoring Wells** (pump and treatment remedy)
   ☐ Properly secured/locked ☐ Functioning ☐ Routinely sampled ☐ Good condition
   ☐ All required wells located ☐ Needs Maintenance ☐ N/A
   Remarks_____

D. Monitoring Data

1. Monitoring Data
   ☐ Is routinely submitted on time ☐ Is of acceptable quality

2. Monitoring data suggests:
   ☐ Groundwater plume is effectively contained ☐ Contaminant concentrations are declining

D. Monitored Natural Attenuation

1. **Monitoring Wells** (natural attenuation remedy)

☐ Properly secured/locked ☐ Functioning ☐ Routinely sampled ☐ Good condition
☐ All required wells located ☐ Needs Maintenance ☐ N/A
Remarks

X. OTHER REMEDIES

If there are remedies applied at the site which are not covered above, attach an inspection sheet describing the physical nature and condition of any facility associated with the remedy. An example would be soil vapor extraction.

XI. OVERALL OBSERVATIONS

A. Implementation of the Remedy

Describe issues and observations relating to whether the remedy is effective and functioning as designed. Begin with a brief statement of what the remedy is to accomplish (i.e., to contain contaminant plume, minimize infiltration and gas emission, etc.).

The asphalt cap covers the contaminated soil. The cap is effective at reducing the exposure to the soil. It also eliminates the surface water infiltration.

The drainage ditches were excavated. The sediment traps in the ditches are monitored and sampled quarterly.

B. Adequacy of O&M

Describe issues and observations related to the implementation and scope of O&M procedures. In particular, discuss their relationship to the current and long-term protectiveness of the remedy.

The O&M of the cap and ditches is good.

The ICs need to be continually monitored and the tenants made aware of the cap. Tenants need to be careful not to puncture the cap.

C.	**Early Indicators of Potential Remedy Problems**
	Describe issues and observations such as unexpected changes in the cost or scope of O&M or a high frequency of unscheduled repairs, that suggest that the protectiveness of the remedy may be compromised in the future. The tenants need to be careful of the cap ~~and should~~
D.	**Opportunities for Optimization**
	Describe possible opportunities for optimization in monitoring tasks or the operation of the remedy. Continue to evaluate long term solutions for the soil.

USEPA, Comprehensive Five-Year Review Guidance, June 2001.

OU B1 CAP

OU B1 CAP

OU B1 CAP AND FENCE THROUGH CAP

OU B1 CAP

OU B1 GUNITE LINED DRAINAGE CHANNEL AND SEDIMENT TRAP

OU B1 SEDIMENT TRAP WITH PCB DETECTION

OU B1 UNLINED CHANNEL

OPERABLE UNIT D CAP

Five-Year Review Site Inspection Checklist (Draft)

(Working document for site inspection. Information may be completed by hand and attached to the Five-Year Review report as supporting documentation of site status. "N/A" refers to "not applicable." USEPA, Comprehensive Five-Year Review Guidance, June 2001)

I. SITE INFORMATION	
Site name: OU D Cap.	**Date of inspection:** 5/6/03
Location and Region: McClellan AFB	**EPA ID:**
Agency, office, or company leading the five-year review:	**Weather/temperature:** Sunny, windy

Remedy Includes: (Check all that apply)

- ☒ Landfill cover/containment
- ☒ Access controls
- ☐ Institutional controls
- ☒ Groundwater pump and treatment
- ☐ Surface water collection and treatment
- ☒ Vadose Zone Remedial Actions
- ☐ Other _____
- ☐ Monitored natural attenuation
- ☐ Groundwater containment
- ☐ Vertical barrier walls

Attachments: ☐ Inspection team roster attached ☐ Site map attached

II. INTERVIEWS (Check all that apply)

1. **O&M site manager** Paul Burkheisal (Name) AFCEE (Title) 5/6/03 (Date)
   Interviewed ☒ at site ☐ at office ☐ by phone Phone no. 916 643 0830 x 240
   Problems, suggestions; ☐ Report attached _____

2. **O&M staff** Steve Burkhardt (Name) AFCEE (Title) 5/6/03 (Date)
   Interviewed ☒ at site ☐ at office ☐ by phone Phone no. 916 643 0830 x 243
   Problems, suggestions; ☐ Report attached _____

3. **Local regulatory authorities and response agencies** (i.e., State and Tribal offices, emergency response office, police department, office of public health or environmental health, zoning office, recorder of deeds, or other city and county offices, etc.) Fill in all that apply.

Agency _____
Contact _____ _____ _____ _____
Name Title Date Phone no.
Problems; suggestions; ☐ Report attached _____
_____

Agency _____
Contact _____ _____ _____ _____
Name Title Date Phone no.
Problems; suggestions; ☐ Report attached _____
_____

Agency _____
Contact _____ _____ _____ _____
Name Title Date Phone no.
Problems; suggestions; ☐ Report attached _____
_____

Agency _____
Contact _____ _____ _____ _____
Name Title Date Phone no.
Problems; suggestions; ☐ Report attached _____
_____

4. **Other interviews** (optional) ☐ Report attached.

See Appendix A

III. ON-SITE DOCUMENTS & RECORDS VERIFIED (Check all that apply)				
1.	**O&M Documents**			
	☒ O&M manual	☐ Readily available	☐ Up to date	☐ N/A
	☐ As-built drawings	☐ Readily available	☐ Up to date	☒ N/A
	☒ Maintenance logs	☐ Readily available	☐ Up to date	☐ N/A
	Remarks			
2.	**Site-Specific Health and Safety Plan**	☐ Readily available	☐ Up to date	☒ N/A
	☐ Contingency plan/emergency response plan	☐ Readily available	☐ Up to date	☒ N/A
	Remarks			
3.	**O&M and OSHA Training Records**	☐ Readily available	☐ Up to date	☒ N/A
	Remarks			
4.	**Permits and Service Agreements**			
	☐ Air discharge permit	☐ Readily available	☐ Up to date	☒ N/A
	☐ Effluent discharge	☐ Readily available	☐ Up to date	☒ N/A
	☐ Waste disposal, POTW	☐ Readily available	☐ Up to date	☒ N/A
	☐ Other permits	☐ Readily available	☐ Up to date	☒ N/A
	Remarks			
5.	**Gas Generation Records**	☐ Readily available	☐ Up to date	☒ N/A
	Remarks			
6.	**Settlement Monument Records**	☐ Readily available	☐ Up to date	☒ N/A
	Remarks			
7.	**Groundwater Monitoring Records**	☐ Readily available	☐ Up to date	☒ N/A
	Remarks reviewed as part of groundwater monitoring system evaluation			
8.	**Leachate Extraction Records**	☐ Readily available	☐ Up to date	☒ N/A
	Remarks			
9.	**Discharge Compliance Records**			
	☐ Air	☐ Readily available	☐ Up to date	☒ N/A
	☐ Water (effluent)	☐ Readily available	☐ Up to date	☒ N/A
	Remarks			
10.	**Daily Access/Security Logs**	☐ Readily available	☐ Up to date	☒ N/A
	Remarks			

IV. O&M COSTS

1. **O&M Organization**

☐ State in-house ☐ Contractor for State
☐ PRP in-house ☐Contractor for PRP
☐Federal Facility in-house G Contractor for Federal Facility
☒Other AFCEE

2. **O&M Cost Records**

☐Readily available ☐Up to date N/A
☐ Funding mechanism/agreement in place
Original O&M cost estimate_____☐Breakdown attached

Total annual cost by year for review period if available

From_____ To_____ _____ ☐ Breakdown attached
Date Date Total cost
From_____ To_____ _____ ☐ Breakdown attached
Date Date Total cost
From_____ To_____ _____ ☐ Breakdown attached
Date Date Total cost
From_____ To_____ _____ ☐ Breakdown attached
Date Date Total cost
From_____ To_____ _____ ☐ Breakdown attached
Date Date Total cost

3. **Unanticipated or Unusually High O&M Costs During Review Period**

Describe costs and reasons: _____

V. ACCESS AND INSTITUTIONAL CONTROLS ☒Applicable ☐ N/A

A. Fencing

1. **Fencing damaged** ☐ Location shown on site map ☒Gates secured ☐ N/A
Remarks_____

B. Other Access Restrictions

1. **Signs and other security measures** ☐ Location shown on site map ☐ N/A
Remarks_____

C. Institutional Controls (ICs)

1. **Implementation and enforcement**

Site conditions imply ICs not properly implemented ☐ Yes ☒ No ☐ N/A
Site conditions imply ICs not being fully enforced ☐ Yes ☒ No ☐ N/A

Type of monitoring (*e.g.*, self-reporting, drive by) _____
Frequency daily
Responsible party/agency AFCEE
Contact Paul Bernheisal AFCEE 5/6/03 916 643 0130 x240
Name Title Date Phone no.

Reporting is up-to-date ☒ Yes ☐ No ☐ N/A
Reports are verified by the lead agency ☐ Yes ☐ No ☒ N/A

Specific requirements in deed or decision documents have been met ☐ Yes ☐ No ☒ N/A
Violations have been reported ☐ Yes ☒ No ☐ N/A
Other problems or suggestions: G Report attached

2. **Adequacy** ☒ ICs are adequate ☐ ICs are inadequate ☐ N/A
Remarks

D. General

1. **Vandalism/trespassing** ☐ Location shown on site map ☒ No vandalism evident
Remarks

2. **Land use changes on site** ☒ N/A
Remarks

3. **Land use changes off site** ☒ N/A
Remarks

VI. GENERAL SITE CONDITIONS

A. Roads ☒ Applicable ☐ N/A

1. **Roads damaged** ☐ Location shown on site map ☒ Roads adequate ☐ N/A
Remarks

B. Other Site Conditions

Remarks _____

_____

_____

_____

_____

_____

VII. LANDFILL COVERS G Applicable G N/A

A. Landfill Surface

1. **Settlement** (Low spots) ☐ Location shown on site map ☒ Settlement not evident
   Areal extent_____ Depth_____
   Remarks_____

2. **Cracks** ☐ Location shown on site map ☒ Cracking not evident
   Lengths_____ Widths_____ Depths_____
   Remarks_____

3. **Erosion** ☐ Location shown on site map ☒ Erosion not evident
   Areal extent_____ Depth_____
   Remarks_____

4. **Holes** ☐ Location shown on site map ☒ Holes not evident
   Areal extent_____ Depth_____
   Remarks_____

5. **Vegetative Cover** ☐ Grass ☒ Cover properly established ☐ No signs of stress
   ☐ Trees/Shrubs (indicate size and locations on a diagram)
   Remarks_____

6. **Alternative Cover (armored rock, concrete, etc.)** ☐ N/A
   Remarks_____

7. **Bulges** ☐ Location shown on site map ☒ Bulges not evident
   Areal extent_____ Height_____
   Remarks_____

8. **Wet Areas/Water Damage** ☒ Wet areas/water damage not evident
   ☐ Wet areas ☐ Location shown on site map Areal extent_____
   ☐ Ponding ☐ Location shown on site map Areal extent_____
   ☐ Seeps ☐ Location shown on site map Areal extent_____
   ☐ Soft subgrade ☐ Location shown on site map Areal extent_____
   Remarks_____

9.	**Slope Instability** ☐ Slides ☐Location shown on site map ☒No evidence of slope instability Areal extent_____ Remarks_____	
B. Benches ☐Applicable ☒N/A (Horizontally constructed mounds of earth placed across a steep landfill side slope to interrupt the slope in order to slow down the velocity of surface runoff and intercept and convey the runoff to a lined channel.)		
1.	**Flows Bypass Bench** ☐ Location shown on site map ☒N/A or okay Remarks_____	
2.	**Bench Breached** ☐Location shown on site map ☒N/A or okay Remarks_____	
3.	**Bench Overtopped** ☐ Location shown on site map ☒N/A or okay Remarks_____	
C. Letdown Channels ☐ Applicable ☒N/A (Channel lined with erosion control mats, riprap, grout bags, or gabions that descend down the steep side slope of the cover and will allow the runoff water collected by the benches to move off of the landfill cover without creating erosion gullies.)		
1.	**Settlement** ☐Location shown on site map ☒No evidence of settlement Areal extent_____ Depth_____ Remarks_____	
2.	**Material Degradation** ☐ Location shown on site map ☒No evidence of degradation Material type_____ Areal extent_____ Remarks_____	
3.	**Erosion** ☐ Location shown on site map ☒No evidence of erosion Areal extent_____ Depth_____ Remarks_____	

4. **Undercutting** ☐ Location shown on site map ☒ No evidence of undercutting
Areal extent_____ Depth_____
Remarks_____

5. **Obstructions** Type_____ ☒ No obstructions
☐ Location shown on site map Areal extent_____
Size_____
Remarks_____

6. **Excessive Vegetative Growth** Type_____
☒ No evidence of excessive growth
☒ Vegetation in channels does not obstruct flow
☐ Location shown on site map Areal extent_____
Remarks will mow once vegetation seeds

D. Cover Penetrations ☒ Applicable G N/A

1. **Gas Vents** ☐ Active G Passive
☒ Properly secured/locked ☐ Functioning ☒ Routinely sampled ☒ Good condition
☐ Evidence of leakage at penetration ☐ Needs Maintenance
☐ N/A
Remarks part of SVE system

2. **Gas Monitoring Probes**
☒ Properly secured/locked ☐ Functioning ☒ Routinely sampled ☒ Good condition
☐ Evidence of leakage at penetration ☐ Needs Maintenance ☐ N/A
Remarks part of SVE system

3. **Monitoring Wells** (within surface area of landfill)
☒ Properly secured/locked ☐ Functioning ☒ Routinely sampled ☒ Good condition
☐ Evidence of leakage at penetration ☐ Needs Maintenance ☐ N/A
Remarks part of groundwater monitoring program

4. **Leachate Extraction Wells** N/A
☐ Properly secured/locked ☐ Functioning ☐ Routinely sampled ☐ Good condition
☐ Evidence of leakage at penetration ☐ Needs Maintenance ☐ N/A
Remarks_____

5. **Settlement Monuments** ☐ Located ☐ Routinely surveyed ☒ N/A
Remarks_____

E. Gas Collection and Treatment ☒ Applicable ☐ N/A

1. **Gas Treatment Facilities**
   ☐ Flaring ☐ Thermal destruction ☐ Collection for reuse
   ☒ Good condition ☐ Needs Maintenance
   Remarks_____

2. **Gas Collection Wells, Manifolds and Piping**
   ☒ Good condition ☐ Needs Maintenance
   Remarks_____

3. **Gas Monitoring Facilities** (*e.g.*, gas monitoring of adjacent homes or buildings)
   ☒ Good condition ☐ Needs Maintenance ☐ N/A
   Remarks_____

F. Cover Drainage Layer ☐ Applicable ☒ N/A

1. **Outlet Pipes Inspected** ☐ Functioning ☐ N/A
   Remarks_____

2. **Outlet Rock Inspected** ☐ Functioning ☐ N/A
   Remarks_____

G. Detention/Sedimentation Ponds ☐ Applicable ☒ N/A

1. **Siltation** Areal extent_____ Depth_____ ☐ N/A
   ☐ Siltation not evident
   Remarks_____

2. **Erosion** Areal extent_____ Depth_____
   ☐ Erosion not evident
   Remarks_____

3. **Outlet Works** ☐ Functioning ☐ N/A
   Remarks_____

4. **Dam** ☐ Functioning ☐ N/A
   Remarks_____

H. Retaining Walls ☐ Applicable ☒ N/A

1. **Deformations** ☐ Location shown on site map ☐ Deformation not evident
Horizontal displacement_____ Vertical displacement_____
Rotational displacement_____
Remarks_____

2. **Degradation** ☐ Location shown on site map ☐ Degradation not evident
Remarks_____

I. Perimeter Ditches/Off-Site Discharge ☒ Applicable ☐ N/A

1. **Siltation** ☐ Location shown on site map ☒ Siltation not evident
Areal extent_____ Depth_____
Remarks_____

2. **Vegetative Growth** ☐ Location shown on site map ☐ N/A
☒ Vegetation does not impede flow
Areal extent_____ Type_____
Remarks_____

3. **Erosion** ☐ Location shown on site map ☒ Erosion not evident
Areal extent_____ Depth_____
Remarks_____

4. **Discharge Structure** ☐ Functioning ☒ N/A
Remarks_____

VIII. VERTICAL BARRIER WALLS ☐ Applicable ☒ N/A

1. **Settlement** ☐ Location shown on site map ☐ Settlement not evident
Areal extent_____ Depth_____
Remarks_____

2. **Performance Monitoring** Type of monitoring_____
☐ Performance not monitored
Frequency_____ ☐ Evidence of breaching
Head differential_____
Remarks_____

IX. GROUNDWATER/SURFACE WATER REMEDIES ☒ Applicable ☐ N/A	
A. Groundwater Extraction Wells, Pumps, and Pipelines ☒ Applicable ☐ N/A	
1.	**Pumps, Wellhead Plumbing, and Electrical** ☒ Good condition ☐ All required wells properly operating ☐ Needs Maintenance ☐ N/A Remarks
2.	**Extraction System Pipelines, Valves, Valve Boxes, and Other Appurtenances** ☒ Good condition ☐ Needs Maintenance Remarks
3.	**Spare Parts and Equipment** ☐ Readily available ☐ Good condition ☐ Requires upgrade ☐ Needs to be provided Remarks evaluated w/ groundwater system
B. Surface Water Collection Structures, Pumps, and Pipelines ☐ Applicable ☒ N/A	
1.	**Collection Structures, Pumps, and Electrical** ☐ Good condition ☐ Needs Maintenance Remarks
2.	**Surface Water Collection System Pipelines, Valves, Valve Boxes, and Other Appurtenances** ☐ Good condition ☐ Needs Maintenance Remarks
3.	**Spare Parts and Equipment** ☐ Readily available ☐ Good condition ☐ Requires upgrade ☐ Needs to be provided Remarks

C. Treatment System ☐ Applicable ☒ N/A

1. **Treatment Train** (Check components that apply)
   ☐ Metals removal ☐ Oil/water separation ☐ Bioremediation
   ☐ Air stripping ☐ Carbon adsorbers
   ☐ Filters_____
   ☐ Additive (*e.g.*, chelation agent, flocculent)_____
   ☐ Others_____
   ☐ Good condition ☐ Needs Maintenance
   ☐ Sampling ports properly marked and functional
   ☐ Sampling/maintenance log displayed and up to date
   ☐ Equipment properly identified
   ☐ Quantity of groundwater treated annually_____
   ☐ Quantity of surface water treated annually_____
   Remarks_____

2. **Electrical Enclosures and Panels** (properly rated and functional)
   ☐ N/A ☐ Good condition ☐ Needs Maintenance
   Remarks_____

3. **Tanks, Vaults, Storage Vessels**
   ☐ N/A ☐ Good condition ☐ Proper secondary containment ☐ Needs Maintenance
   Remarks_____

4. **Discharge Structure and Appurtenances**
   ☐ N/A ☐ Good condition ☐ Needs Maintenance
   Remarks_____

5. **Treatment Building(s)**
   ☐ N/A ☐ Good condition (esp. roof and doorways) ☐ Needs repair
   ☐ Chemicals and equipment properly stored
   Remarks_____

6. **Monitoring Wells** (pump and treatment remedy)
   ☐ Properly secured/locked ☐ Functioning ☐ Routinely sampled ☐ Good condition
   ☐ All required wells located ☐ Needs Maintenance ☐ N/A
   Remarks_____

D. Monitoring Data

1. Monitoring Data
   ☐ Is routinely submitted on time ☐ Is of acceptable quality

2. Monitoring data suggests:
   ☐ Groundwater plume is effectively contained ☐ Contaminant concentrations are declining

D. Monitored Natural Attenuation N/A

1. **Monitoring Wells** (natural attenuation remedy)

☐ Properly secured/locked ☐ Functioning ☐ Routinely sampled ☐ Good condition
☐ All required wells located ☐ Needs Maintenance ☐ N/A
Remarks

X. OTHER REMEDIES

If there are remedies applied at the site which are not covered above, attach an inspection sheet describing the physical nature and condition of any facility associated with the remedy. An example would be soil vapor extraction.

XI. OVERALL OBSERVATIONS

A. Implementation of the Remedy

Describe issues and observations relating to whether the remedy is effective and functioning as designed. Begin with a brief statement of what the remedy is to accomplish (i.e., to contain contaminant plume, minimize infiltration and gas emission, etc.).

engineered cover is reducing surface water infiltration and exposure to contaminated soil

B. Adequacy of O&M

Describe issues and observations related to the implementation and scope of O&M procedures. In particular, discuss their relationship to the current and long-term protectiveness of the remedy.

AFCEE personnel are responsible for O&M activities. Personnel drive by site to verify security daily and maintenance is done quarterly.

C.	**Early Indicators of Potential Remedy Problems**
	Describe issues and observations such as unexpected changes in the cost or scope of O&M or a high frequency of unscheduled repairs, that suggest that the protectiveness of the remedy may be compromised in the future.

D.	**Opportunities for Optimization**
	Describe possible opportunities for optimization in monitoring tasks or the operation of the remedy.

USEPA, Comprehensive Five-Year Review Guidance, June 2001.

OU D CAP

OU D CAP

OU D CAP

POTENTIAL RELEASE LOCATION 32

Five-Year Review Site Inspection Checklist (Draft)

(Working document for site inspection. Information may be completed by hand and attached to the Five-Year Review report as supporting documentation of site status. "N/A" refers to "not applicable." USEPA, Comprehensive Five-Year Review Guidance, June 2001)

I. SITE INFORMATION	
Site name: PRL 32	**Date of inspection:** 5/6/03
Location and Region: McClellan AFB	**EPA ID:**
Agency, office, or company leading the five-year review:	**Weather/temperature:** Sunny, windy

Remedy Includes: (Check all that apply)

- ☐ Landfill cover/containment
- ☐ Access controls
- ☐ Institutional controls
- ☐ Groundwater pump and treatment
- ☐ Surface water collection and treatment
- ☐ Vadose Zone Remedial Actions
- ☐ Other excavation
- ☐ Monitored natural attenuation
- ☐ Groundwater containment
- ☐ Vertical barrier walls

Attachments: ☐ Inspection team roster attached ☐ Site map attached

II. INTERVIEWS (Check all that apply)

1. **O&M site manager** Paul Bernheisel (Name) AFCEE (Title) 5/6/03 (Date)
   Interviewed ☒ at site ☐ at office ☐ by phone Phone no. 916 643 0830 x 240
   Problems, suggestions; ☐ Report attached _____

2. **O&M staff** Steve Burkhardt (Name) AFCEE (Title) 5/6/03 (Date)
   Interviewed ☒ at site ☐ at office ☐ by phone Phone no. 916 643 0830 x 243
   Problems, suggestions; ☐ Report attached _____

3. **Local regulatory authorities and response agencies** (i.e., State and Tribal offices, emergency response office, police department, office of public health or environmental health, zoning office, recorder of deeds, or other city and county offices, etc.) Fill in all that apply.

Agency _____
Contact _____ _____ _____ _____
Name Title Date Phone no.
Problems; suggestions; ☐ Report attached _____
_____

Agency _____
Contact _____ _____ _____ _____
Name Title Date Phone no.
Problems; suggestions; ☐ Report attached _____
_____

Agency _____
Contact _____ _____ _____ _____
Name Title Date Phone no.
Problems; suggestions; ☐ Report attached _____
_____

Agency _____
Contact _____ _____ _____ _____
Name Title Date Phone no.
Problems; suggestions; ☐ Report attached _____
_____

4. **Other interviews** (optional) ☐ Report attached.

See Appendix A

III. ON-SITE DOCUMENTS & RECORDS VERIFIED (Check all that apply)				
1.	**O&M Documents**			
	☐ O&M manual	☐ Readily available	☐ Up to date	☒ N/A
	☐As-built drawings	☐ Readily available	☐ Up to date	☒ N/A
	☐ Maintenance logs	☐ Readily available	☐Up to date	☒ N/A
	Remarks_____			
2.	**Site-Specific Health and Safety Plan**	☐Readily available	☐ Up to date	☒ N/A
	☐Contingency plan/emergency response plan	☐Readily available	☐ Up to date	☒ N/A
	Remarks_____			
3.	**O&M and OSHA Training Records**	☐ Readily available	☐Up to date	☒ N/A
	Remarks_____			
4.	**Permits and Service Agreements**			
	☐ Air discharge permit	☐ Readily available	☐Up to date	☒ N/A
	☐Effluent discharge	☐ Readily available	☐Up to date	☒ N/A
	☐ Waste disposal, POTW	☐Readily available	☐Up to date	☒ N/A
	☐ Other permits_____	☐ Readily available	☐ Up to date	☒ N/A
	Remarks_____			
5.	**Gas Generation Records**	☐ Readily available	☐ Up to date	☒ N/A
	Remarks_____			
6.	**Settlement Monument Records**	☐Readily available	☐Up to date	☒ N/A
	Remarks_____			
7.	**Groundwater Monitoring Records**	☐ Readily available	☐Up to date	☒ N/A
	Remarks_____			
8.	**Leachate Extraction Records**	☐ Readily available	☐ Up to date	☒ N/A
	Remarks_____			
9.	**Discharge Compliance Records**			
	☐Air	☐ Readily available	☐ Up to date	☒ N/A
	☐Water (effluent)	☐ Readily available	☐ Up to date	☒ N/A
	Remarks_____			
10.	**Daily Access/Security Logs**	☐ Readily available	☐ Up to date	☒ N/A
	Remarks_____			

IV. O&M COSTS

1. **O&M Organization**

☐ State in-house ☐ Contractor for State
☐ PRP in-house ☐ Contractor for PRP
☐ Federal Facility in-house ☐ Contractor for Federal Facility
☐ Other AFCEE

2. **O&M Cost Records** n/A

☐ Readily available ☐ Up to date
☐ Funding mechanism/agreement in place
Original O&M cost estimate _____ ☐ Breakdown attached

Total annual cost by year for review period if available

From _____ To _____ _____ ☐ Breakdown attached
Date Date Total cost

From _____ To _____ _____ ☐ Breakdown attached
Date Date Total cost

From _____ To _____ _____ ☐ Breakdown attached
Date Date Total cost

From _____ To _____ _____ ☐ Breakdown attached
Date Date Total cost

From _____ To _____ _____ ☐ Breakdown attached
Date Date Total cost

3. **Unanticipated or Unusually High O&M Costs During Review Period**

Describe costs and reasons: _____

V. ACCESS AND INSTITUTIONAL CONTROLS ☐ Applicable ☐ N/A

A. Fencing

1. **Fencing damaged** ☐ Location shown on site map ☒ Gates secured ☐ N/A

Remarks _____

B. Other Access Restrictions

1. **Signs and other security measures** ☐ Location shown on site map ☐ N/A

Remarks Signs OK

C. Institutional Controls (ICs)

1. **Implementation and enforcement**

Site conditions imply ICs not properly implemented ☐ Yes ☒ No ☐ N/A
Site conditions imply ICs not being fully enforced ☐ Yes ☒ No ☐ N/A

Type of monitoring (*e.g.*, self-reporting, drive by) _____
Frequency daily
Responsible party/agency AFCEE
Contact Paul Bernheisal AFCEE 5/16/03 916 638 0/30 x240
Name Title Date Phone no.

Reporting is up-to-date ☒ Yes ☐ No ☐ N/A
Reports are verified by the lead agency ☐ Yes ☐ No ☒ N/A

Specific requirements in deed or decision documents have been met ☐ Yes ☐ No ☒ N/A
Violations have been reported ☐ Yes ☒ No ☐ N/A
Other problems or suggestions: G Report attached

2. **Adequacy** ☒ ICs are adequate ☐ ICs are inadequate ☐ N/A
Remarks

D. General

1. **Vandalism/trespassing** ☐ Location shown on site map ☒ No vandalism evident
Remarks

2. **Land use changes on site** ☒ N/A
Remarks

3. **Land use changes off site** ☒ N/A
Remarks

VI. GENERAL SITE CONDITIONS

A. Roads ☐ Applicable ☒ N/A

1. **Roads damaged** ☐ Location shown on site map ☐ Roads adequate ☐ N/A
Remarks

B. Other Site Conditions

Remarks
site is covered w/ plastic sheeting to eliminate surface water infiltration until final site sampling and site restoration.

VII. LANDFILL COVERS G Applicable (G N/A)

A. Landfill Surface

1. **Settlement** (Low spots) ☐ Location shown on site map ☐Settlement not evident
Areal extent_____ Depth_____
Remarks_____

2. **Cracks** ☐ Location shown on site map ☐Cracking not evident
Lengths_____ Widths_____ Depths_____
Remarks_____

3. **Erosion** ☐ Location shown on site map ☐Erosion not evident
Areal extent_____ Depth_____
Remarks_____

4. **Holes** ☐ Location shown on site map ☐ Holes not evident
Areal extent_____ Depth_____
Remarks_____

5. **Vegetative Cover** ☐ Grass ☐ Cover properly established ☐ No signs of stress
☐ Trees/Shrubs (indicate size and locations on a diagram)
Remarks_____

6. **Alternative Cover (armored rock, concrete, etc.)** ☐ N/A
Remarks_____

7. **Bulges** ☐ Location shown on site map ☐ Bulges not evident
Areal extent_____ Height_____
Remarks_____

8. **Wet Areas/Water Damage** ☐Wet areas/water damage not evident
☐ Wet areas ☐ Location shown on site map Areal extent_____
☐ Ponding ☐Location shown on site map Areal extent_____
☐ Seeps ☐Location shown on site map Areal extent_____
☐ Soft subgrade ☐Location shown on site map Areal extent_____
Remarks_____

9.	**Slope Instability** ☐ Slides ☐Location shown on site map ☐ No evidence of slope instability Areal extent_____ Remarks_____
B. Benches	☐Applicable ☒N/A (Horizontally constructed mounds of earth placed across a steep landfill side slope to interrupt the slope in order to slow down the velocity of surface runoff and intercept and convey the runoff to a lined channel.)
1.	**Flows Bypass Bench** ☐ Location shown on site map ☐ N/A or okay Remarks_____
2.	**Bench Breached** ☐Location shown on site map ☐ N/A or okay Remarks_____
3.	**Bench Overtopped** ☐ Location shown on site map ☐N/A or okay Remarks_____
C. Letdown Channels	☐ Applicable ☐ N/A (Channel lined with erosion control mats, riprap, grout bags, or gabions that descend down the steep side slope of the cover and will allow the runoff water collected by the benches to move off of the landfill cover without creating erosion gullies.)
1.	**Settlement** ☐Location shown on site map ☐No evidence of settlement Areal extent_____ Depth_____ Remarks_____
2.	**Material Degradation** ☐ Location shown on site map ☐ No evidence of degradation Material type_____ Areal extent_____ Remarks_____
3.	**Erosion** ☐ Location shown on site map ☐ No evidence of erosion Areal extent_____ Depth_____ Remarks_____

4. **Undercutting** ☐ Location shown on site map ☐ No evidence of undercutting
Areal extent_____ Depth_____
Remarks_____

5. **Obstructions** Type_____ ☐ No obstructions
☐ Location shown on site map Areal extent_____
Size_____
Remarks_____

6. **Excessive Vegetative Growth** Type_____
☐ No evidence of excessive growth
☐ Vegetation in channels does not obstruct flow
☐ Location shown on site map Areal extent_____
Remarks_____

D. Cover Penetrations G Applicable G N/A

1. **Gas Vents** ☐ Active G Passive
☐ Properly secured/locked ☐Functioning ☐ Routinely sampled ☐ Good condition
☐ Evidence of leakage at penetration ☐Needs Maintenance
☐ N/A
Remarks_____

2. **Gas Monitoring Probes**
☐ Properly secured/locked ☐ Functioning ☐ Routinely sampled ☐ Good condition
☐ Evidence of leakage at penetration ☐ Needs Maintenance ☐ N/A
Remarks_____

3. **Monitoring Wells** (within surface area of landfill)
☐ Properly secured/locked ☐ Functioning ☐ Routinely sampled ☐ Good condition
☐ Evidence of leakage at penetration ☐ Needs Maintenance ☐ N/A
Remarks_____

4. **Leachate Extraction Wells**
☐ Properly secured/locked ☐ Functioning ☐ Routinely sampled ☐ Good condition
☐ Evidence of leakage at penetration ☐ Needs Maintenance ☐ N/A
Remarks_____

5. **Settlement Monuments** ☐ Located ☐ Routinely surveyed ☐ N/A
Remarks_____

E. Gas Collection and Treatment	☐ Applicable ☐ N/A	
1.	**Gas Treatment Facilities** ☐ Flaring ☐ Thermal destruction ☐ Collection for reuse ☐ Good condition ☐ Needs Maintenance Remarks_____	
2.	**Gas Collection Wells, Manifolds and Piping** ☐ Good condition ☐ Needs Maintenance Remarks_____	
3.	**Gas Monitoring Facilities** (*e.g.*, gas monitoring of adjacent homes or buildings) ☐ Good condition ☐ Needs Maintenance ☐ N/A Remarks_____	
F. Cover Drainage Layer	☐ Applicable ☐ N/A	
1.	**Outlet Pipes Inspected** ☐ Functioning ☐ N/A Remarks_____	
2.	**Outlet Rock Inspected** ☐ Functioning ☐ N/A Remarks_____	
G. Detention/Sedimentation Ponds	☐ Applicable ☐ N/A	
1.	**Siltation** Areal extent_____ Depth_____ ☐ N/A ☐ Siltation not evident Remarks_____	
2.	**Erosion** Areal extent_____ Depth_____ ☐ Erosion not evident Remarks_____	
3.	**Outlet Works** ☐ Functioning ☐ N/A Remarks_____	
4.	**Dam** ☐ Functioning ☐ N/A Remarks_____	

H. Retaining Walls ☐ Applicable ☐ N/A

1. **Deformations** ☐ Location shown on site map ☐ Deformation not evident
   Horizontal displacement_____ Vertical displacement_____
   Rotational displacement_____
   Remarks_____

2. **Degradation** ☐ Location shown on site map ☐ Degradation not evident
   Remarks_____

I. Perimeter Ditches/Off-Site Discharge ☐ Applicable ☐ N/A

1. **Siltation** ☐ Location shown on site map ☐ Siltation not evident
   Areal extent_____ Depth_____
   Remarks_____

2. **Vegetative Growth** ☐ Location shown on site map ☐ N/A
   ☐ Vegetation does not impede flow
   Areal extent_____ Type_____
   Remarks_____

3. **Erosion** ☐ Location shown on site map ☐ Erosion not evident
   Areal extent_____ Depth_____
   Remarks_____

4. **Discharge Structure** ☐ Functioning ☐ N/A
   Remarks_____

VIII. VERTICAL BARRIER WALLS ☐ Applicable ☐ N/A

1. **Settlement** ☐ Location shown on site map ☐ Settlement not evident
   Areal extent_____ Depth_____
   Remarks_____

2. **Performance Monitoring** Type of monitoring_____
   ☐ Performance not monitored
   Frequency_____ ☐ Evidence of breaching
   Head differential_____
   Remarks_____

IX. GROUNDWATER/SURFACE WATER REMEDIES ☐ Applicable ☐ N/A
A. Groundwater Extraction Wells, Pumps, and Pipelines ☐ Applicable ☐ N/A
1. **Pumps, Wellhead Plumbing, and Electrical** ☐ Good condition ☐ All required wells properly operating ☐ Needs Maintenance ☐ N/A Remarks_____
2. **Extraction System Pipelines, Valves, Valve Boxes, and Other Appurtenances** ☐ Good condition ☐ Needs Maintenance Remarks_____
3. **Spare Parts and Equipment** ☐ Readily available ☐ Good condition ☐ Requires upgrade ☐ Needs to be provided Remarks_____
B. Surface Water Collection Structures, Pumps, and Pipelines ☐ Applicable ☐ N/A
1. **Collection Structures, Pumps, and Electrical** ☐ Good condition ☐ Needs Maintenance Remarks_____
2. **Surface Water Collection System Pipelines, Valves, Valve Boxes, and Other Appurtenances** ☐ Good condition ☐ Needs Maintenance Remarks_____
3. **Spare Parts and Equipment** ☐ Readily available ☐ Good condition ☐ Requires upgrade ☐ Needs to be provided Remarks_____

C. Treatment System ☐ Applicable ☐ N/A

1. **Treatment Train** (Check components that apply)
   ☐ Metals removal ☐ Oil/water separation ☐ Bioremediation
   ☐ Air stripping ☐ Carbon adsorbers
   ☐ Filters_____
   ☐ Additive (*e.g.*, chelation agent, flocculent)_____
   ☐ Others_____
   ☐ Good condition ☐ Needs Maintenance
   ☐ Sampling ports properly marked and functional
   ☐ Sampling/maintenance log displayed and up to date
   ☐ Equipment properly identified
   ☐ Quantity of groundwater treated annually_____
   ☐ Quantity of surface water treated annually_____
   Remarks_____

2. **Electrical Enclosures and Panels** (properly rated and functional)
   ☐ N/A ☐ Good condition ☐ Needs Maintenance
   Remarks_____

3. **Tanks, Vaults, Storage Vessels**
   ☐ N/A ☐ Good condition ☐ Proper secondary containment ☐ Needs Maintenance
   Remarks_____

4. **Discharge Structure and Appurtenances**
   ☐ N/A ☐ Good condition ☐ Needs Maintenance
   Remarks_____

5. **Treatment Building(s)**
   ☐ N/A ☐ Good condition (esp. roof and doorways) ☐ Needs repair
   ☐ Chemicals and equipment properly stored
   Remarks_____

6. **Monitoring Wells** (pump and treatment remedy)
   ☐ Properly secured/locked ☐ Functioning ☐ Routinely sampled ☐ Good condition
   ☐ All required wells located ☐ Needs Maintenance ☐ N/A
   Remarks_____

D. Monitoring Data n/A

1. Monitoring Data
   ☐ Is routinely submitted on time ☐ Is of acceptable quality

2. Monitoring data suggests:
   ☐ Groundwater plume is effectively contained ☐ Contaminant concentrations are declining

D. Monitored Natural Attenuation N/A

1. **Monitoring Wells** (natural attenuation remedy)

☐ Properly secured/locked ☐ Functioning ☐ Routinely sampled ☐ Good condition
☐ All required wells located ☐ Needs Maintenance ☐ N/A
Remarks_____

X. OTHER REMEDIES

If there are remedies applied at the site which are not covered above, attach an inspection sheet describing the physical nature and condition of any facility associated with the remedy. An example would be soil vapor extraction.

XI. OVERALL OBSERVATIONS

A. Implementation of the Remedy

Describe issues and observations relating to whether the remedy is effective and functioning as designed. Begin with a brief statement of what the remedy is to accomplish (i.e., to contain contaminant plume, minimize infiltration and gas emission, etc.).

Radium contaminated soil has been excavated.

B. Adequacy of O&M

Describe issues and observations related to the implementation and scope of O&M procedures. In particular, discuss their relationship to the current and long-term protectiveness of the remedy.

Plastic sheeting removes potential for surface water infiltration. Fencing and signs remove potential for public exposure.

C.	**Early Indicators of Potential Remedy Problems**
	Describe issues and observations such as unexpected changes in the cost or scope of O&M or a high frequency of unscheduled repairs, that suggest that the protectiveness of the remedy may be compromised in the future. none.
D.	**Opportunities for Optimization**
	Describe possible opportunities for optimization in monitoring tasks or the operation of the remedy. Conduct PRs and confirmation sampling and restore site conditions.

USEPA, Comprehensive Five-Year Review Guidance, June 2001.

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CONFIRMED SITE 10

Five-Year Review Site Inspection Checklist (Draft)

(Working document for site inspection. Information may be completed by hand and attached to the Five-Year Review report as supporting documentation of site status. "N/A" refers to "not applicable." USEPA, Comprehensive Five-Year Review Guidance, June 2001)

I. SITE INFORMATION	
Site name: CSID	**Date of inspection:** 5/6/03
Location and Region: McClellan AFB	**EPA ID:**
Agency, office, or company leading the five-year review:	**Weather/temperature:** sunny windy

Remedy Includes: (Check all that apply)

- ☐ Landfill cover/containment
- ☒ Access controls
- ☒ Institutional controls
- ☐ Groundwater pump and treatment
- ☐ Surface water collection and treatment
- ☐ Vadose Zone Remedial Actions
- ☒ Other excavation
- ☐ Monitored natural attenuation
- ☐ Groundwater containment
- ☐ Vertical barrier walls

Attachments: ☐ Inspection team roster attached ☐ Site map attached

II. INTERVIEWS (Check all that apply)

1. **O&M site manager** Ray Lidstrom (Name) URS Project Manager (Title) 5/6/03 (Date)
   Interviewed ☒ at site ☐ at office ☐ by phone Phone no. 916 923 1846
   Problems, suggestions; ☐ Report attached _____

2. **O&M staff** Cliff Gray (Name) URS site manager (Title) 5/6/03 (Date)
   Interviewed ☒ at site ☐ at office ☐ by phone Phone no. 916 923 1846
   Problems, suggestions; ☐ Report attached _____

3. **Local regulatory authorities and response agencies** (i.e., State and Tribal offices, emergency response office, police department, office of public health or environmental health, zoning office, recorder of deeds, or other city and county offices, etc.) Fill in all that apply.

Agency _____
Contact _____ _____ _____ _____
Name Title Date Phone no.
Problems; suggestions; ☐ Report attached _____
_____

Agency _____
Contact _____ _____ _____ _____
Name Title Date Phone no.
Problems; suggestions; ☐ Report attached _____
_____

Agency _____
Contact _____ _____ _____ _____
Name Title Date Phone no.
Problems; suggestions; ☐ Report attached _____
_____

Agency _____
Contact _____ _____ _____ _____
Name Title Date Phone no.
Problems; suggestions; ☐ Report attached _____
_____

4. **Other interviews** (optional) ☐ Report attached.

See Appendix ~~A~~ B

III. ON-SITE DOCUMENTS & RECORDS VERIFIED (Check all that apply)				
1.	**O&M Documents**			
	☒ O&M manual	☒ Readily available	☐ Up to date	☐ N/A
	☐ As-built drawings	☐ Readily available	☐ Up to date	☒ N/A
	☐ Maintenance logs	☐ Readily available	☐ Up to date	☒ N/A
	Remarks			
2.	**Site-Specific Health and Safety Plan**	☒ Readily available	☒ Up to date	☐ N/A
	☐ Contingency plan/emergency response plan	☐ Readily available	☐ Up to date	☒ N/A
	Remarks			
3.	**O&M and OSHA Training Records**	☒ Readily available	☐ Up to date	☐ N/A
	Remarks			
4.	**Permits and Service Agreements**			
	☐ Air discharge permit	☐ Readily available	☐ Up to date	☒ N/A
	☐ Effluent discharge	☐ Readily available	☐ Up to date	☒ N/A
	☐ Waste disposal, POTW	☐ Readily available	☐ Up to date	☒ N/A
	☐ Other permits Rad	☐ Readily available	☐ Up to date	☐ N/A
	Remarks			
5.	**Gas Generation Records**	☐ Readily available	☐ Up to date	☒ N/A
	Remarks			
6.	**Settlement Monument Records**	☐ Readily available	☐ Up to date	☒ N/A
	Remarks			
7.	**Groundwater Monitoring Records**	☐ Readily available	☐ Up to date	☒ N/A
	Remarks			
8.	**Leachate Extraction Records**	☐ Readily available	☐ Up to date	☒ N/A
	Remarks			
9.	**Discharge Compliance Records**			
	☐ Air	☐ Readily available	☐ Up to date	☒ N/A
	☐ Water (effluent)	☐ Readily available	☐ Up to date	☒ N/A
	Remarks			
10.	**Daily Access/Security Logs**	☒ Readily available	☐ Up to date	☐ N/A
	Remarks			

IV. O&M COSTS

1. **O&M Organization**
   ☐ State in-house ☐ Contractor for State
   ☐ PRP in-house ☐Contractor for PRP
   ☐Federal Facility in-house ☐ Contractor for Federal Facility
   ☐ Other AFCEE

2. **O&M Cost Records** n/A
   ☐Readily available ☐Up to date
   ☐ Funding mechanism/agreement in place
   Original O&M cost estimate_____ ☐Breakdown attached

   Total annual cost by year for review period if available

   From_____ To_____ _____ ☐ Breakdown attached
   Date Date Total cost
   From_____ To_____ _____ ☐ Breakdown attached
   Date Date Total cost
   From_____ To_____ _____ ☐ Breakdown attached
   Date Date Total cost
   From_____ To_____ _____ ☐ Breakdown attached
   Date Date Total cost
   From_____ To_____ _____ ☐ Breakdown attached
   Date Date Total cost

3. **Unanticipated or Unusually High O&M Costs During Review Period**
   Describe costs and reasons: _____

V. ACCESS AND INSTITUTIONAL CONTROLS ☒ Applicable ☐ N/A

A. Fencing

1. **Fencing damaged** ☐ Location shown on site map ☒Gates secured ☐ N/A
   Remarks_____

B. Other Access Restrictions

1. **Signs and other security measures** ☐ Location shown on site map ☐ N/A
   Remarks employees must have access badges & Keys

C. Institutional Controls (ICs)

1. **Implementation and enforcement**

Site conditions imply ICs not properly implemented ☐ Yes ☒ No ☐ N/A
Site conditions imply ICs not being fully enforced ☐ Yes ☒ No ☐ N/A

Type of monitoring (*e.g.*, self-reporting, drive by) URS and Sac ~~Sheriff~~ Sheriff
Frequency daily
Responsible party/agency URS & AF
Contact Ray Lidstrom URS PM 5/6/03 916 923 1846
Name Title Date Phone no.

Reporting is up-to-date ☒ Yes ☐ No ☐ N/A
Reports are verified by the lead agency ☐ Yes ☐ No ☒ N/A

Specific requirements in deed or decision documents have been met ☐ Yes ☐ No ☒ N/A
Violations have been reported ☐ Yes ☒ No ☐ N/A
Other problems or suggestions: G Report attached

2. **Adequacy** ☒ ICs are adequate ☐ ICs are inadequate ☐ N/A
Remarks

D. General

1. **Vandalism/trespassing** ☐ Location shown on site map ☒ No vandalism evident
Remarks

2. **Land use changes on site** ☒ N/A
Remarks

3. **Land use changes off site** ☒ N/A
Remarks

VI. GENERAL SITE CONDITIONS

A. Roads ☐ Applicable ☒ N/A

1. **Roads damaged** ☐ Location shown on site map ☐ Roads adequate ☒ N/A
Remarks

B. Other Site Conditions

Remarks _____

_____

_____

_____

_____

_____

VII. LANDFILL COVERS G Applicable (G N/A)

A. Landfill Surface

1. **Settlement** (Low spots) ☐ Location shown on site map ☐Settlement not evident
   Areal extent_____ Depth_____
   Remarks_____

2. **Cracks** ☐ Location shown on site map ☐Cracking not evident
   Lengths_____ Widths_____ Depths_____
   Remarks_____

3. **Erosion** ☐ Location shown on site map ☐Erosion not evident
   Areal extent_____ Depth_____
   Remarks_____

4. **Holes** ☐ Location shown on site map ☐ Holes not evident
   Areal extent_____ Depth_____
   Remarks_____

5. **Vegetative Cover** ☐ Grass ☐ Cover properly established ☐ No signs of stress
   ☐ Trees/Shrubs (indicate size and locations on a diagram)
   Remarks_____

6. **Alternative Cover (armored rock, concrete, etc.)** ☐ N/A
   Remarks_____

7. **Bulges** ☐ Location shown on site map ☐ Bulges not evident
   Areal extent_____ Height_____
   Remarks_____

8. **Wet Areas/Water Damage** ☐Wet areas/water damage not evident
   ☐ Wet areas ☐ Location shown on site map Areal extent_____
   ☐ Ponding ☐Location shown on site map Areal extent_____
   ☐ Seeps ☐Location shown on site map Areal extent_____
   ☐ Soft subgrade ☐Location shown on site map Areal extent_____
   Remarks_____

9. **Slope Instability** ☐ Slides ☐Location shown on site map ☐ No evidence of slope instability
Areal extent_____
Remarks_____

B. Benches ☐Applicable ☐N/A
(Horizontally constructed mounds of earth placed across a steep landfill side slope to interrupt the slope in order to slow down the velocity of surface runoff and intercept and convey the runoff to a lined channel.)

1. **Flows Bypass Bench** ☐ Location shown on site map ☐ N/A or okay
Remarks_____

2. **Bench Breached** ☐Location shown on site map ☐ N/A or okay
Remarks_____

3. **Bench Overtopped** ☐ Location shown on site map ☐N/A or okay
Remarks_____

C. Letdown Channels ☐ Applicable ☐ N/A
(Channel lined with erosion control mats, riprap, grout bags, or gabions that descend down the steep side slope of the cover and will allow the runoff water collected by the benches to move off of the landfill cover without creating erosion gullies.)

1. **Settlement** ☐Location shown on site map ☐No evidence of settlement
Areal extent_____ Depth_____
Remarks_____

2. **Material Degradation** ☐ Location shown on site map ☐ No evidence of degradation
Material type_____ Areal extent_____
Remarks_____

3. **Erosion** ☐ Location shown on site map ☐ No evidence of erosion
Areal extent_____ Depth_____
Remarks_____

4. **Undercutting** ☐ Location shown on site map ☐ No evidence of undercutting
Areal extent_____ Depth_____
Remarks_____

5. **Obstructions** Type_____ ☐ No obstructions
☐ Location shown on site map Areal extent_____
Size_____
Remarks_____

6. **Excessive Vegetative Growth** Type_____
☐ No evidence of excessive growth
☐ Vegetation in channels does not obstruct flow
☐ Location shown on site map Areal extent_____
Remarks_____

D. Cover Penetrations G Applicable G N/A

1. **Gas Vents** ☐ Active G Passive
☐ Properly secured/locked ☐Functioning ☐ Routinely sampled ☐ Good condition
☐ Evidence of leakage at penetration ☐Needs Maintenance
☐ N/A
Remarks_____

2. **Gas Monitoring Probes**
☐ Properly secured/locked ☐ Functioning ☐ Routinely sampled ☐ Good condition
☐ Evidence of leakage at penetration ☐ Needs Maintenance ☐ N/A
Remarks_____

3. **Monitoring Wells** (within surface area of landfill)
☐ Properly secured/locked ☐ Functioning ☐ Routinely sampled ☐ Good condition
☐ Evidence of leakage at penetration ☐ Needs Maintenance ☐ N/A
Remarks_____

4. **Leachate Extraction Wells**
☐ Properly secured/locked ☐ Functioning ☐ Routinely sampled ☐ Good condition
☐ Evidence of leakage at penetration ☐ Needs Maintenance ☐ N/A
Remarks_____

5. **Settlement Monuments** ☐ Located ☐ Routinely surveyed ☐ N/A
Remarks_____

E. Gas Collection and Treatment ☐ Applicable ☐ N/A

1. **Gas Treatment Facilities**
   ☐ Flaring ☐ Thermal destruction ☐ Collection for reuse
   ☐ Good condition ☐ Needs Maintenance
   Remarks_____

2. **Gas Collection Wells, Manifolds and Piping**
   ☐ Good condition ☐ Needs Maintenance
   Remarks_____

3. **Gas Monitoring Facilities** (*e.g.*, gas monitoring of adjacent homes or buildings)
   ☐ Good condition ☐ Needs Maintenance ☐ N/A
   Remarks_____

F. Cover Drainage Layer ☐ Applicable ☐ N/A

1. **Outlet Pipes Inspected** ☐ Functioning ☐ N/A
   Remarks_____

2. **Outlet Rock Inspected** ☐ Functioning ☐ N/A
   Remarks_____

G. Detention/Sedimentation Ponds ☐ Applicable ☐ N/A

1. **Siltation** Areal extent_____ Depth_____ ☐ N/A
   ☐ Siltation not evident
   Remarks_____

2. **Erosion** Areal extent_____ Depth_____
   ☐ Erosion not evident
   Remarks_____

3. **Outlet Works** ☐ Functioning ☐ N/A
   Remarks_____

4. **Dam** ☐ Functioning ☐ N/A
   Remarks_____

H. Retaining Walls ☐ Applicable ☒ N/A

1. **Deformations** ☐ Location shown on site map ☐ Deformation not evident
   Horizontal displacement_____ Vertical displacement_____
   Rotational displacement_____
   Remarks_____

2. **Degradation** ☐ Location shown on site map ☐ Degradation not evident
   Remarks_____

I. Perimeter Ditches/Off-Site Discharge ☒ Applicable ☐ N/A

1. **Siltation** ☐ Location shown on site map ☒ Siltation not evident
   Areal extent_____ Depth_____
   Remarks_____

2. **Vegetative Growth** ☐ Location shown on site map ☒ N/A
   ☐ Vegetation does not impede flow
   Areal extent_____ Type_____
   Remarks_____

3. **Erosion** ☐ Location shown on site map ☒ Erosion not evident
   Areal extent_____ Depth_____
   Remarks_____

4. **Discharge Structure** ☒ Functioning ☐ N/A
   Remarks_____

VIII. VERTICAL BARRIER WALLS ☐ Applicable ☒ N/A

1. **Settlement** ☐ Location shown on site map ☐ Settlement not evident
   Areal extent_____ Depth_____
   Remarks_____

2. **Performance Monitoring** Type of monitoring_____
   ☐ Performance not monitored
   Frequency_____ ☐ Evidence of breaching
   Head differential_____
   Remarks_____

IX. GROUNDWATER/SURFACE WATER REMEDIES ☐ Applicable ☒ N/A	
A. Groundwater Extraction Wells, Pumps, and Pipelines ☐ Applicable ☐ N/A	
1.	**Pumps, Wellhead Plumbing, and Electrical** ☐ Good condition ☐ All required wells properly operating ☐ Needs Maintenance ☐ N/A Remarks_____
2.	**Extraction System Pipelines, Valves, Valve Boxes, and Other Appurtenances** ☐ Good condition ☐ Needs Maintenance Remarks_____
3.	**Spare Parts and Equipment** ☐ Readily available ☐ Good condition ☐ Requires upgrade ☐ Needs to be provided Remarks_____
B. Surface Water Collection Structures, Pumps, and Pipelines ☐ Applicable ☒ N/A	
1.	**Collection Structures, Pumps, and Electrical** ☐ Good condition ☐ Needs Maintenance Remarks_____
2.	**Surface Water Collection System Pipelines, Valves, Valve Boxes, and Other Appurtenances** ☐ Good condition ☐ Needs Maintenance Remarks_____
3.	**Spare Parts and Equipment** ☐ Readily available ☐ Good condition ☐ Requires upgrade ☐ Needs to be provided Remarks_____

C. Treatment System ☐ Applicable ☒ N/A

1. **Treatment Train** (Check components that apply)
   ☐ Metals removal ☐ Oil/water separation ☐ Bioremediation
   ☐ Air stripping ☐ Carbon adsorbers
   ☐ Filters_____
   ☐ Additive (*e.g.*, chelation agent, flocculent)_____
   ☐ Others_____
   ☐ Good condition ☐ Needs Maintenance
   ☐ Sampling ports properly marked and functional
   ☐ Sampling/maintenance log displayed and up to date
   ☐ Equipment properly identified
   ☐ Quantity of groundwater treated annually_____
   ☐ Quantity of surface water treated annually_____
   Remarks_____

2. **Electrical Enclosures and Panels** (properly rated and functional)
   ☐ N/A ☐ Good condition ☐ Needs Maintenance
   Remarks_____

3. **Tanks, Vaults, Storage Vessels**
   ☐ N/A ☐ Good condition ☐ Proper secondary containment ☐ Needs Maintenance
   Remarks_____

4. **Discharge Structure and Appurtenances**
   ☐ N/A ☐ Good condition ☐ Needs Maintenance
   Remarks_____

5. **Treatment Building(s)**
   ☐ N/A ☐ Good condition (esp. roof and doorways) ☐ Needs repair
   ☐ Chemicals and equipment properly stored
   Remarks_____

6. **Monitoring Wells** (pump and treatment remedy)
   ☐ Properly secured/locked ☐ Functioning ☐ Routinely sampled ☐ Good condition
   ☐ All required wells located ☐ Needs Maintenance ☐ N/A
   Remarks_____

D. Monitoring Data

1. Monitoring Data
   ☒ Is routinely submitted on time ☐ Is of acceptable quality

2. Monitoring data suggests: air concentrations below background for ICAD.
   ☐ Groundwater plume is effectively contained ☐ Contaminant concentrations are declining

D. Monitored Natural Attenuation N/A

1. **Monitoring Wells** (natural attenuation remedy)

☐ Properly secured/locked ☐ Functioning ☐ Routinely sampled ☐ Good condition
☐ All required wells located ☐ Needs Maintenance ☐ N/A
Remarks_____

X. OTHER REMEDIES

If there are remedies applied at the site which are not covered above, attach an inspection sheet describing the physical nature and condition of any facility associated with the remedy. An example would be soil vapor extraction.

XI. OVERALL OBSERVATIONS

A. Implementation of the Remedy

Describe issues and observations relating to whether the remedy is effective and functioning as designed. Begin with a brief statement of what the remedy is to accomplish (i.e., to contain contaminant plume, minimize infiltration and gas emission, etc.).

The weatherization tent is effective at containing the exposure to contamination. No water enters/leaves site and all soil is contained. The air filters have not shown concentrations above background leaving the tent. There have been no reports of worker exposure. Security measures appear adequate.

B. Adequacy of O&M

Describe issues and observations related to the implementation and scope of O&M procedures. In particular, discuss their relationship to the current and long-term protectiveness of the remedy.

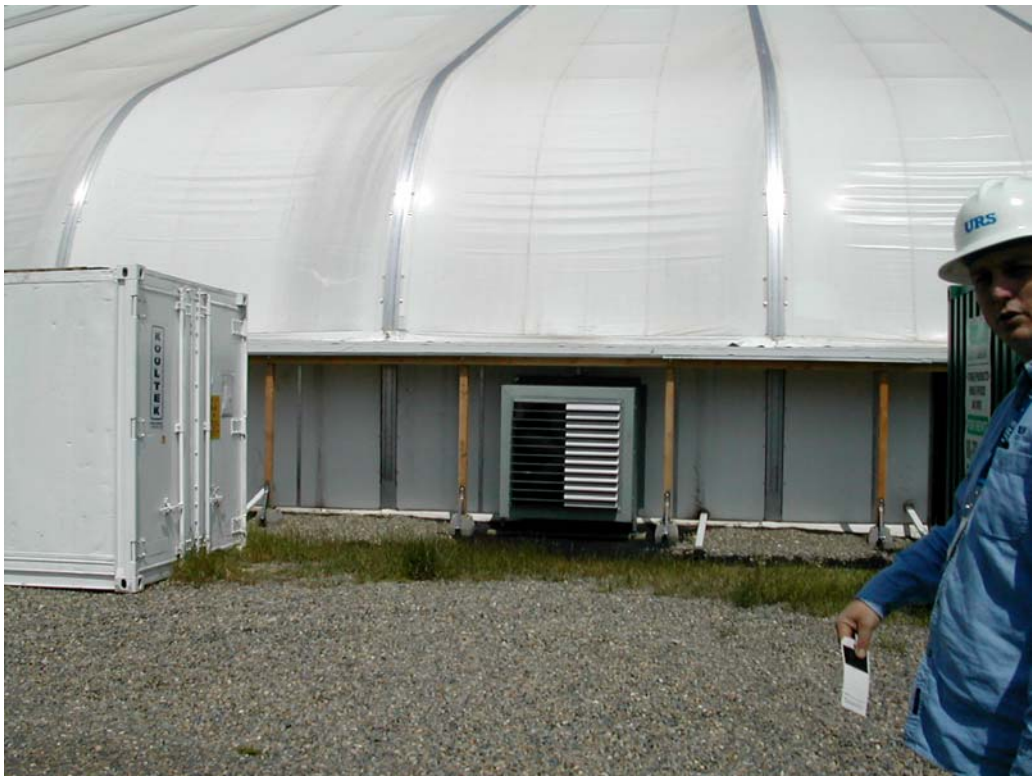
The long-term protectiveness includes removal of all contaminated soil which will be protective. In the short term the remedial action appears to protect the site workers.

C.	**Early Indicators of Potential Remedy Problems**
	Describe issues and observations such as unexpected changes in the cost or scope of O&M or a high frequency of unscheduled repairs, that suggest that the protectiveness of the remedy may be compromised in the future. _____ _____ _____ _____ _____ _____ _____ _____ _____
D.	**Opportunities for Optimization**
	Describe possible opportunities for optimization in monitoring tasks or the operation of the remedy. _____ _____ _____ _____ _____ _____ _____ _____ _____

USEPA, Comprehensive Five-Year Review Guidance, June 2001.

CS 10 WEATHERIZATION TENT

CS 10 AMBIENT AIR MONITORING EQUIPMENT



CS 10 EXHAUST FANS AND AIR MONITORING

CS 10 EXCAVATION