

**Monticello, Utah, National  
Priorities List Sites  
Federal Facility Agreement  
(FFA) Quarterly Report:  
July 1–September 30, 2014**

**October 2014**



U.S. DEPARTMENT OF  
**ENERGY**

Legacy  
Management

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## Abbreviations

AOA	Area of Attainment
DOE	U.S. Department of Energy
EPA	U.S. Environmental Protection Agency
FFA	Federal Facility Agreement
gpm	gallons per minute
ICs	institutional controls
LCRS	Leachate Collection and Removal System
LDS	Leak Detection System
LM	Office of Legacy Management
LTS&M	long-term surveillance and maintenance
mg/L	milligrams per liter
MMTS	Monticello Mill Tailings Site
MVP	Monticello Vicinity Properties
NPL	National Priorities List
OU	Operable Unit
TSF	Temporary Storage Facility
UDEQ	Utah Department of Environmental Quality
UDOT	Utah Department of Transportation

## 1.0 Introduction

This quarterly report appraises the U.S. Environmental Protection Agency (EPA) and the Utah Department of Environmental Quality (UDEQ) of the status of the Monticello Vicinity Properties (MVP) and the Monticello Mill Tailings Site (MMTS) for the period of July through September 2014. Quarterly reports are submitted to EPA and UDEQ in January (for the October through December quarter), April (for the January through March quarter), July (for the April through June quarter), and October (for the July through September quarter).

The U.S. Department of Energy (DOE) Office of Legacy Management (LM) assesses the status of the MVP and MMTS remedies through (1) routine inspections (monthly, quarterly, and annually) of site infrastructure and operations that are conducted in accordance with the *Long-Term Surveillance and Maintenance Plan for the Monticello NPL Sites*, (2) routine (semiannual) monitoring of groundwater and surface water quality and hydrologic conditions that is conducted in accordance with the *Record of Decision for the Monticello Mill Tailings (USDOE) Site Operable Unit III, Surface and Ground Water, Monticello, Utah, June 2004*, and (3) monthly water quality monitoring of the Operable Unit (OU) III ex situ groundwater treatment system.

The schedule and reporting requirements are determined in consultation with EPA and UDEQ and are also documented in the *Monticello Site Management Plan* (updated annually). Comprehensive data evaluation for the OU III remedy is presented in annual groundwater reports.

### 1.1 Quarterly Site Status

- Routine surveillance noted no anomalous conditions for the MVP remedy.
- Routine surveillance noted no anomalous conditions for the MMTS remedy.
- Routine surveillance noted no anomalous operating conditions for the repository leachate collection system, for the leak detection system at Pond 4, and for surface features of the disposal cell and Pond 4.
- The ex situ groundwater treatment system did not operate at full capacity. The system was turned off for one week each month for baseline monitoring of the new well network in the Area of Attainment (AOA) associated with the OU III remedy optimization. Also, the treatment rate was reduced from full capacity because of limited aquifer yield.
- Construction 33 of the OU III remedy optimization is in progress and is described in Section 3.3.3.
- The 2014 annual site inspection was conducted in September 2014. In general, the site is well maintained and in good condition. A separate annual inspection report will be prepared for this activity.

## **2.0 Monticello Vicinity Properties**

Long-term surveillance and maintenance (LTS&M) for the MVP consists of providing radiological control at municipal and commercial excavations in Monticello street and utility corridors, in Utah Department of Transportation (UDOT) rights-of-way, and at property MS-00176-VL (privately owned supplemental standards property). Surveillance observations for this quarter are:

- LM representatives continued to coordinate with City of Monticello officials regarding planned and ongoing construction and excavation activities by the City, UDOT, and utility companies, at roadway and utility corridors through daily planning meetings.
- There were no planned or unplanned excavations in City of Monticello street or utility corridors where radiological contaminated material was encountered.
- Neither excessive erosion nor unauthorized excavations were observed at the Highway 191 embankment at Montezuma Creek (supplemental standards property).
- Surveillance of property MS-00176-VL identified no excessive erosion of supplemental standards material or violation of the land-use restriction.

## **3.0 Monticello Mill Tailings Site**

LTS&M for the MMTS consists of (1) operating the onsite disposal cell, (2) maintaining groundwater and land-use institutional controls (ICs) on the former mill site and peripheral properties, and (3) operating and monitoring the groundwater and surface water remedy (ex situ treatment system).

### **3.1 Operable Unit I**

OU I consists of the property of the former Monticello mill (mill site) and the waste disposal facility (repository). Solid wastes were removed from the mill site and peripheral properties (OU II) and encapsulated at the repository as a remedial action that was completed in 1999. LM owns and manages the repository; the City of Monticello owns the former mill site and manages it as a public park.

#### **3.1.1 Repository**

Monthly, quarterly, and annual inspections of the repository ensure that remedy controls remain intact and that the waste remains isolated from the environment. Inspection observations and maintenance activities for the reporting period are:

- No anomalous conditions were observed at the repository with respect to the surveillance items included in the LTS&M repository area surveillance checklists (attached for this quarter in Appendix A).
- Water accumulation in Pond 4 remains minimal: a maximum of approximately 12 inches of water is currently present in Pond 4.

- Leachate production from the repository to Pond 4 was normal. Leachate production is about 1,000 gallons per week combined for Leachate Collection and Removal System (LCRS) sumps LCRS 1 and LCRS 2. See Appendix B for a graphical depiction of leachate production history.
- The Pond 4 LCRS pumped approximately 200 gallons of water during tests to verify pump and flow meter operation. Pond 4 LCRS performance history is summarized as a graph in Appendix B.
- The lower sumps (leak detection system [LDS]) for the repository and Pond 4 received no water during the quarter. This is the normal condition. Graphs showing the performance history for the repository LDS and the Pond 4 LDS are included in Appendix B.

### **3.1.2 Temporary Storage Facility**

Routine surveillance of the Temporary Storage Facility (TSF) ensures that maintenance and radiological controls that govern access to, and placement, storage, and transfer of, contaminated material in the TSF are current and effective. No anomalous conditions were observed for the TSF (see the surveillance checklist attached for this quarter in Appendix A).

No waste was placed in the TSF during the quarter. The inventory of contaminated material in the TSF remains at approximately 25 cubic yards. Approximately 4 cubic yards of the contaminated material derives from street and utility excavations from previous quarters. Radiologically contaminated material from supplemental standards properties has not been placed in the TSF since 2011. Approximately 21 cubic yards of the material in the TSF derives from maintenance and repairs to Pond 4 in August 2013.

LM initiates the transfer of TSF materials for permanent disposal at the LM Grand Junction, Colorado, Disposal Site when the contents reach 75 cubic yards. The most recent transfer of TSF materials to the Grand Junction disposal site occurred in June 2010.

### **3.1.3 Former Mill Site**

Surveillance of the former mill site (properties MP-00181-VL and MS-00893-VL) is conducted to ensure compliance with ICs that were implemented to preserve the OU I remedy for soil and groundwater. The ICs applicable to the former mill site are no installation of domestic-use wells in the alluvial aquifer, no construction of habitable structures, no camping, and preserving the properties as a public park for day-use recreation.

Observations for this quarter are:

- No nonconformance with water- and land-use restrictions was observed.

## **3.2 Operable Unit II**

OU II consists of private and City-owned properties peripheral to the former mill site. Surveillance of OU II properties is conducted to ensure compliance with ICs that were implemented to preserve the OU II remedy for soil and groundwater.

Observations for this quarter are:

- Montezuma Creek Restrictive Easement Area (supplemental standards properties, both City-owned and privately owned): No evidence of nonconformance with land-use restrictions (no soil removal or construction of habitable structures in supplemental standards areas) was observed.
- Groundwater-use restrictions (no installation of domestic-use wells in the alluvial aquifer) were applied to several OU II properties under the 2004 covenant by which DOE transferred selected properties to the City of Monticello. No instance of nonconformance with this restriction was observed during the quarter.
- Property MS-00211-VL (City-owned): No evidence of nonconformance with the land-use restriction on building construction was observed.
- Pinyon-juniper supplemental standards properties (City-owned): No evidence of nonconformance with land- and groundwater-use restrictions was observed.
- No storm events (exceeding 2.8 inches of rain in a 24-hour period) required nonroutine surveillance of supplemental standards cleanup properties. Climatological data are included in Appendix C.

### **3.3 Operable Unit III**

OU III consists of groundwater and surface water that were contaminated as a result of operation of the former Monticello mill. The contaminated groundwater lies within the shallow alluvial aquifer beneath the valley of Montezuma Creek; contaminated surface water is present within Montezuma Creek.

#### **3.3.1 Groundwater Restricted Area**

Surveillance of properties where groundwater contamination is present is conducted semiannually in spring and fall to ensure compliance with the groundwater-use restriction (no installation of domestic-use wells in the alluvial aquifer). The affected OU III properties constitute the Monticello Groundwater Restricted Area, as defined and administered by the State of Utah Division of Water Rights. Surveillance observations are:

- No evidence of nonconformance with the groundwater-use restriction since its implementation in May 1999.

#### **3.3.2 Ex Situ Groundwater Treatment System**

In accordance with the OU III contingency remedy implemented under the January 2009 Explanation of Significant Difference, contaminated alluvial groundwater is extracted from a single groundwater well and is treated using zero-valent iron in two ex situ treatment vessels. This treatment system, located on private property, is approximately 600 feet east of the former mill site in the area where the alluvial groundwater is most contaminated.

Treated groundwater is discharged to Montezuma Creek. The maximum rate of discharge to Montezuma Creek allowed by the State of Utah is 10 gallons per minute (gpm). The effluent is required to comply with State of Utah discharge limits for pH and total iron. Although an

infiltration trench is available to receive treated water for local discharge to the aquifer, its use was discontinued in 2009 because of limited capacity to receive and transmit water.

Performance of the treatment system, cumulatively and from fiscal July (beginning June 23) through fiscal September 2014 (ending September 20, 2014), is summarized as follows:

- Operation was interrupted to allow a week long period of flow stabilization prior to baseline sampling in the AOA in July, August, and September.
- Flow rates from the extraction well were reduced incrementally from 9.5 gpm to 7.5 gpm and later to 4.5 gpm due to excessive drawdown that resulted from limited aquifer yield. Water levels are generally low as a result of dry climate conditions.
- Flow metering equipment temporarily malfunctioned in mid-July but was since repaired.
- Effluent discharge to Montezuma Creek did not exceed the allowed rate of 10 gpm.
- Effluent iron concentrations and pH met discharge allowances (Table 1).
- Approximately 542,000 gallons of groundwater were treated during the quarter. Table 2 shows monthly and cumulative treated volumes.
- Approximately 1.8 pounds of uranium was removed from the aquifer during this quarter. Table 2 shows monthly and cumulative mass removed.
- No treated water was transferred to the infiltration trench.

The reactive media is exchanged when the effluent concentration of uranium exceeds about 150 micrograms per liter (about one-half of the influent concentration) or if flow through the treatment vessels is reduced to approximately 5 gpm or less. Media exchange occurs about once per year under current operating conditions. The reactive media was last exchanged in September 2013. During the quarter, limited aquifer yield, rather than flow resistance through the reactive media, necessitated reducing the flow through the treatment vessels. Uranium removal for the quarter remained effective. There is no imminent need to exchange the treatment media.

*Table 1. Ex Situ Treatment System Compliance Summary*

Treatment System Effluent to Montezuma Creek	July 2014	August 2014	September 2014
pH <sup>a</sup>	7.04	7.08	6.88
Iron (total, mg/L) <sup>b</sup>	17	27	29.2

<sup>a</sup> pH discharge allowance range = 6.5–9.0 standard units

<sup>b</sup> Iron discharge limit = 45.4 milligrams per liter (mg/L) at outfall to Montezuma Creek

*Table 2. Ex Situ Treatment System Performance Summary*

Treatment Parameter	July 2014	August 2014	September 2014 <sup>a</sup>
Gallons treated (approximate)	189,835	132,248	219,573
Average treatment rate, gpm	4.9	3.4	4.5
Uranium influent, micrograms per liter	430	400	423
Uranium effluent, micrograms per liter	35	19	8.2
Uranium mass removed, pounds	0.6	0.4	0.8
Cumulative uranium mass removed, pounds	73.3	73.7	74.5
Cumulative volume treated (million gallons)	31,478,991	31,611,239	31,830,812

<sup>a</sup> Through September 20, 2104 (end of fiscal month).

### 3.3.3 OU III Contingency Remedy Optimization Project

The contingency groundwater remedy being implemented by the existing ex situ treatment system will be optimized by expanding pump-and-treat remediation in the AOA, where hydrogeologic boundaries and elevated concentrations of uranium in groundwater are both well defined. The groundwater Contingency Remedy Optimization Project is currently being constructed and will use a network of eight vertical extraction wells strategically placed in the AOA to extract contaminated groundwater, which will be transmitted in a buried pipeline to an existing evaporation pond (Pond 4) located on DOE property about 1 mile south of the AOA. Sixteen new monitoring wells have been installed and will be used to monitor groundwater levels and quality in the AOA. The contingency remedy optimization is consistent in concept with the requirements of the Record of Decision and the Explanation of Significant Difference.

Major project activity components occurring this quarter were:

- Construction was initiated through a subcontractor for the main infrastructure work, which includes installing piping for the extraction wells, installing pumps and controls, constructing a control building with an aboveground batch tank, installing the buried transmission pipeline and ancillary equipment to Pond 4, and upgrading the berm road around Pond 4 and the road along the pipeline route. Construction work is ongoing and is currently scheduled to be completed in December 2014.
- The water right (No. 09-2120) ownership for monitoring well 83-70 was transferred from DOE to the private property owner via a Water Right Deed and Water Right Conveyance report, which was submitted to the State of Utah Department of Natural Resources Division of Water Rights on August 14, 2014.

## 4.0 Schedule of Activities and Deliverables

Table 3 summarizes the completion of recent activities and deliverables and the pending near-term activities and reporting requirements for the Monticello National Priorities List (NPL) sites.

*Table 3. Recent and Near-Term Activities and Deliverables*

<b>Activity/Deliverable</b>	<b>Schedule</b>
<b>Recent</b>	
Monthly ex situ groundwater treatment system monitoring.	Completed for July, August, and September 2014 (results summarized in Tables 1 and 2).
Monthly MMTS OU III technical meeting.	Last meeting held September 18, 2014.
AOA baseline monitoring.	Completed in July, August, and September. No further baseline monitoring of the AOA is planned.
OU III Groundwater Contingency Remedy Optimization Project.	See new Section 3.3.3 of this report for recent activities and deliverables completed, and for construction progress information. Tentative construction completion (excluding revegetation) scheduled for December 2014.
2014 annual site inspection.	Completed in September 2014.
<b>Near-Term</b>	
Monthly technical meeting with DOE, EPA, and UDEQ.	Next meeting scheduled for October 23, 2014.
DOE submittal of OU III annual groundwater report.	Submit to EPA and UDEQ in late October 2014.
Semiannual groundwater and surface water monitoring.	Scheduled for week of October 27, 2014.
Monthly ex situ groundwater treatment system monitoring.	On schedule for October, November, and December 2014.
DOE submittal of 2014 Annual Inspection report.	Submit to EPA and UDEQ by December 31, 2014.
DOE submittal of FFA quarterly report: October–December 2014.	Submit to EPA and UDEQ by January 2015.

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## **Appendix A**

### **Monthly and Quarterly Surveillance Checklists**

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U.S. Department of Energy Office of Legacy Management

**Repository Area Surveillance Checklist**

- Monthly surveillance     Quarterly surveillance:     February     May     August     November  
 Storm event triggered surveillance due to N/A inches of rainfall over the past 24 hours.

Inspection Item	Acceptable		Comments and Recommendation
	Yes	No	
<b>Condition of:</b>			
Fences, gates, and locks	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<u>Minor repairs only.</u>
Roads <sup>a</sup>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Signs	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Site monuments	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Drainage ditches <sup>a</sup>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Manholes	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Vegetation	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<u>Very dry and little rain.</u>
<b>Evidence of erosion of:</b>			
Top of disposal cell <sup>a</sup>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Disposal cell sideslopes <sup>a</sup>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Ditches	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Surrounding area	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
<b>Evidence of:</b>			
Vandalism	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Intrusion by livestock	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Burrowing animal damage	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<u>Prairie dog still on cell.</u>
Intrusion by humans	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Accumulation of trash	<input checked="" type="checkbox"/>	<input type="checkbox"/>	

**Additional Quarterly Surveillance Requirements**

Note: All transects, shown in Figure 3-1, must be walked during this inspection.

<b>Condition of:</b>			
Settlement plate structures	<input type="checkbox"/>	<input type="checkbox"/>	
Manholes <sup>b</sup>	<input type="checkbox"/>	<input type="checkbox"/>	
Sediment ponds	<input type="checkbox"/>	<input type="checkbox"/>	
<b>Evidence of:</b>			
Structural instability	<input type="checkbox"/>	<input type="checkbox"/>	

**Additional comments:**

The ground water remedy optimization project has begun.

Signature: Frank Smith  
 Monticello LM Representative

Date: 7-29-28

<sup>a</sup>Inspections required following a significant storm event  
<sup>b</sup>Open to inspect quarterly

## Repository Area Surveillance Checklist

- Monthly surveillance   
  Quarterly surveillance:   
  February   
  May   
  August   
  November  
 Storm event triggered surveillance due to \_\_\_\_\_ inches of rainfall over the past 24 hours.

Inspection Item	Acceptable		Comments and Recommendation
	Yes	No	
<b>Condition of:</b>			
Fences, gates, and locks	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Roads <sup>a</sup>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Signs	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Site monuments	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Drainage ditches <sup>a</sup>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Manholes	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Vegetation	<input checked="" type="checkbox"/>	<input type="checkbox"/>	SURFACE MOIST VEGETATION LOOKS GOOD
<b>Evidence of erosion of:</b>			
Top of disposal cell <sup>a</sup>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Disposal cell sideslopes <sup>a</sup>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Ditches	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Surrounding area	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
<b>Evidence of:</b>			
Vandalism	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Intrusion by livestock	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Burrowing animal damage	<input checked="" type="checkbox"/>	<input type="checkbox"/>	NO NEW EVIDENCE OF PRAIRIE DOGS
Intrusion by humans	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Accumulation of trash	<input checked="" type="checkbox"/>	<input type="checkbox"/>	

**Additional Quarterly Surveillance Requirements**

Note: All transects, shown in Figure 3-1, must be walked during this inspection.

<b>Condition of:</b>			
Settlement plate structures	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Manholes <sup>b</sup>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	MANHOLE 4 NEEDS NEW CONFINED SPACE SIGN*
Sediment ponds	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
<b>Evidence of:</b>			
Structural instability	<input checked="" type="checkbox"/>	<input type="checkbox"/>	

**Additional comments:**

\* WILL BE REPLACED BY END OF NEXT WEEK 9/1/14

Signature: David Jille Monticello LM Representative Date: 8/27/14

<sup>a</sup>Inspections required following a significant storm event  
<sup>b</sup>Open to inspect quarterly



### Monthly Pond 4 Surveillance Checklist

Level of water in Pond 4 0

Inspection Item	Acceptable		Comments and Recommendation	
	Yes	No		
<b>Condition of:</b>				
Fences, gates, and locks	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<i>Pond 4 gate has been temporarily removed for ground water const.</i>	
Roads	<input checked="" type="checkbox"/>	<input type="checkbox"/>		
Signs	<input checked="" type="checkbox"/>	<input type="checkbox"/>		
Visible piping	<input checked="" type="checkbox"/>	<input type="checkbox"/>		<i>Piping tubes are gone.</i>
Visible liner and anchors	<input checked="" type="checkbox"/>	<input type="checkbox"/>		
Rescue equipment	<input checked="" type="checkbox"/>	<input type="checkbox"/>		
<b>Evidence of erosion of:</b>				
Top of Pond 4 berm	<input checked="" type="checkbox"/>	<input type="checkbox"/>		
Pond 4 sideslopes	<input checked="" type="checkbox"/>	<input type="checkbox"/>		
Ditches	<input checked="" type="checkbox"/>	<input type="checkbox"/>		
Surrounding area	<input checked="" type="checkbox"/>	<input type="checkbox"/>		
Seepage from Pond 4	<input checked="" type="checkbox"/>	<input type="checkbox"/>		
Overtopping of Pond 4	<input checked="" type="checkbox"/>	<input type="checkbox"/>		
<b>Evidence of:</b>				
Vandalism	<input checked="" type="checkbox"/>	<input type="checkbox"/>		
Intrusion by wildlife	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<i>A dead Bird, partially eaten, was on the top of the Berm. No evidence that Bird died from our influences</i>	
Intrusion by humans	<input checked="" type="checkbox"/>	<input type="checkbox"/>		
Accumulation of trash	<input checked="" type="checkbox"/>	<input type="checkbox"/>		
<b>Additional comments:</b>				

*I marked the dead Bird as acceptable due to the fences will not stop Birds.*

Monticello LM Representative: Fred Smith *Fred Smith* Date: 7-21-14

Monthly Pond 4 Surveillance Checklist

Level of water in Pond 4 ≈ 12-inches

Inspection Item	Acceptable		Comments and Recommendation
	Yes	No	
<b>Condition of:</b>			
Fences, gates, and locks	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<u>Gate are re-installed.</u>
Roads	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<u>Berm held up well during rain.</u>
Signs	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<u>Tec posts &amp; Rad. signs rope down due</u>
Visible piping	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<u>to construction. HAS CONCURS</u>
Visible liner and anchors	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<u>anchors removed.</u>
Rescue equipment	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
<b>Evidence of erosion of:</b>			
Top of Pond 4 berm	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Pond 4 sideslopes	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Ditches	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Surrounding area	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Seepage from Pond 4	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Overtopping of Pond 4	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
<b>Evidence of:</b>			
Vandalism	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Intrusion by wildlife	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Intrusion by humans	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Accumulation of trash	<input checked="" type="checkbox"/>	<input type="checkbox"/>	

Additional comments:

*A trench exists on the northside at the fence. This trench will remain open until the construction in this area concludes.*

Monticello LM Representative: Fred Smith - Fred Smith Date: 8-28-14

Monthly Pond 4 Surveillance Checklist

Level of water in Pond 4 ~ 24" NORTH EAST PORTION

Inspection Item	Acceptable		Comments and Recommendation
	Yes	No	
<b>Condition of:</b>			
Fences, gates, and locks	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Roads	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Signs	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	SIGN'S ON ROAD ROPE DOWN TEMPORARILY FOR CONSTRUCTION PROJECT
Visible piping	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Visible liner and anchors	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Rescue equipment	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
<b>Evidence of erosion of:</b>			
Top of Pond 4 berm	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Pond 4 slideslopes	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Ditches	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Surrounding area	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Seepage from Pond 4	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Overtopping of Pond 4	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
<b>Evidence of:</b>			
Vandalism	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Intrusion by wildlife	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Intrusion by humans	<input checked="" type="checkbox"/>	<input type="checkbox"/>	ROAD WORK TOP OF BERM
Accumulation of trash	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
<b>Additional comments:</b>			
TRENCH NORTH SIDE			

Monticello LM Representative: David Dille Date: 9/17/14

Monticello Long-Term Surveillance and Maintenance  
Temporary Storage Facility Record Book  
Inspection Report

Acceptable?

Yes / No

yes Was the gate locked upon arrival?

yes Are signs posted in accordance with Section 3.4.4?

yes Are all postings legible? *Faded but good.*

yes Are enclosures on the concrete bin and stored drum containers tight?

yes Are containers in good physical condition (no rust, no holes, no bulges, etc.)?

yes How much radiologically contaminated material is in the concrete bin? Note: the material should be shipped when the volume in storage approaches 75 percent of the storage capacity.

yes Is the surface area of the TSF in good physical condition (no erosion, no flood damage, no excessive vegetation growth, etc.)? *Vegetation needs mowed because poison did not work. TSF is functional.*

yes Has radiological monitoring been conducted in accordance with Section 3.4.5?

yes Is the security fence in good condition?

Comments: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

*Tom Smith*  
Signature of Monticello LM Representative

*8-28-14*  
Date of Inspection

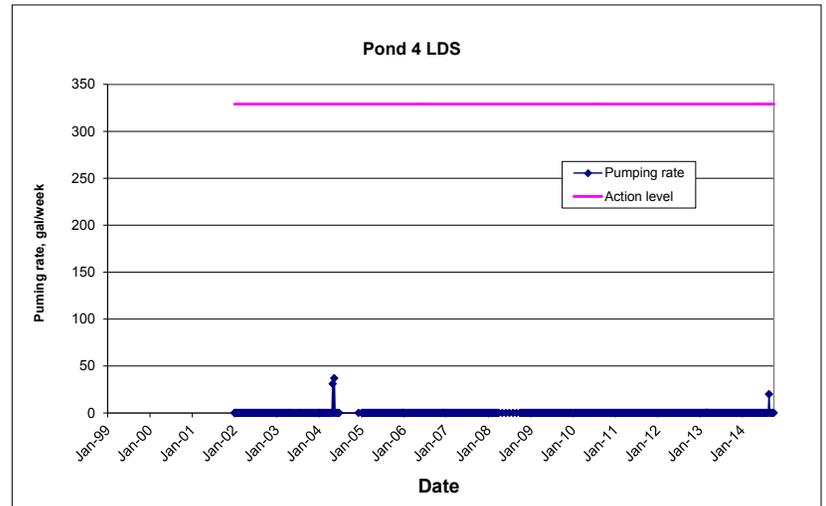
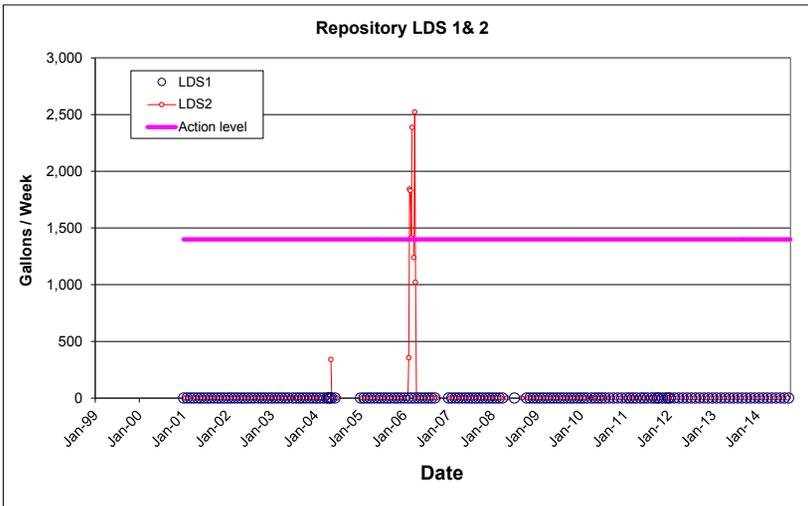
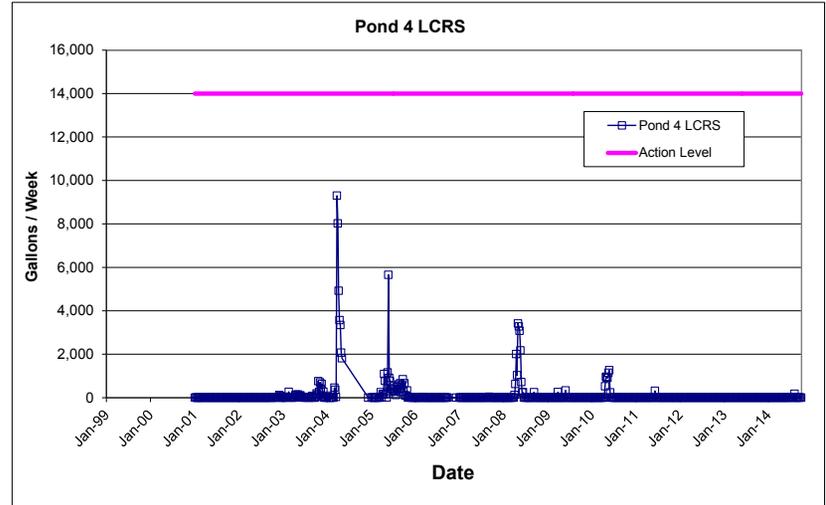
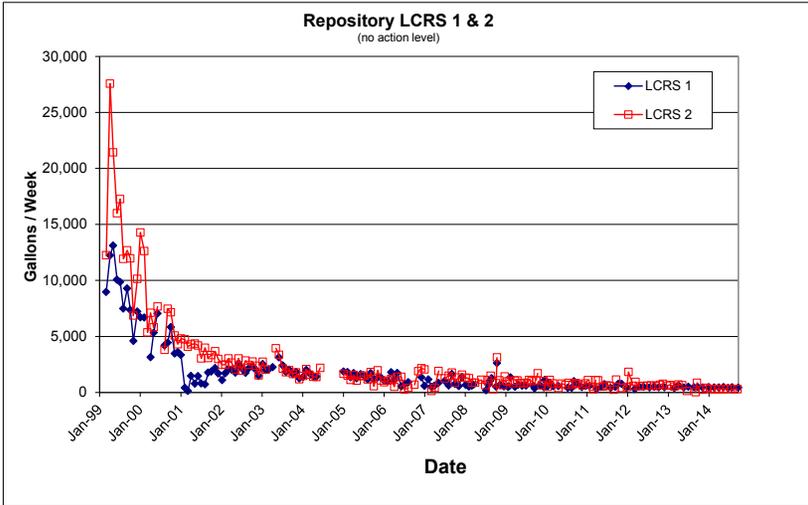
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## **Appendix B**

### **Graphs Showing Performance History for Repository and Pond 4 Leachate Collection and Recovery Systems and Leak Detection Systems**

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### Graphs Showing Performance History for Repository and Pond 4 Leachate Collection and Recovery System (LCRS) and Leak Detection System (LDS)



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## **Appendix C**

### **Climatological Summaries**

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MONTHLY CLIMATOLOGICAL SUMMARY for JUL. 2014

NAME: Monticello Office CITY: STATE:  
 ELEV: 0 ft LAT: LONG:

TEMPERATURE (°F), RAIN (in), WIND SPEED (mph)

DAY	MEAN TEMP	HIGH	TIME	LOW	TIME	HEAT DEG DAYS	COOL DEG DAYS	RAIN	AVG WIND SPEED	HIGH	TIME	DOM DIR
1	71.6	83.6	3:30p	56.3	5:00a	1.1	7.7	0.00	9.2	27.0	4:30p	N
2	74.4	87.4	3:30p	61.0	5:00a	0.7	10.0	0.00	5.6	22.0	5:30p	N
3	72.4	85.7	5:00p	59.1	6:00a	0.6	8.0	0.00	6.7	37.0	7:30p	N
4	70.2	82.2	1:30p	64.6	7:00a	0.0	5.3	0.28	6.8	24.0	2:30p	S
5	69.6	82.4	3:00p	60.8	6:30a	0.9	5.5	0.00	4.8	22.0	6:00p	S
6	73.1	88.2	4:00p	59.4	6:30a	1.1	9.2	0.00	4.3	19.0	2:30p	ENE
7	73.8	86.6	5:30p	62.1	6:00a	0.1	9.0	0.00	6.7	22.0	4:30p	NW
8	73.2	87.8	1:30p	58.3	6:30a	0.8	9.0	0.01	5.0	25.0	10:30p	SSE
9	69.5	81.9	3:00p	59.2	6:30a	1.4	5.9	0.00	7.6	26.0	12:30a	SSW
10	70.6	82.8	6:30p	59.1	4:00a	1.4	6.9	0.04	6.9	23.0	12:00p	S
11	73.0	84.1	3:30p	57.8	6:30a	0.8	8.8	0.00	5.2	29.0	3:30p	SSW
12	73.9	86.5	5:30p	60.6	6:30a	0.6	9.6	0.00	5.4	27.0	1:00a	S
13	75.9	86.4	3:30p	63.0	7:00a	0.0	10.9	0.05	4.2	30.0	1:30p	SW
14	74.3	87.0	3:30p	61.9	5:30a	0.3	9.6	0.10	7.2	23.0	9:00a	S
15	71.0	82.6	5:30p	60.7	7:30a	0.2	6.2	0.00	8.4	30.0	11:30a	SSW
16	71.3	84.1	6:00p	60.7	6:30a	0.6	6.9	0.00	8.0	24.0	6:00p	S
17	71.9	82.0	5:30p	59.6	4:30a	0.5	7.4	0.00	8.9	28.0	1:30p	NNW
18	74.9	85.2	6:00p	64.2	6:00a	0.0	9.9	0.00	6.7	29.0	4:00p	W
19	76.8	86.8	5:30p	65.0	6:30a	0.0	11.8	0.00	6.0	20.0	2:30p	NW
20	75.4	87.1	5:00p	60.3	6:00a	0.3	10.7	0.00	6.9	33.0	4:00p	W
21	74.2	85.8	4:30p	58.6	6:30a	0.5	9.7	0.00	6.8	27.0	1:30p	W
22	78.0	92.9	6:00p	60.9	5:30a	0.4	13.3	0.00	4.6	18.0	6:00p	WNW
23	78.7	89.8	4:30p	68.0	4:30a	0.0	13.7	0.00	8.6	26.0	10:00a	SSW
24	72.2	82.7	2:30p	62.9	10:00p	0.2	7.3	0.03	6.8	22.0	1:00p	SSW
25	71.8	85.3	5:00p	61.3	6:00a	0.3	7.1	0.00	5.6	20.0	5:30p	SSW
26	75.0	86.6	3:30p	62.9	6:00a	0.1	10.1	0.00	4.9	17.0	7:00p	NNW
27	73.2	85.7	1:30p	60.8	12:00m	0.5	8.7	0.07	8.0	31.0	2:00p	S
28	66.8	78.8	5:30p	59.9	7:30a	1.6	3.4	0.01	5.9	23.0	5:30p	SSW
29	61.2	72.7	12:00p	53.9	3:00p	4.3	0.5	0.59	4.4	31.0	2:00p	NNE
30	66.5	76.9	6:00p	55.5	6:30a	2.1	3.6	0.00	5.6	21.0	4:30p	N
31	68.7	78.8	4:00p	57.9	6:00a	1.3	5.0	0.00	7.2	39.0	11:30p	NNW
-----												
	72.4	92.9	22	53.9	29	22.7	250.7	1.18	6.4	39.0	31	SSW

Max >= 90.0: 1  
 Max <= 32.0: 0  
 Min <= 32.0: 0  
 Min <= 0.0: 0

Max Rain: 0.59 ON 07/29/14

Days of Rain: 7 (>.01 in) 2 (>.1 in) 0 (>1 in)

Heat Base: 65.0 Cool Base: 65.0 Method: Integration

MONTHLY CLIMATOLOGICAL SUMMARY for AUG. 2014

NAME: Monticello Office CITY: STATE:  
 ELEV: 0 ft LAT: LONG:

TEMPERATURE (°F), RAIN (in), WIND SPEED (mph)

DAY	MEAN TEMP	HIGH	TIME	LOW	TIME	HEAT DEG DAYS	COOL DEG DAYS	RAIN	AVG WIND SPEED	HIGH	TIME	DOM DIR
1	67.9	79.0	5:00p	58.9	4:30a	1.4	4.2	0.00	6.6	29.0	12:30a	S
2	68.8	81.1	4:00p	55.0	6:30a	1.7	5.5	0.00	5.5	18.0	10:00a	SW
3	68.3	78.8	4:00p	61.3	3:00a	1.0	4.3	0.00	8.2	22.0	1:00p	SSW
4	66.5	77.1	3:30p	58.2	11:30p	2.0	3.5	0.15	5.8	23.0	4:30p	S
5	66.3	77.4	6:00p	54.9	7:00a	2.8	4.1	0.11	5.1	23.0	2:00p	SSW
6	70.8	82.0	5:00p	57.5	7:00a	0.7	6.5	0.00	4.3	29.0	5:00p	WNW
7	71.7	82.2	3:30p	58.9	7:00a	0.4	7.1	0.00	5.0	40.0	3:00p	W
8	69.8	80.8	6:30p	56.7	4:00a	1.1	5.9	0.00	4.5	15.0	1:00a	W
9	70.6	81.2	5:00p	58.9	7:00a	0.7	6.2	0.00	5.0	29.0	3:00p	NW
10	71.0	82.2	5:30p	58.4	5:30a	1.3	7.3	0.00	5.0	18.0	3:00p	NNW
11	71.0	83.4	6:00p	59.3	6:00a	0.6	6.7	0.00	5.8	31.0	3:30p	SSW
12	67.7	80.6	3:30p	61.8	1:30a	0.8	3.6	0.04	6.2	25.0	12:00p	SSW
13	62.7	72.9	4:00p	57.3	9:30p	3.4	1.1	0.34	6.0	31.0	7:30p	SSW
14	62.4	72.5	6:30p	56.1	4:30a	3.9	1.3	1.11	2.8	18.0	3:00a	W
15	66.7	78.2	6:30p	55.9	4:30a	2.3	3.9	0.01	2.7	14.0	5:30p	W
16	70.2	81.5	7:30p	58.8	6:00a	0.6	5.9	0.02	3.1	14.0	3:00p	W
17	72.8	84.1	6:30p	60.1	6:30a	0.4	8.1	0.00	4.5	19.0	2:00p	W
18	72.9	84.6	1:30p	58.6	3:00a	0.3	8.2	0.01	6.8	33.0	8:30p	S
19	63.2	75.2	2:30p	55.7	10:30p	3.5	1.6	0.04	5.7	35.0	4:00p	S
20	62.2	75.4	5:30p	51.6	6:30a	4.8	2.0	0.00	4.4	25.0	7:30p	NNE
21	65.0	74.9	2:30p	52.5	7:00a	3.2	3.2	0.00	1.6	13.0	2:00p	NW
22	60.5	69.9	2:30p	54.4	6:30a	4.8	0.4	0.01	7.6	23.0	3:00p	SSW
23	56.8	65.6	12:30p	52.2	6:00a	8.2	0.0	0.06	7.8	25.0	11:00a	SSW
24	62.3	74.2	5:30p	49.0	6:30a	5.3	2.6	0.00	4.1	22.0	6:00p	WNW
25	65.2	75.7	3:00p	55.3	6:30a	2.6	2.8	0.00	4.7	28.0	6:00p	S
26	62.2	73.2	3:30p	51.6	12:00m	4.4	1.6	0.05	4.3	25.0	6:00p	SW
27	53.9	64.8	12:30p	49.3	6:30a	10.4	0.0	0.25	7.2	29.0	7:30p	SSW
28	59.6	70.4	5:30p	49.9	4:30a	6.4	1.0	0.00	6.5	22.0	11:30a	NNW
29	64.1	76.6	3:30p	52.6	6:30a	4.3	3.4	0.00	2.4	14.0	2:30p	WNW
30	67.5	79.0	5:00p	55.7	5:30a	2.2	4.7	0.00	6.2	23.0	12:30p	WSW
31	69.1	80.2	4:00p	56.0	5:00a	1.7	5.8	0.00	8.1	31.0	3:30p	SSW
-----												
	66.1	84.6	18	49.0	24	87.2	122.5	2.20	5.3	40.0	7	SSW

Max >= 90.0: 0  
 Max <= 32.0: 0  
 Min <= 32.0: 0  
 Min <= 0.0: 0  
 Max Rain: 1.11 ON 08/14/14  
 Days of Rain: 10 (>.01 in) 5 (>.1 in) 1 (>1 in)  
 Heat Base: 65.0 Cool Base: 65.0 Method: Integration

MONTHLY CLIMATOLOGICAL SUMMARY for SEP. 2014

NAME: Monticello Office CITY: STATE:  
 ELEV: 0 ft LAT: LONG:

TEMPERATURE (°F), RAIN (in), WIND SPEED (mph)

DAY	MEAN TEMP	HIGH	TIME	LOW	TIME	HEAT DEG DAYS	COOL DEG DAYS	RAIN	AVG WIND SPEED	HIGH	TIME	DOM DIR
1	68.5	80.6	4:30p	53.9	6:00a	2.0	5.5	0.00	5.2	25.0	2:30p	WNW
2	70.9	83.3	3:30p	58.7	7:30a	1.4	7.3	0.00	5.4	26.0	12:30p	WNW
3	69.8	80.4	3:30p	58.3	5:30a	1.2	5.9	0.00	6.4	29.0	2:30p	SSW
4	62.1	74.7	3:00p	54.4	12:00m	4.0	1.1	0.01	6.1	29.0	4:00p	S
5	61.0	73.3	1:30p	49.9	3:00a	5.4	1.4	0.16	5.0	23.0	2:30p	S
6	65.0	76.2	5:00p	54.8	5:30a	2.9	2.8	0.03	3.1	27.0	2:00p	NNW
7	63.7	75.0	2:00p	56.4	4:00a	3.2	1.9	0.09	7.5	31.0	7:30p	SSW
8	60.6	67.1	5:30p	56.3	7:00a	4.5	0.1	0.08	4.4	15.0	1:30p	S
9	56.5	62.6	2:30p	52.1	11:30p	8.5	0.0	0.63	5.1	23.0	10:00a	S
10	57.6	68.4	4:00p	47.3	3:00a	8.0	0.6	0.00	3.2	17.0	4:30p	W
11	61.3	71.8	4:00p	50.5	7:00a	5.3	1.6	0.00	5.2	19.0	12:30p	W
12	61.8	73.4	3:00p	49.0	6:00a	5.3	2.0	0.00	4.1	19.0	6:00p	N
13	61.4	71.4	5:00p	50.4	7:00a	5.2	1.6	0.00	5.6	24.0	11:00a	S
14	65.9	76.6	2:30p	57.6	12:30a	2.1	3.0	0.00	6.3	22.0	9:30a	S
15	66.9	78.7	5:30p	56.0	6:30a	1.9	3.8	0.00	4.9	20.0	11:00a	W
16	66.4	77.7	3:00p	58.4	7:30a	2.1	3.6	0.00	5.4	22.0	11:30a	SW
17	65.4	76.9	4:00p	56.6	4:30a	2.7	3.1	0.01	4.6	19.0	7:00p	SSW
18	65.8	77.6	4:30p	55.7	7:30a	2.9	3.8	0.00	4.2	20.0	3:30p	SW
19	65.3	76.6	5:00p	55.7	7:00a	2.2	2.5	0.04	3.7	20.0	2:30p	NW
20	69.7	82.6	4:30p	58.5	3:30a	1.0	5.7	0.00	4.0	14.0	10:00a	NW
21	64.0	73.1	1:00p	55.5	11:00p	3.0	2.0	0.24	6.5	33.0	11:30a	SSE
22	60.6	71.2	4:30p	53.7	12:00m	5.5	1.1	0.01	4.9	22.0	3:00p	SSW
23	62.1	74.1	5:30p	51.8	7:00a	5.1	2.3	0.00	3.3	15.0	11:30a	WNW
24	64.9	77.6	4:30p	53.9	5:30a	3.8	3.7	0.00	3.9	16.0	2:30p	WNW
25	66.8	79.4	3:30p	53.6	6:30a	2.5	4.3	0.00	6.1	24.0	4:00p	W
26	66.4	78.0	2:30p	53.3	6:30a	2.3	3.7	0.00	5.4	20.0	3:30p	W
27	60.5	71.2	1:30p	51.9	12:00m	5.1	0.6	0.44	7.1	32.0	5:00p	SSW
28	50.8	55.0	2:00p	47.4	12:00m	14.2	0.0	0.55	7.7	27.0	2:30a	SSE
29	48.4	55.4	1:30p	43.6	10:30p	16.6	0.0	0.01	4.9	24.0	5:30p	SSW
30	49.7	59.9	5:00p	40.3	6:30a	15.3	0.0	0.01	3.4	21.0	11:00a	SSE
-----												
	62.7	83.3	2	40.3	30	145.2	75.0	2.31	5.1	33.0	21	SSW

Max >= 90.0: 0  
 Max <= 32.0: 0  
 Min <= 32.0: 0  
 Min <= 0.0: 0  
 Max Rain: 0.63 ON 09/09/14  
 Days of Rain: 9 (>.01 in) 5 (>.1 in) 0 (>1 in)  
 Heat Base: 65.0 Cool Base: 65.0 Method: Integration

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