



**US Environmental Protection Agency**

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**Attachment I  
Site Inspection Report  
for  
Brown and Bryant Superfund Site  
Arvin, California**



**Prepared by: US Army Corps of Engineers  
Hazardous, Toxic, and Radioactive Waste Center of Expertise  
Omaha, Nebraska**

**Prepared for: US Environmental Protection Agency, Region 9,  
San Francisco, California**

**August 2006**

Five-Year Review Site Inspection Report  
Brown and Bryant Superfund Site Arvin, CA

## **Brown and Bryant Superfund Site Second Five-Year Review**

**Trip Report**

**Site Inspection Checklist**

**Site Photographs**

## Brown and Bryant Superfund Site Five-Year Review Site Inspection Report

### TRIP REPORT

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#### 1. INTRODUCTION:

a. Date: March 15-16 2006

b. Location: Arvin, CA

c. Purpose: The site inspection was conducted to provide information about the site's status and to visually confirm and document the conditions of the remedy, the site, and the surrounding area. In addition the travelers took the opportunity to interview local residents, businesses and other stake holders as well as visit the document repository.

d. Travelers:

Dave J. Becker	USACE HTRW CX Geologist	(402) 697-2655
Lindsey K. Lien	USACE HTRW CX Environmental Engineer	(402) 697-2580

e. Contacts:

Travis Cain	USEPA Region 9 Remedial Project Manager	(415) 972-3161
Rick Lainhart	USACE Construction Inspector	(626) 401-4094
Raymond Kincy	Manager Arvin Community Services District	(661) 854-2587
Steven E. Williams	Forman Arvin Community Services District	(661) 854-2127
Mohammed Estiri	Panacea Project Coordinator (O&M Contractor)	(714) 228-1248
Quinn Kinnebrew	Panacea Project Geologist (O&M Contractor)	(714) 228-1248
Reference Librarian	Beale Library, Kern County, Bakersfield, CA	(661) 868-0701

#### 2. SUMMARY:

Dave Becker and Lindsey Lien arrived at Arvin, CA at approximately 2 PM on March 15, 2006, where they contacted Mr. Kincy and Mr. Williams of the Arvin Water District. They discussed the status of the site, their interactions with the Brown and Bryant Remediation Team, and their insights into past and planned remediation activities. Information gathered as a result of the interview is included in the interview forms. Following the meeting with the Arvin Water District personnel, the travelers proceeded to the Kern County Records Repository where a search

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was done to establish if any covenants or other restrictions had been placed on the Arvin parcels formerly owned by Brown and Bryant, Inc., none were found. The CX team left the County building and traveled to the Beale Library in Bakersfield to ensure the administrative record was in order. Originally, the administrative record was placed in the Arvin Branch of the Kern County Library, but was recently moved to Bakersfield by the library staff. The entire removal action and source removal (OU1) administrative records are currently stored on microfilm at the Beale Library.

The following morning, Mr. Lien and Mr. Becker met with the EPA RPM Travis Cain, to discuss the previous days' activities, the proposed schedule for that day, and a general discussion about Brown and Bryant prior to meeting the other parties at the site at 8:30 AM. The site visit involved USACE, Panacea, and EPA personnel listed in paragraph 1.d and 1.e above. The USACE Construction Inspector briefed the participants on the recent O&M activities on site, activities proposed at the site, and led the group on a site tour. The CX personnel noted items such as cracks in the cover, broken strands of barbed wire on the site fence, a mismapped well location, current well head conditions, possible areas of rodent burrows under the cap, areas of poor cap drainage, and general condition of the facilities. The CX personnel discussed various aspects of the site such as community sentiment, land use, demographics, communication, and property issues with the site remediation team. Information relevant to the site inspection is included in the site inspection report included as an attachment. The site inspection concluded at 11:30 AM.

The afternoon of March 16<sup>th</sup> was used to interview individuals living or working in the immediate vicinity of the Brown and Bryant Site. Several residents west and south of the site were contacted. Of those contacted approximately half were temporary workers living in the community to assist in the area produce industries. Many were unable to speak English and CX personnel were unable to speak Spanish. Those persons contacted that were fluent in both languages indicated little knowledge of the site and were generally uninterested as long as their drinking water was safe. They would like to have some type of update periodically to be certain there are no exposures to their families from the site. Subsequent to resident and business interviews, the CX team returned to the Kern County Records Repository to continue searching for any evidence of land use controls being placed on the Brown and Bryant Arvin Parcels. No land use controls or restrictions were found.

The travelers returned to Omaha on March 17<sup>th</sup>, 2006.

### 3. DISCUSSION:

Lindsey Lien and Dave Becker contacted Mr. Kincy and Mr. Williams of the Arvin Water District. They discussed the status of the site, their interactions with the Brown and Bryant Remediation Team, and their insights into past and planned remediation activities. Overall they were satisfied with the site remediation. The local water authority continues to sample the nearby City well CW-1, and receives information on the results of sampling conducted by Panacea. They did indicate they would like to be involved with EPA in a periodic status update one or two times per year as well as be allowed to review and comment on documents.

There are limited processes in place to prevent the placement of new wells within the footprint of the contaminant plume. Though there are legal resolutions passed by the Water District Board in place to prevent well installation within the water district, there is not a clear process to flag a proposed well location as potentially within the plume. Either Kern County or the State Dept. of Health may issue a permit, depending on the use of the well. Coordination with those agencies regarding preventing well installation in the vicinity of the site is sporadic.

The water district personnel discussed the removal and replacement of the city well south and west of the site, as a critical element of the upcoming proposed plan for the second operable unit. The water district representatives stated that existing municipal well number 1 was their best well. It produces 900 – 1000 gallons per minute continuously from April to October, and yields water with concentrations of arsenic and nitrates well below drinking water standards. Only 4 of the original 9 municipal wells are reliable and remain in service. Several of the wells (2, 3, and 4) were destroyed, well 9 has high concentrations of nitrates, and well 7 has high arsenic, benzene and H<sub>2</sub>S concentrations. The shallow part of the aquifer tends to have elevated nitrate levels while the deeper portion of the aquifer tends to have higher arsenic concentrations. Generally speaking, the further south one would locate a well, the lower the arsenic concentration. The water district has expressed its preference to place a replacement well in the southern portion of Arvin. They also cautioned that they are at their maximum water production capacity (5.8 MGD on their maximum day) with all remaining active wells running. The current arsenic level in the water with all wells running is above the new 10 µg/L standard, which will require they install arsenic removal processes. The only treatment currently employed prior to discharging into the distribution system is chlorination. Given the peak day and production capacity are close to the same value, the district would like to make sure the new well is on line prior to closing down the existing well number 1. Given the long time since contamination discovery and monitoring at the two sentinel wells several hundred feet upgradient, the district is confident contamination will not reach existing municipal well 1 for some time.

The travelers were then taken to view well number 1, located in the rear of a city maintenance yard near the Brown and Bryant site. Prior to our visit, the district was investigating costs to install a 1 million gallon water storage tank adjacent to well 1 to help meet peaks in demand. The State Department of Health had asked the district to

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raise well 1 approximately 18 inches for flood protection. The district has been considering this requirement. Information gathered as a result of the interview is included in the interview forms.

Following the meeting with the Arvin Water District personnel, the Mr. Lien and Mr. Becker proceeded to the Kern County Records Repository where they began their property records research to establish if any covenants or other restrictions had been placed on the Arvin parcels formerly owned by Brown and Bryant, Inc. Unfortunately the records center closed prior to completion of their research so they returned the following day. Upon completion of the other site inspection and interviews done at/near the site, the records search was completed, and no limitations on land use were found.

Early on March 16<sup>th</sup>, Dave Becker, Lindsey Lien (CX) and Travis Cain (EPA) met to discuss the site history and the EPA expectations concerning the site. Following that meeting they traveled to the site arriving at 0830 on March 16. They were met by Rick Lainhart CESPL, Mohammed Estiri and Quinn Kinnebrew of Panacea, Inc. the contractor responsible for groundwater monitoring, and other tasks as required. Rick showed the team around the site and highlighted some of the issues that were of primary importance which included:

- the cracking present in the asphalt cap,
- the areas of poor drainage where ponding occurs,
- monitoring well damage and security,
- fence damage,
- accumulation of tumbleweeds against the fences.

Cracking present in the cap may have occurred due to several factors, settlement in the soil beneath the cap, result of expansion and contraction cycles, or as a result of the magnitude 3.4 earthquake centered in the foothills north east of the site that occurred last year. To ensure the cracking did not occur as a result of the earthquake, Rick Lainhart surveyed the cap and documented the area and length of the cracks by spray painting the extent of the cracks and taking a digital image of each on six month intervals. The cracks have been propagating since the initial survey. The USACE has identified some options to fix the cracks concurrently with the ponding that occurs on the cap.

Ponding at the interior of the cover is attributed to settlement while the large ponded area (approximately 100' x 200') on the east-central portion of the cover is due primarily to the primary outlet becoming blocked. The blockage occurs when the adjacent land owner grades the area next to the west security fence to prevent flooding an unimproved road. Optional outlet configurations are being evaluated by the USACE to allow water to drain from the cover even when grading activities similar to past practices are repeated. Additional ponding occurs west of the site warehouse in the west-central portion of the site. The warehouse on site is a "low-point" and water ponds against low asphalt berms constructed on the west side of the warehouse.

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The USACE construction manager indicated the current grades at the site are very flat and the easiest way to eliminate the interior ponding will require placing a top coat of asphalt and sand of adequate depth over the existing cover (rather than remove and replace the existing asphalt cover) while patching the cracks identified on the USACE crack surveys. The overlay will be of varying depth across the site, but will attempt to direct flow off the cap, eliminating the ponding and resulting infiltration. A new survey of the current conditions will be done this FY to; determine the existing grades over the site, used as a basis for designing the new drainage patterns, and determine the cost for the new overlay and other drainage improvements.

There were approximately 4 locations where rodents had burrowed into the soil adjacent to the cap, but did not penetrate the cover or burrow beneath. A temporary ant infestation was also noted by the USACE Inspector in the RCRA cap next to a power pole anchor but is no longer present. The integrity of cap due to these actions has not been compromised.

One monitoring well (PWB-2) south of the site was damaged as a result of a grader blade hitting the casing. The well has been repaired and protective bollards placed around the well. In an effort to make the casing and bollards more visible, they were painted bright yellow. The Construction Inspector is in the process of painting all above grade well casings and bollards yellow to improve visibility, and replace the locks on the wells to ensure they are always secured following sampling activities. Monitoring well PWB-7 south of the site was replaced in January, 2006 with a new well PWB-7A, after it was discovered the PWB-7 casing was cracked. Well PWB-7 was abandoned in accordance with state regulations. A significant number of monitoring wells were found to be unlocked and/or unlabelled. Most wellheads were in good shape, though a number of the protective casings are in need of paint. All but two monitoring wells were inspected and observations are provided in the following table.

Well Observations.

Well No.	Unlocked	Unlabelled*	Comments
AM W-1P	X	X	
AM W-2P	X		
AP-1	X		Lock present, but open
AP-2	X		Barcad completion prevents protective casing from locking
AP-4			
AP-5	X		
WA-1		X	Flush mounted vault
WA-2		X	Flush mounted vault
WA-3			
WA-4	X		Pad cracked
WA-5	X		
WA-6			
WA-7			

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Well No.	Unlocked	Unlabelled*	Comments
WA-8	X		Needs paint
WA-9	X		Flush mounted vault
EPAS-1		X	Rodent burrow under pad
EPAS-2			Needs paint
EPAS-3			Could not observe
EPAS-4			Could not closely observe, appears to need paint
PWA-1			Flush mounted vault. In fenced enclosure
PWA-2		X	Flush mounted vault
PWA-3			Flush mounted vault
PWA-4			Flush mounted vault, but has bollards
PWA-5		X	Flush mounted vault
PWA-6		X	Partially soil covered flush mounted vault
PWA-7		X	Flush mounted vault
AMW-3R	X	X	Barcad completion prevents protective casing from locking
AMW-4R			Did not observe
AR-1	X		Barcad completion prevents protective casing from locking
WB2-1			Needs paint
WB2-2			Needs paint
WB2-3		X	Flush mounted vault
WB2-4	X		Flush mounted vault
PWB-1			
PWB-2			Flush mounted vault
PWB-3		X	Flush mounted vault
PWB-4			Flush mounted vault
PWB-5		X	Flush mounted vault, located in low spot, partially soil covered
PWB-6		X	Flush mounted vault, ponded water adjacent to well
PWB-7			Flush mounted vault
PWB-8		X	Flush mounted vault, in a limited low area
PWB-9		X	Flush mounted vault
PWB-10		X	Flush mounted vault
PWB-11		X	Flush mounted vault
MW-2	X	X	Padlock in place, but top can be opened
MW-3	X		
MW-4			
EW-1			
EW-2	X		Padlock in place, but top can be opened
EW-3	X		
IW-1	X		

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Well No.	Unlocked	Unlabelled*	Comments
IW-2	X	X	

\*Included when noted in field book. Most, but not all, flush-mounted vaults were unlabelled.

The barbed wire on the fence outriggers (at the Brown and Bryant site inriggers) is broken in several places on the west and north sides of the site, and should be repaired. Overall site security appears adequate with a single access point to the site equipped with a lock. The short period of time before the barbed wire is repaired should not impact security. There have been no reports of vandalism at the site. The fence was originally installed to keep children from playing on the site prior to placement of the asphalt cover.

The afternoon of March 16<sup>th</sup> was used to interview individuals living or working in the immediate vicinity of the Brown and Bryant Site. Several residents west and south of the site were contacted. Of those contacted approximately half were temporary workers living in the community to assist in the area produce industries. Many were unable to speak English and CX personnel were unable to speak Spanish. Those persons contacted that were fluent in both languages indicated little knowledge of the site and were generally uninterested as long as their drinking water was safe. Discussions with these individuals were documented in the interview report.

4. ACTIONS RECOMMENDED:

The HTRW CX will incorporate the findings into the Five Year Review Report.

David J. Becker, P.G.  
 Geologist CENWO-HX-E

Lindsey K. Lien, P.E.  
 Environmental Engineer  
 CENWO-HX-E





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<b>III. ON-SITE DOCUMENTS &amp; RECORDS VERIFIED</b> (Check all that apply)			
1.	<b>O&amp;M Documents</b> <input type="checkbox"/> O&M manual <input checked="" type="checkbox"/> As-built drawings <input type="checkbox"/> Maintenance logs	<input type="checkbox"/> Readily available <input type="checkbox"/> Readily available <input type="checkbox"/> Readily available	<input type="checkbox"/> Up to date <input type="checkbox"/> Up to date <input type="checkbox"/> Up to date <input checked="" type="checkbox"/> N/A <input type="checkbox"/> N/A <input checked="" type="checkbox"/> N/A Remarks: There are no O & M manuals. Completion report for 001 includes practices for the cap. Contract with O & M firm stipulates work items.
2.	<b>Site-Specific Health and Safety Plan</b> <input checked="" type="checkbox"/> Contingency plan/emergency response plan	<input checked="" type="checkbox"/> Readily available <input checked="" type="checkbox"/> Readily available	<input type="checkbox"/> Up to date <input type="checkbox"/> Up to date <input type="checkbox"/> N/A <input type="checkbox"/> N/A Remarks: Documents not on site except during site activities
3.	<b>O&amp;M and OSHA Training Records</b>	<input checked="" type="checkbox"/> Readily available	<input type="checkbox"/> Up to date <input type="checkbox"/> N/A Remarks: Same as 2
4.	<b>Permits and Service Agreements</b> <input type="checkbox"/> Air discharge permit <input type="checkbox"/> Effluent discharge <input type="checkbox"/> Waste disposal, POTW <input type="checkbox"/> Other permits	<input type="checkbox"/> Readily available <input type="checkbox"/> Readily available <input type="checkbox"/> Readily available <input type="checkbox"/> Readily available	<input type="checkbox"/> Up to date <input type="checkbox"/> Up to date <input type="checkbox"/> Up to date <input type="checkbox"/> Up to date <input checked="" type="checkbox"/> N/A <input checked="" type="checkbox"/> N/A <input checked="" type="checkbox"/> N/A <input checked="" type="checkbox"/> N/A Remarks: Currently site is capped with out any active remediation problems
5.	<b>Gas Generation Records</b>	<input type="checkbox"/> Readily available	<input type="checkbox"/> Up to date <input checked="" type="checkbox"/> N/A Remarks:
6.	<b>Settlement Monument Records</b>	<input type="checkbox"/> Readily available	<input type="checkbox"/> Up to date <input checked="" type="checkbox"/> N/A Remarks: None- Monuments are planned to be added in the current contract action to survey the site to correct ponding
7.	<b>Groundwater Monitoring Records</b>	<input checked="" type="checkbox"/> Readily available	<input type="checkbox"/> Up to date <input type="checkbox"/> N/A Remarks: Need to obtain monthly reports- Documents are kept at USACE
8.	<b>Leachate Extraction Records</b>	<input type="checkbox"/> Readily available	<input type="checkbox"/> Up to date <input checked="" type="checkbox"/> N/A Remarks:
9.	<b>Discharge Compliance Records</b> <input type="checkbox"/> Air <input type="checkbox"/> Water (effluent)	<input type="checkbox"/> Readily available <input type="checkbox"/> Readily available	<input type="checkbox"/> Up to date <input type="checkbox"/> Up to date <input checked="" type="checkbox"/> N/A <input type="checkbox"/> N/A Remarks: No active extraction/ treatment system
10.	<b>Daily Access/Security Logs</b>	<input type="checkbox"/> Readily available	<input type="checkbox"/> Up to date <input checked="" type="checkbox"/> N/A Remarks: Site Access is intermittent – Monthly during sampling or other activities or inspections

<b>IV. O&amp;M COSTS</b>			
1.	<b>O&amp;M Organization</b>		
	<input type="checkbox"/> State in-house	<input type="checkbox"/> Contractor for State	
	<input type="checkbox"/> PRP in-house	<input type="checkbox"/> Contractor for PRP	
	<input type="checkbox"/> Federal Facility in-house	<input type="checkbox"/> Contractor for Federal Facility	
	√ Other <u>USACE for EPA</u>		
2.	<b>O&amp;M Cost Records</b>		
	<input type="checkbox"/> Readily available	√ Up to date	
	<input type="checkbox"/> Funding mechanism/agreement in place		
	<input type="checkbox"/> Original O&M cost estimate _____	<input type="checkbox"/> Breakdown attached	
Total annual cost by year for review period if available			
	From <u>3-2003</u> To <u>3-2004</u>	<u>\$386,000</u>	<input type="checkbox"/> Breakdown attached
	Date                      Date	Total cost	
	From <u>4-2004</u> To <u>5-2005</u>	<u>\$81,000</u>	<input type="checkbox"/> Breakdown attached
	Date                      Date	Total cost	
	From <u>5-2005</u> To <u>5-2006</u>	<u>\$65,000</u>	<input type="checkbox"/> Breakdown attached
	Date                      Date	Total cost	
	From _____ To _____	_____	<input type="checkbox"/> Breakdown attached
	Date                      Date	Total cost	
	From _____ To _____	_____	<input type="checkbox"/> Breakdown attached
	Date                      Date	Total cost	
3.	<b>Unanticipated or Unusually High O&amp;M Costs During Review Period</b>		
	Describe costs and reasons: <u>Costs -3/2003 - 3/2004 reflect costs for 4 quarterly samples from 36 well network, one time training cost, and Drainage assessment on the cap. Later years addressed a much reduced monitoring program CW-1 and 2 B zone wells only.</u>		
	<u>Abandon/ Seal well PWB- 7 which had a cracked casing with new well PWB-7A</u>		
	<u>Grading revisions involving an asphalt overlay to correct ponding on the cap may or may not be accomplished by September.</u>		
<b>V. ACCESS AND INSTITUTIONAL CONTROLS</b> √ Applicable <input type="checkbox"/> N/A			
<b>A. Fencing</b>			
1.	<b>Fencing damaged</b>	√ Location shown on site map	<input type="checkbox"/> Gates secured <input type="checkbox"/> N/A
	Remarks: <u>Map to be provided</u>		
<b>B. Other Access Restrictions</b>			
1.	<b>Signs and other security measures</b>	<input type="checkbox"/> Location shown on site map	<input type="checkbox"/> N/A
	Remarks: <u>Signs in 2 languages about every 50 ft</u>		

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<b>C. Institutional Controls (ICs)</b>			
<b>1. Implementation and enforcement</b>			
Site conditions imply ICs not properly implemented	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> N/A
Site conditions imply ICs not being fully enforced	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> N/A
Type of monitoring (e.g., self-reporting, drive by) <u>Security- fence only institutional control currently</u>			
Frequency _____			
Responsible party/agency <u>EPA RPM to address this item with state regulators</u>			
Contact _____			
Name	Title	Date	Phone no.
Reporting is up-to-date <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A			
Reports are verified by the lead agency <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A			
Specific requirements in deed or decision documents have been met <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A			
Violations have been reported <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A			
Other problems or suggestions: <input type="checkbox"/> Report attached			
<u>Institutional controls addressed in OUI ROD for cap are not incorporated into deeds. Only limitations identified on property documents are listed on at the Kern County Assessor Web site which has the following annotation on the Deed "Toxic Hazard Present on Site"</u>			
_____			
_____			
_____			
<b>2. Adequacy</b> <input checked="" type="checkbox"/> ICs are adequate <input type="checkbox"/> ICs are inadequate <input type="checkbox"/> N/A			
Remarks: <u>All areas are not completely / legally addressed – Parcel east of property is presently for sale. Lack of IC's for wells are in place, there is the potential that a new well can be installed illegally since no one agency clearly has the lead to control and monitor new wells proposed for installation.</u>			
<b>D. General</b>			
<b>1. Vandalism/trespassing</b> <input type="checkbox"/> Location shown on site map <input checked="" type="checkbox"/> No vandalism evident			
Remarks: _____			
_____			
<b>2. Land use changes on site</b> <input type="checkbox"/> N/A			
Remarks: <u>NO</u>			
<b>3. Land use changes off site</b> <input type="checkbox"/> N/A			
Remarks: <u>NO</u>			
<b>VI. GENERAL SITE CONDITIONS</b>			
<b>A. Roads</b> <input type="checkbox"/> Applicable <input checked="" type="checkbox"/> N/A			
<b>1. Roads damaged</b> <input type="checkbox"/> Location shown on site map <input type="checkbox"/> Roads adequate <input type="checkbox"/> N/A			
Remarks: _____			
_____			

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<b>B. Other Site Conditions</b>			
Remarks: _____ _____			
<b>VII. LANDFILL COVERS</b> <input type="checkbox"/> Applicable <input type="checkbox"/> N/A			
<b>A. Landfill Surface</b>			
1.	<b>Settlement</b> (Low spots) 50-150    ✓ Location shown on site map <input type="checkbox"/> Settlement not evident Areal extent <u>100 x 200</u> Depth <u>6"</u> Remarks <u>Large area of standing waters- 2 major area west of warehouse. The second larger area on the southern part of non RCRA Cover on the east 1/2 of the site</u>		
2.	<b>Cracks</b> ✓ Location shown on site map <input type="checkbox"/> Cracking not evident Lengths <u>varies</u> Widths <u>≤ 1/4"</u> Depths <u>unknown</u> Remarks <u>Several locations on non RCRA- cover and near large tank on RCRA capped area and at change in slope on S &amp; E side of RECRA CAP</u>		
3.	<b>Erosion</b> Location shown on site map    ✓ Erosion not evident Areal extent _____    Depth _____ Remarks _____		
4.	<b>Holes</b> Location shown on site map    ✓ Holes not evident Areal extent _____    Depth _____ Remarks <u>Several areas (3) where rodents had pushed soil into cap</u>		
5.	<b>Vegetative Cover</b> Grass    Cover properly established    No signs of stress Trees/Shrubs (indicate size and locations on a diagram) Remarks: <u>N/A</u>		
6.	<b>Alternative Cover (armored rock, concrete, etc.)</b> N/A Remarks: <u>Asphaltic concrete</u>		
7.	<b>Bulges</b> Location shown on site map    ✓ Bulges not evident Areal extent _____    Height _____ Remarks _____		

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8.	<b>Wet Areas/Water Damage</b> <input type="checkbox"/> Wet areas <input checked="" type="checkbox"/> Ponding <input type="checkbox"/> Seeps <input type="checkbox"/> Soft subgrade Remarks _____ See A1 Above	<input type="checkbox"/> Wet areas/water damage not evident <input type="checkbox"/> Location shown on site map Areal extent _____ <input type="checkbox"/> Location shown on site map Areal extent _____ <input type="checkbox"/> Location shown on site map Areal extent _____ <input type="checkbox"/> Location shown on site map Areal extent _____
9.	<b>Slope Instability</b> Areal extent _____ Remarks _____	<input type="checkbox"/> Slides <input type="checkbox"/> Location shown on site map <input checked="" type="checkbox"/> No evidence of slope instability
<b>B. Benches</b> <input type="checkbox"/> Applicable <input checked="" type="checkbox"/> 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.	<b>Flows Bypass Bench</b> Remarks _____	<input type="checkbox"/> Location shown on site map <input checked="" type="checkbox"/> N/A or okay
2.	<b>Bench Breached</b> Remarks _____	<input type="checkbox"/> Location shown on site map <input checked="" type="checkbox"/> N/A or okay
3.	<b>Bench Overtopped</b> Remarks _____	<input type="checkbox"/> Location shown on site map <input checked="" type="checkbox"/> N/A or okay
<b>C. Letdown Channels</b> <input type="checkbox"/> Applicable <input checked="" type="checkbox"/> 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.) *V channel cut into ponded area after cap completion. Unsure of how well it was sealed – outlet blocked by off site earth work by adjacent land owner – EPA has an easement on the adjacent land.		
1.	<b>Settlement</b> Areal extent _____ Remarks _____	<input type="checkbox"/> Location shown on site map <input type="checkbox"/> No evidence of settlement Depth _____
2.	<b>Material Degradation</b> Material type _____ Remarks _____	<input type="checkbox"/> Location shown on site map <input checked="" type="checkbox"/> No evidence of degradation Areal extent _____
3.	<b>Erosion</b> Areal extent _____ Remarks _____	<input type="checkbox"/> Location shown on site map <input checked="" type="checkbox"/> No evidence of erosion Depth _____

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4.	<b>Undercutting</b>	<input type="checkbox"/> Location shown on site map	<input checked="" type="checkbox"/> No evidence of undercutting
	Areal extent _____	Depth _____	
	Remarks _____		
<hr/>			
5.	<b>Obstructions</b>	Type _____	<input type="checkbox"/> No obstructions
	<input type="checkbox"/> Location shown on site map	Areal extent _____	Size _____
	Remarks _____		
<hr/>			
6.	<b>Excessive Vegetative Growth</b>	Type _____	
	<input type="checkbox"/> No evidence of excessive growth		
	<input type="checkbox"/> Vegetation in channels does not obstruct flow		
	<input type="checkbox"/> Location shown on site map	Areal extent _____	
	Remarks _____		
<hr/>			
<b>D. Cover Penetrations</b> <input checked="" type="checkbox"/> Applicable    N/A			
<hr/>			
1.	<b>Gas Vents</b>	<input type="checkbox"/> Active	<input type="checkbox"/> Passive
	<input type="checkbox"/> Properly secured/locked	<input type="checkbox"/> Functioning	<input type="checkbox"/> Routinely sampled <input type="checkbox"/> Good condition
	<input type="checkbox"/> Evidence of leakage at penetration	<input type="checkbox"/> Needs Maintenance	
	<input checked="" type="checkbox"/> N/A		
	Remarks _____		
<hr/>			
2.	<b>Gas Monitoring Probes</b>	<input type="checkbox"/> Functioning	<input type="checkbox"/> Routinely sampled <input type="checkbox"/> Good condition
	<input type="checkbox"/> Properly secured/locked	<input type="checkbox"/> Needs Maintenance	<input checked="" type="checkbox"/> N/A
	<input type="checkbox"/> Evidence of leakage at penetration		
	Remarks _____		
<hr/>			
3.	<b>Monitoring Wells</b> (within surface area of landfill)	<input checked="" type="checkbox"/> Functioning	<input checked="" type="checkbox"/> Routinely sampled <input checked="" type="checkbox"/> Good condition
	<input type="checkbox"/> Properly secured/locked	<input type="checkbox"/> Needs Maintenance	<input type="checkbox"/> N/A
	<input type="checkbox"/> Evidence of leakage at penetration		
	Remarks: <u>See List.</u>		
<hr/>			
4.	<b>Leachate Extraction Wells</b>	<input type="checkbox"/> Functioning	<input type="checkbox"/> Routinely sampled <input type="checkbox"/> Good condition
	<input type="checkbox"/> Properly secured/locked	<input type="checkbox"/> Needs Maintenance	<input checked="" type="checkbox"/> N/A
	<input type="checkbox"/> Evidence of leakage at penetration		
	Remarks _____		
<hr/>			
5.	<b>Settlement Monuments</b>	<input type="checkbox"/> Located	<input type="checkbox"/> Routinely surveyed <input checked="" type="checkbox"/> N/A
	Remarks: <u>NONE</u>		
<hr/>			

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<b>E. Gas Collection and Treatment</b> <input type="checkbox"/> Applicable <input checked="" type="checkbox"/> N/A		
1.	<b>Gas Treatment Facilities</b> <input type="checkbox"/> Flaring <input type="checkbox"/> Thermal destruction <input type="checkbox"/> Collection for reuse <input type="checkbox"/> Good condition <input type="checkbox"/> Needs Maintenance Remarks: _____ _____	
2.	<b>Gas Collection Wells, Manifolds and Piping</b> <input type="checkbox"/> Good condition <input type="checkbox"/> Needs Maintenance Remarks: _____ _____	
3.	<b>Gas Monitoring Facilities</b> (e.g., gas monitoring of adjacent homes or buildings) <input type="checkbox"/> Good condition <input type="checkbox"/> Needs Maintenance <input type="checkbox"/> N/A Remarks _____ _____	
<b>F. Cover Drainage Layer</b> <input checked="" type="checkbox"/> Applicable <input type="checkbox"/> N/A		
1.	<b>Outlet Pipes Inspected</b> <input type="checkbox"/> Functioning <input type="checkbox"/> N/A Remarks <u>No data</u> _____ _____	
2.	<b>Outlet Rock Inspected</b> <input type="checkbox"/> Functioning <input checked="" type="checkbox"/> N/A Remarks _____ _____	
<b>G. Detention/Sedimentation Ponds</b> <input type="checkbox"/> Applicable <input checked="" type="checkbox"/> N/A		
1.	<b>Siltation</b> Areal extent _____      Depth _____ <input checked="" type="checkbox"/> N/A <input type="checkbox"/> Siltation not evident Remarks _____ _____	
2.	<b>Erosion</b> Areal extent _____      Depth _____ Remarks _____ _____	
3.	<b>Outlet Works</b> <input type="checkbox"/> Functioning <input type="checkbox"/> N/A Remarks _____ _____	
4.	<b>Dam</b> <input type="checkbox"/> Functioning <input type="checkbox"/> N/A Remarks _____ _____	

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<b>H. Retaining Walls</b>		<input type="checkbox"/> Applicable	<input checked="" type="checkbox"/> N/A
1.	<b>Deformations</b>	<input type="checkbox"/> Location shown on site map	<input type="checkbox"/> Deformation not evident
	Horizontal displacement _____	Vertical displacement _____	
	Rotational displacement _____		
	Remarks _____		
	_____		
2.	<b>Degradation</b>	<input type="checkbox"/> Location shown on site map	<input type="checkbox"/> Degradation not evident
	Remarks: _____		
<b>I. Perimeter Ditches/Off-Site Discharge</b>		<input checked="" type="checkbox"/> Applicable	<input type="checkbox"/> N/A
1.	<b>Siltation</b>	<input checked="" type="checkbox"/> Location shown on site map	<input type="checkbox"/> Siltation not evident
	Areal extent _____	Depth _____	
	Remarks _____	Graded across outlet by adjacent landowner	
	_____		
2.	<b>Vegetative Growth</b>	<input type="checkbox"/> Location shown on site map	<input checked="" type="checkbox"/> N/A
	Vegetation does not impede flow		
	Areal extent _____	Type _____	
	Remarks _____		
	_____		
3.	<b>Erosion</b>	<input type="checkbox"/> Location shown on site map	<input checked="" type="checkbox"/> Erosion not evident
	Areal extent _____	Depth _____	
	Remarks _____		
	_____		
4.	<b>Discharge Structure</b>	<input type="checkbox"/> Functioning	<input checked="" type="checkbox"/> N/A
	Remarks _____		
	_____		
<b>VIII. VERTICAL BARRIER WALLS</b>		<input type="checkbox"/> Applicable	<input checked="" type="checkbox"/> N/A
1.	<b>Settlement</b>	<input type="checkbox"/> Location shown on site map	<input type="checkbox"/> Settlement not evident
	Areal extent _____	Depth _____	
	Remarks _____		
	_____		
2.	<b>Performance Monitoring</b>	Type of monitoring _____	<input type="checkbox"/> Performance not monitored
	Frequency _____	<input type="checkbox"/> Evidence of breaching	
	Head differential _____		
	Remarks _____		
	_____		

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<b>IX. GROUNDWATER/SURFACE WATER REMEDIES</b> <input type="checkbox"/> Applicable <input checked="" type="checkbox"/> N/A	
<b>A. Groundwater Extraction Wells, Pumps, and Pipelines</b> <input type="checkbox"/> Applicable <input checked="" type="checkbox"/> N/A	
1.	<b>Pumps, Wellhead Plumbing, and Electrical</b> <input type="checkbox"/> Good condition <input type="checkbox"/> All required wells properly operating <input type="checkbox"/> Needs Maintenance <input type="checkbox"/> N/A Remarks _____ _____ _____
2.	<b>Extraction System Pipelines, Valves, Valve Boxes, and Other Appurtenances</b> <input type="checkbox"/> Good condition <input type="checkbox"/> Needs Maintenance Remarks _____ _____
3.	<b>Spare Parts and Equipment</b> <input type="checkbox"/> Readily available <input type="checkbox"/> Good condition <input type="checkbox"/> Requires upgrade <input type="checkbox"/> Needs to be provided Remarks _____ _____
<b>B. Surface Water Collection Structures, Pumps, and Pipelines</b> <input type="checkbox"/> Applicable <input checked="" type="checkbox"/> N/A	
1.	<b>Collection Structures, Pumps, and Electrical</b> <input type="checkbox"/> Good condition <input type="checkbox"/> Needs Maintenance Remarks _____ _____
2.	<b>Surface Water Collection System Pipelines, Valves, Valve Boxes, and Other Appurtenances</b> <input type="checkbox"/> Good condition <input type="checkbox"/> Needs Maintenance Remarks _____ _____
3.	<b>Spare Parts and Equipment</b> <input type="checkbox"/> Readily available <input type="checkbox"/> Good condition <input type="checkbox"/> Requires upgrade <input type="checkbox"/> Needs to be provided Remarks _____ _____

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<b>C. Treatment System</b> <input type="checkbox"/> Applicable <input checked="" type="checkbox"/> N/A	
1.	<b>Treatment Train</b> (Check components that apply) <input type="checkbox"/> Metals removal <input type="checkbox"/> Oil/water separation <input type="checkbox"/> Bioremediation <input type="checkbox"/> Air stripping <input type="checkbox"/> Carbon absorbers <input type="checkbox"/> Filters _____ <input type="checkbox"/> Additive (e.g., chelation agent, flocculent) _____ <input type="checkbox"/> Others _____ <input type="checkbox"/> Good condition <input type="checkbox"/> Needs Maintenance <input type="checkbox"/> Sampling ports properly marked and functional <input type="checkbox"/> Sampling/maintenance log displayed and up to date <input type="checkbox"/> Equipment properly identified <input type="checkbox"/> Quantity of groundwater treated annually _____ <input type="checkbox"/> Quantity of surface water treated annually none Remarks _____ _____
2.	<b>Electrical Enclosures and Panels</b> (properly rated and functional) <input type="checkbox"/> N/A <input type="checkbox"/> Good condition <input type="checkbox"/> Needs Maintenance Remarks _____ _____
3.	<b>Tanks, Vaults, Storage Vessels</b> <input type="checkbox"/> N/A <input type="checkbox"/> Good condition <input type="checkbox"/> Proper secondary containment <input type="checkbox"/> Needs Maintenance Remarks _____ <u>532K Storage Tank stored rinseate from cleaning was taken to the field</u> <u>Cleaned as a part of OUI RA</u>
4.	<b>Discharge Structure and Appurtenances</b> <input type="checkbox"/> N/A <input type="checkbox"/> Good condition <input type="checkbox"/> Needs Maintenance Remarks _____ _____
5.	<b>Treatment Building(s)</b> <input type="checkbox"/> N/A <input type="checkbox"/> Good condition (esp. roof and doorways) <input type="checkbox"/> Needs repair <input type="checkbox"/> Chemicals and equipment properly stored Remarks _____ _____
6.	<b>Monitoring Wells</b> (pump and treatment remedy) <input type="checkbox"/> Properly secured/locked <input type="checkbox"/> Functioning <input type="checkbox"/> Routinely sampled <input type="checkbox"/> Good condition <input type="checkbox"/> All required wells located <input type="checkbox"/> Needs Maintenance <input type="checkbox"/> N/A Remarks: _____ _____
<b>D. Monitoring Data</b> Included in Attachment D, Data Review Memorandum.	
1.	<b>Monitoring Data</b> <input type="checkbox"/> Is routinely submitted on time <input type="checkbox"/> Is of acceptable quality
2.	<b>Monitoring data suggests:</b> <input type="checkbox"/> Groundwater plume is effectively contained <input type="checkbox"/> Contaminant concentrations are declining

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<b>E. Monitored Natural Attenuation</b>	<input type="checkbox"/> Applicable	<input checked="" type="checkbox"/> N/A
1. <b>Monitoring Wells</b> (natural attenuation remedy) <input type="checkbox"/> Properly secured/locked <input type="checkbox"/> Functioning <input type="checkbox"/> Routinely sampled <input type="checkbox"/> Good condition <input type="checkbox"/> All required wells located <input type="checkbox"/> Needs Maintenance <input checked="" type="checkbox"/> N/A Remarks _____ _____ _____		
<b>X. OTHER REMEDIES</b>		
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.		
<b>XI. OVERALL OBSERVATIONS</b>		
<b>A. Implementation of the Remedy</b>		
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.). <u>Cracks in asphalt surface cover. Poor drainage and standing water.</u> _____ _____ _____		
<b>B. Adequacy of O&amp;M</b>		
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. <u>Tumbleweeds are only complaints made by community O&amp; M contractor has been responsive to issues such as broken bollards and well pads tracking the cracks. _____</u> <u>Replacement well PWB -7A installation PWB -7 abandonment _____</u> <u>Need to modify well protective casings so they lock down properly- Barricade connection lead inadequate clearances to lock well caps. _____</u> _____ _____		

<b>C.</b>	<b>Early Indicators of Potential Remedy Problems</b>  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. <u>There are cracks in the cover that may allow infiltration through the contaminant soil below.</u> <u>The perched A zone groundwater extraction and treatment system was not installed as identified in the ROD. The OU-2 ROD must insure the potential hazards to be mitigated by the OUI pump and treat systems are addressed. An ESD will likely be needed to address elimination of the OUI pump and treat systems.</u> <u>Institutional controls identified in the OUI ROD have not been implemented and are necessary for the RA to be fully protective.</u> _____ _____
<b>D.</b>	<b>Opportunities for Optimization</b>  Describe possible opportunities for optimization in monitoring tasks or the operation of the remedy. Contaminant mass removal could be improved by operating the extraction wells located adjacent to the site. Ultimately this could shorten the operating time of the remedy. Operation of the SVE system could be improved by eliminating potential short-circuiting of vapors through granular fill located beneath the on-site cap. <u>_____ Currently under development. The monitoring program for the site will be evaluated and recommendations will be included in the report.</u> _____ _____

## SITE PHOTOGRAPHS

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1. City Well Number 1, CW-1



2. Site Looking West



3. Typical Well Equipped with Barcad Sampling System, note weeds at Pad



4. Area of Pounded Water on the West Side of Existing Building



5. Evidence of burrowing under fence



6. Example of Cracking in Non RCRA Cap

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7. and 8. Ponding present on non RCRA portion of the Cap East of the Existing Buildings  
Looking south



9. Ponding on Non-RCRA cap seen in photo 7  
Looking north

10. Ponding on Non-RCRA cap south of  
Formulation building, west of area  
Shown in photos 7 and 8



11. Damaged fencing on West Side  
Of Site

12. Cracking on east side of RCRA Cap

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13. Repair to MW damaged by Grading blade



14. Railroad spur on west side of site looking north