LMS/MNT/S14013

Monticello, Utah, National Priorities List Sites Federal Facility Agreement (FFA) Quarterly Report: January 1–March 31, 2016

April 2016

U.S. DEPARTMENT OF ENERGY | Legacy Management

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Abbreviations

AOA	Area of Attainment
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
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
µg/L	micrograms per liter
MMTS	Monticello Mill Tailings Site
MVP	Monticello Vicinity Properties
NPL	National Priorities List
OU	Operable Unit
PRB	permeable reactive barrier
TSF	Temporary Storage Facility
UDEQ	Utah Department of Environmental Quality
UDOH	Utah Department of Health
UDOT	Utah Department of Transportation
ZVI	zero-valent iron

1.0 Introduction

The U.S. Department of Energy (DOE) Office of Legacy Management (LM) submits this quarterly report to inform the U.S. Environmental Protection Agency (EPA) and Utah Department of Environmental Quality (UDEQ) of the status of the Monticello Vicinity Properties (MVP) and the Monticello Mill Tailings Site (MMTS) (the LM Monticello, Utah, Disposal and Processing Sites) for the period of January through March 2016. The MVP and MMTS are regulated under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). Quarterly reports are submitted to EPA and UDEQ in January (for October through December), April (January through March), July (April through June), and October (July through September).

LM assesses MVP and MMTS conditions and remedy protectiveness through (1) inspections (monthly, quarterly, and annually) of site infrastructure and operations as specified under the *Long-Term Surveillance and Maintenance Plan for the Monticello NPL Sites*, (2) semiannual monitoring of groundwater and surface water under the *Record of Decision for the Monticello Mill Tailings (USDOE) Site Operable Unit III, Surface and Ground Water, Monticello, Utah*, May 2004, and (3) CERCLA five-year reviews.

The primary long-term surveillance and maintenance (LTS&M) functions at the MVP and MMTS are to (1) provide radiological control at properties where residual soil contamination from mill tailings remains in place (supplemental standards properties), (2) operate and maintain the mill tailings waste repository, (3) ensure that institutional controls (ICs) restricting the use of land and water remain effective, (4) monitor water-quality restoration progress, and (5) operate the Operable Unit (OU) III pump-and-treat groundwater contingency remedy optimization system implemented under the *Final Groundwater Contingency Remedy Optimization Remedial Design/Remedial Action Work Plan for the Monticello Mill Tailings Site Operable Unit III, Monticello, Utah*, May 2014. This system focuses on groundwater remediation within a well-defined region of the alluvial aquifer that is referred to as the Area of Attainment (AOA).

Project milestones and guiding documents are further described in the *Monticello Site Management Plan* (updated annually). Annual groundwater reports present comprehensive data evaluation for the groundwater and surface water OU III remedy.

1.1 Quarterly Site Status

- An unplanned shutdown of the groundwater remedy optimization system occurred on December 1, 2015, due to a failed check valve in the groundwater transfer building. Design improvements and repairs were completed and phased system startup began on March 2, 2016. The treatment system resumed full-time, continuous operation on March 9, 2016.
- As an atypical monitoring event, groundwater samples were collected in February and March 2016 from the AOA to assess uranium concentration rebounding during and after the unplanned shutdown of the groundwater remedy optimization system.
- Routine surveillance noted no anomalous conditions for the MVP remedy.
- Routine surveillance noted no violations of MMTS ICs regarding land- and groundwater-use restrictions.

- Routine surveillance noted no anomalous conditions for the surface features of the disposal cell and Pond 4.
- Routine surveillance noted no operating deficiencies for the temporary storage facility (TSF).

2.0 Monticello Vicinity Properties

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

- No anomalous conditions for the MVP remedy were noted.
- LM representatives continued to coordinate with City of Monticello officials in daily planning meetings regarding construction and excavation activities by the City, UDOT, and utility companies in roadway and utility corridors. LM has followed and will continue to follow normal LTS&M protocol to provide radiological control in the affected roadways.
- There were no planned or unplanned excavations in City of Monticello street or utility corridors where radiologically contaminated material was encountered that required LM management.
- 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 activities for the MMTS consist of (1) maintaining the onsite disposal cell and operating the associated Leachate Collection and Removal System (LCRS) and Leak Detection System (LDS) for the repository and Pond 4, (2) surveillance of properties affected by groundwater- and land-use ICs on the former mill site and peripheral properties, and (3) operation and maintenance of the OU III groundwater remediation 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 MVP, 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 quarter are:

- No anomalous surface feature conditions were observed for the disposal cell and Pond 4. Surveillance checklists for this quarter are attached as Appendix A.
- The disposal cell LCRS and LDS operated as intended.
  - Leachate production from the disposal cell was about 800 gallons per week combined for LCRS sumps LCRS 1 and LCRS 2. This collection rate is typical over the past several years. There is no action level for the disposal cell LCRS. See Appendix B for a graphical depiction of leachate production history.
  - The disposal cell LDS continues to receive no water; therefore, the disposal cell LDS action level was not exceeded. See Appendix B for a graphical depiction of leachate production history.
- Operation of the groundwater remedy optimization system has resulted in increased water collection in the Pond 4 LCRS and LDS. The Pond 4 LCRS and LDS monitoring and pumping systems are functioning as intended to circulate water back to the pond.
  - Water collection at the Pond 4 LCRS slightly exceeded the action level during the quarter (see Appendix B). LM has previously notified EPA and UDEQ of this Pond 4 action level exceedance.
  - As in recent reporting periods, the Pond 4 LDS received a small quantity of water during the quarter. Although the quantity of water collected in the Pond 4 LDS is well below the action level (see Appendix B), LM is required to notify EPA and UDEQ of any water collection in the Pond 4 LDS. Water quality in Pond 4 and the LDS is known from OU III and groundwater remedy optimization system monitoring data.

3.1.2 Temporary Storage Facility

Routine surveillance of the 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. Surveillance results for this quarter are:

- No anomalous conditions were observed for the TSF (see the surveillance checklist attached for this quarter in Appendix A).

A small quantity of material (less than 1 cubic yard) generated from the piping replacement work in the groundwater transfer building was placed in the TSF during the quarter. The inventory of contaminated material in the TSF is approximately 22 cubic yards. Approximately 3 cubic yards of the contaminated material derives from street and utility excavations. Radiologically contaminated material from supplemental standards properties has not been placed in the TSF since 2011.The remaining inventory derives from previous maintenance and repairs to Pond 4 and the groundwater transfer building.

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. TSF materials were last transferred to the Grand Junction disposal site in June 2010.

Transfer of material from the TSF to the Grand Junction disposal site is scheduled for April 2016. (**Note:** The volume of material currently stored in the TSF is less than the volume required for transfer, but the TSF contents will be combined with the spent ex situ treatment cell materials [zero-valent iron, or ZVI] when those materials are transferred to the Grand Junction disposal cell. See discussion in Section 3.3.3.)

3.1.3 Former Mill Site

LM conducts surveillance of the former mill site (properties MP-00181-VL and MS-00893-VL) 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.

Surveillance results for this quarter are:

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

As follow-up to LM's submittal of uranium analytical results from Seep 6 soil sampling (conducted in September 2015), LM received a draft Health Consultation Letter from the Utah Department of Health (UDOH), dated February 23, 2016, regarding the potential for uranium accumulation in soil from contaminated groundwater at Seep 6. LM is preparing a response to this letter.

3.2 Operable Unit II

OU II consists of private and City-owned properties peripheral to the former mill site. LM conducts surveillance of OU II properties to verify compliance with ICs that were implemented to preserve the OU II remedy for soil and groundwater.

Surveillance results 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). These were applied to several OU II properties under the 2004 covenant by which DOE transferred selected properties to the City of Monticello. No evidence 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 occurred to require surveillance of supplemental standards cleanup properties for excessive erosion.

3.3 Operable Unit III

OU III consists of groundwater and surface water contamination resulting from operation of the former Monticello mill. The contaminated groundwater is within the alluvial aquifer beneath the valley of Montezuma Creek; some sections of Montezuma Creek are contaminated by the discharge of contaminated groundwater. The alluvial aquifer has no record of past or present use. Montezuma Creek is used for limited irrigation and livestock watering.

The groundwater remedy includes (1) monitored natural attenuation with ICs, and (2) pump-and-treat remediation by evaporation that was implemented as the groundwater remedy optimization system in January 2015. Previous remediation efforts included (1) treatment by a ZVI in situ permeable reactive barrier (PRB), and (2) pump-and-treat remediation using ex situ ZVI treatment.

3.3.1 Groundwater Restricted Area/Institutional Controls

During spring and fall, LM conducts surveillance of properties where groundwater contamination is present 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 Utah Department of Natural Resources, Division of Water Rights. Surveillance results are:

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

3.3.2 Permeable Reactive Barrier

The PRB was installed in 1999 as a technology demonstration project. The capacity of the PRB to transmit water has diminished to the extent that it now serves as a groundwater flow barrier and represents the downgradient boundary of the AOA. Because of this, future decommissioning of the PRB is dependent on the progress of the groundwater remedy optimization system (Section 3.3.4). Routine monitoring at the PRB occurs as part of the OU III semiannual monitoring and results are provided in annual groundwater reports.

3.3.3 Ex Situ Remediation System

An ex situ pump-and-treat groundwater remediation system was installed in May 2005 as a technology demonstration project. This system is located at the PRB approximately 600 feet east of the former mill site on private property. The system operated using a single extraction well and two aboveground ZVI-based treatment vessels.

Operation of this system was suspended in December 2014. During 9.5 years of operation, the system extracted approximately 33 million gallons of contaminated groundwater and 77 pounds

of uranium from the aquifer. The groundwater remedy optimization system (Section 3.3.4) replaced the ex situ treatment system as the active component of the OU III groundwater remedy.

Removal of the spent ex situ treatment cell media (ZVI) is planned for April 2016 concurrent with the transfer of TSF material to the Grand Junction disposal site (see Section 3.1.2). The decommissioning/closure strategy for the ex situ treatment system is not yet determined.

3.3.4 OU III Groundwater Contingency Remedy Optimization System

The groundwater remedy optimization system began full operation in February 2015. Eight vertical extraction wells are strategically placed in the AOA to extract contaminated groundwater. The water is transmitted in buried pipelines to an aboveground holding tank in the groundwater transfer building; from there it is pumped through a buried water transmission line for about 1 mile to Pond 4 for evaporation. The associated monitoring system consists of the 16 monitoring wells that were installed in the AOA. These wells are sampled on a frequency of approximately every 1-million gallons of water extracted by the treatment system.

Consumptive use (evaporation of the extracted groundwater in Pond 4) is allowed under a fixed-time water right appropriation (number 09-2347) and a temporary water right appropriation (number 09-2422) that LM obtained from the Utah Department of Natural Resources, Division of Water Rights.

3.3.4.1 Quarterly Performance Summary

- The system did not operate during December 2015 and January and February 2016 due to mechanical failure of a plumbing fixture (broken backflow check valve) in the water transmission line in the groundwater transfer building.
- Redesign and repairs were completed during December 2015 through March 9, 2016. The remediation system resumed operation as a phased startup on March 2, 2016. Full-time operation resumed on March 9, 2016. Groundwater was extracted at a net rate of approximately 18 gallons per minute (gpm) in March 2016. System upgrades included:
  - Installing a variable-frequency drive to regulate hydraulic pressure surges during transfer pump on/off cycling.
  - Replacing the groundwater transfer building piping downstream of the transfer pump.
  - Replacing the valves using ones with higher pressure ratings.
  - Lowering the optical sensor in the floor sump to serve as the primary emergency system shut off in the event of tank overflow or line break.
- Table 1 shows the groundwater remedy optimization system's treatment volumes and rates for the quarter and cumulatively. The system has removed approximately 7.3 million gallons of contaminated groundwater from the aquifer.
- Water-quality monitoring during the quarter consisted of:
  - Monthly sampling and analysis of the transfer tank effluent to Pond 4 in March 2016. Monthly sampling is conducted to monitor the mass of uranium that is extracted from the aquifer and transferred to Pond 4 for evaporative treatment. The system did not

operate during December 2015 and January and February 2016, and so tank sampling was not necessary.

— Sampling and analysis of individual extraction wells (from sampling ports in the groundwater transfer building) in March 2016. This monitoring is discretionary to evaluate capture performance of the individual extraction wells.

— Sampling and analysis of groundwater samples collected at AOA monitoring wells on February 17 and 18, 2016, and March 9 and 10, 2016. The February sampling was conducted as a starting point in evaluating uranium concentration rebound during the unplanned system shutdown. The March sampling event was conducted to coincide with the cumulative removal of approximately 7 million gallons of water and to evaluate uranium concentration rebound following the shutdown period.

- Table 2 provides the estimated mass of uranium removed from groundwater in the AOA by the groundwater remedy optimization system. The system has removed approximately 42 pounds of uranium from the aquifer.
- The 2015 Water Use Report for water right numbers 09-2347 and 09-2422 was submitted to the Utah Department of Natural Resources, Division of Water Rights in February 2016.

Table 1. Groundwater Remedy Optimization System Treatment Volumes and Rates: Calendar Month and Cumulative

Calendar Month	Approximate Volume Pumped[a] (gallons)	Effective Pumping Rate[b] (gpm)	Approximate Cumulative Volume (million gallons)
January 2016	0.0	0.0	6.6[c]
February 2016	0.0	0.0	6.6[c]
March 2016[d]	707,000[d]	18.0[d]	7.3

Notes:
[a] Total pumped from all eight extraction wells.
[b] Includes system downtime during month.
[c] Adjusted from previous report to reflect recomputed volume measurements.
[d] Treatment system inoperable from December 1, 2015, to March 1, 2016. Reporting cutoff is March 27, 2016.

Table 2. Uranium Mass Removal from Groundwater in the AOA

Tank Effluent Sample Date	Uranium Concentration (µg/L)	Volume Removed Between Tank Samples (gallons)	Uranium Removed (pounds)[a]	Cumulative Mass Uranium Removed (pounds)
November 19, 2015	439	–	–	39.4[b]
March 8, 2016[c]	835	418,000	2.2	41.6

Notes:
[a] Based on median concentration between sampling dates.
[b] Adjusted from previous report to reflect recomputed volume measurements.
[c] Treatment system inoperable from December 1, 2015, to March 1, 2106. No tank sample collected in December 2015 and January and February 2016.

Monitoring and reporting guidelines are described in the *Final Groundwater Contingency Remedy Optimization Remedial Design/Remedial Action Work Plan for the Monticello Mill*

Tailings Site Operable Unit III, Monticello, Utah, May 2014. Analysis of water quality trending toward meeting remediation goals in the AOA is beyond the scope of the FFA quarterly report but is provided in annual groundwater reports.

4.0 Schedule of Activities and Deliverables

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

Table 3. Recent and Near-Term Activities and Deliverables

Activity/Deliverable	Schedule
Recent	
LM submittal of EPA 2016 Inventory of Federal Hazardous Waste Activities at Currently Owned or Operated Federal Facilities.	Submitted to EPA and UDEQ in January 2016.
LM submittal of 2015 Water Use Reports for AOA water right appropriation number 09-2347 and temporary water right appropriation number 09-2422 to Utah Department of Natural Resources, Division of Water Rights.	Submitted on February 26, 2016.
LM performed uranium concentration rebound sampling at AOA monitoring wells prior to system being restarted.	Performed on February 17 and 18, 2016.
LM performed water-quality monitoring at AOA monitoring wells to coincide with a cumulative volume of approximately 7 million gallons of groundwater extracted since system startup in January 2015 and for uranium concentration rebound assessment.	Completed March 9 and 10, 2016.
Regulatory agency concurrence was received on the proposal to discontinue the site's use of the Monticello Mill Tailings Site OU III Post-Record of Decision Sampling and Analysis plan. Future monitoring at the site will follow the LM Sampling and Analysis Plan. Site specific sampling requirements will be addressed in LM Program Directives.	October 2015.
LM received a UDOH draft Health Consultation Letter regarding the potential for uranium accumulation in soil from contaminated groundwater at Seep 6.	LM received February 23, 2016.
Near-Term	
LM to perform semiannual OU III groundwater and surface water monitoring. This and future sampling will follow the LM Sampling and Analysis Plan.	Week of April 11, 2016.
Semiannual FFA meetings between LM, EPA, and UDEQ; generally held in March and September.	Teleconference scheduled for April 12, 2016.
ZVI removal from ex situ treatment cells and waste removal from TSF for haul and disposal at the LM Grand Junction, Colorado, disposal site.	Week of April 18, 2016.
LM to respond to UDOH on draft Health Consultation Letter for Seep 6.	April 2016.
Perform water-quality monitoring at AOA monitoring wells when approximately 8 million gallons have been pumped since system startup in January 2015.	Tentatively scheduled for early May 2016.
LM submittal of final Remedial Action Completion Report for OU III Groundwater Contingency Remedy Optimization System to EPA and UDEQ.	May 2016.

Table 3 (continued). Recent and Near-Term Activities and Deliverables

Activity/Deliverable	Schedule
Recent	
LM submittal of FFA quarterly report: April–June 2016.	Submit to EPA and UDEQ in July 2016.
LM submittal of draft Fiscal Year 2016 Revision of Section 5.0 of the Site Management Plan to EPA and UDEQ (penalty milestone).	Draft to be received by EPA/UDEQ by August 1, 2016.
2016 Annual Site Inspection.	Tentatively scheduled for September 12–14, 2016.

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Appendix A

Monthly and Quarterly Surveillance Checklists

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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 Yes	Acceptable No	Comments and Recommendation
Condition of:			
Fences, gates, and locks	☒	☐	
Roads[a]	☒	☐	Site roads are snow packed and drifted. Site personnel are using the tracked side X side to access the outside of Pond 4 and the GWTB.
Signs	☒	☐	
Site monuments	☒	☐	
Drainage ditches[a]	☒	☐	
Manholes	☒	☐	
Vegetation	☒	☐	
Evidence of erosion of:			
Top of disposal cell[a]	☒	☐	
Disposal cell sideslopes[a]	☒	☐	
Ditches	☒	☐	
Surrounding area	☒	☐	
Evidence of:			
Vandalism	☒	☐	
Intrusion by livestock	☒	☐	
Burrowing animal damage	☒	☐	
Intrusion by humans	☒	☐	
Accumulation of trash	☒	☐	

Additional Quarterly Surveillance Requirements
Note: *All transects, shown in Figure 3-1, must be walked during this inspection.*

Condition of:			
Settlement plate structures	☐	☐	
Manholes[b]	☐	☐	
Sediment ponds	☐	☐	
Evidence of:	☐	☐	
Structural instability	☐	☐	

Additional comments: The site is snow covered but looks good. The fences appear to be holding up well for the winter.

Signature: Fred Smith Fred Smith Date: 1-27-16
Monticello LM Representative

[a]Inspections required following a significant storm event
[b]Open to inspect quarterly

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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 Yes	Acceptable No	Comments and Recommendation
Condition of:			
Fences, gates, and locks	☒	☐	Fences were viewed as best as possible. Pond 4 fencing looks good.
Roads[a]	☒	☐	Access roads have had snow removal. The fence road remains snow covered.
Signs	☒	☐	
Site monuments	☒	☐	
Drainage ditches[a]	☒	☐	
Manholes	☒	☐	
Vegetation	☒	☐	
Evidence of erosion of:			
Top of disposal cell[a]	☒	☐	
Disposal cell sideslopes[a]	☒	☐	
Ditches	☒	☐	
Surrounding area	☒	☐	
Evidence of:			
Vandalism	☒	☐	
Intrusion by livestock	☒	☐	
Burrowing animal damage	☒	☐	
Intrusion by humans	☒	☐	
Accumulation of trash	☒	☐	

Additional Quarterly Surveillance Requirements
Note: *All transects, shown in Figure 3-1, must be walked during this inspection.*

Condition of:			
Settlement plate structures	☒	☐	
Manholes[b]	☒	☐	
Sediment ponds	☒	☐	
Evidence of:	☐	☐	
Structural instability	☒	☐	

Additional comments: The site is snow covered but looks good. The fences appear to be holding up well for the winter.

Signature: _____ Date: 2/25/16
Monticello LM Representative

[a]Inspections required following a significant storm event
[b]Open to inspect quarterly

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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 Yes	Acceptable No	Comments and Recommendation
Condition of:			
Fences, gates, and locks	☒	☐	Fences are still viable. Very minor repairs will be made to the fences.
Roads[a]	☒	☐	Access roads held up well during the winter. Rutting has occurred on the road to the GWTB from the South Vault area.
Signs	☒	☐	
Site monuments	☒	☐	
Drainage ditches[a]	☒	☐	
Manholes	☒	☐	
Vegetation	☒	☐	
Evidence of erosion of:			
Top of disposal cell[a]	☒	☐	
Disposal cell sideslopes[a]	☒	☐	
Ditches	☒	☐	
Surrounding area	☒	☐	
Evidence of:			
Vandalism	☒	☐	
Intrusion by livestock	☒	☐	
Burrowing animal damage	☒	☐	Lots of vole activity on the site. Doesn't appear to have caused any harm.
Intrusion by humans	☒	☐	
Accumulation of trash	☒	☐	

Additional Quarterly Surveillance Requirements
Note: *All transects, shown in Figure 3-1, must be walked during this inspection.*

Condition of:			
Settlement plate structures	☐	☐	
Manholes[b]	☐	☐	
Sediment ponds	☐	☐	
Evidence of:	☐	☐	
Structural instability	☐	☐	

Additional comments: The repository site is beginning to "green up " well.

Signature: Fred Smith Fred Smith Date: 3/31/2016
Monticello LM Representative

[a]Inspections required following a significant storm event
[b]Open to inspect quarterly

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Monthly Pond 4 Surveillance Checklist

Level of water in Pond 4 ~ 6.4 feet

Inspection Item	Acceptable Yes	Acceptable No	Comments and Recommendation
Condition of:			
Fences, gates, and locks	☒	☐	
Roads	☒	☐	Snow covered and not passable with a vehicle.
Signs	☒	☐	
Visible piping	☒	☐	
Visible liner and anchors	☒	☐	
Rescue equipment	☒	☐	The skiff is located in the site's shed due to frozen Pond 4 conditions. The skiff would be useless with the ice.
Evidence of erosion of:			
Top of Pond 4 berm	☒	☐	Where the snow has been blown away and the ground is visible.
Pond 4 sideslopes	☒	☐	Snow covered.
Ditches	☒	☐	Snow covered.
Surrounding area	☒	☐	Snow covered.
Seepage from Pond 4	☒	☐	
Overtopping of Pond 4	☒	☐	
Evidence of:			
Vandalism	☒	☐	
Intrusion by wildlife	☒	☐	
Intrusion by humans	☒	☐	
Accumulation of trash	☒	☐	

Additional comments: The Groundwater Contingency Remedy Optimization system was operated for a short time to determine if the transfer pump electric motor was operable. It ran water to Pond 4 but the motor does not sound good. The system was drained back to the holding tank at the end of the short run. The system remains off.

Snow has accumulated on the HDPE covered embankments inside Pond 4.

Monticello LM Representative: Fred Smith Fred Smith Date: 1-27-16

U.S. Department of Energy Office of Legacy Management

Monthly Pond 4 Surveillance Checklist

Level of water in Pond 4 ~ 6.4 feet

Inspection Item	Acceptable Yes	Acceptable No	Comments and Recommendation
Condition of:			
Fences, gates, and locks	☒	☐	
Roads	☒	☐	Muddy and not passable with a vehicle.
Signs	☒	☐	
Visible piping	☒	☐	
Visible liner and anchors	☒	☐	
Rescue equipment	☒	☐	The skiff is located in the site's shed due to frozen Pond 4 conditions. The skiff would be useless with the ice.
Evidence of erosion of:			
Top of Pond 4 berm	☒	☐	Muddy and access by foot only.
Pond 4 sideslopes	☒	☐	Snow covered on one side and muddy on the other. They are holding up well.
Ditches	☒	☐	Snow covered.
Surrounding area	☒	☐	Snow covered.
Seepage from Pond 4	☒	☐	
Overtopping of Pond 4	☒	☐	
Evidence of:			
Vandalism	☒	☐	
Intrusion by wildlife	☒	☐	
Intrusion by humans	☒	☐	
Accumulation of trash	☒	☐	

Additional comments:

The groundwater system has been operated and the pump's motor requires repairs. A new motor will be installed the first week of March.

Monticello LM Representative: [signature] Date: 2/25/16

U.S. Department of Energy Office of Legacy Management

Monthly Pond 4 Surveillance Checklist

Level of water in Pond 4 ~7.5 Feet

Inspection Item	Acceptable Yes	Acceptable No	Comments and Recommendation
Condition of:			
Fences, gates, and locks	☒	☐	
Roads	☒	☐	
Signs	☒	☐	
Visible piping	☒	☐	
Visible liner and anchors	☒	☐	
Rescue equipment	☒	☐	The boat will be placed when the winds subside.
Evidence of erosion of:			
Top of Pond 4 berm	☒	☐	
Pond 4 sideslopes	☒	☐	Voles have been burrowing on the north and east sides of the side slopes. The burrowing is on the outside of the berms. Not causing harm.
Ditches	☒	☐	
Surrounding area	☒	☐	
Seepage from Pond 4	☒	☐	
Overtopping of Pond 4	☒	☐	
Evidence of:			
Vandalism	☒	☐	
Intrusion by wildlife	☒	☐	Voles as explained above.
Intrusion by humans	☒	☐	
Accumulation of trash	☒	☐	

Additional comments:

The Groundwater Remedy Optimization system continues to send water to Pond 4. This is going well.

Monticello LM Representative: Fred Smith Fred Smith Date: 3/23/16

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

Acceptable?

Yes	No	
☒	☐	Was the gate locked upon arrival?
☒	☐	Are signs posted in accordance with Section 3.4.4?
☒	☐	Are all posting legible?
☒	☐	Are enclosures on the concrete bin and stored drum containers tight?
☒	☐	Are containers in good physical condition (no rust, no holes, no bulges, etc.)?
☒	☐	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.
☒	☐	Is the surface area of the TSF in good physical condition (no erosion, no flood damage, no excessive vegetation growth, etc.)?
☒	☐	Has radiological monitoring been conducted in accordance with Section 3.4.5?
☒	☐	Is the security fence in good condition?

Comments: Approximately 3-cubic yards of material is stored in the TSF. However, a separate RMA has been established in the Controlled Area to accommodate 7 super sacks of materials that were removed from Pond 4 and other areas. Together this adds up to approxiimately 22-cubic yards of materials in the area. We were not able to perform the removal of these materials last fall due to the weather. The removal is scheduled for the week of April 18^{lh}, 2016.

Fred Smith
Signature of Monticello LM Representative

2/23/2016
Date of Inspection

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Appendix B

Graphs Showing Performance History for Repository and Pond 4 Leachate Collection and Removal Systems and Leak Detection Systems

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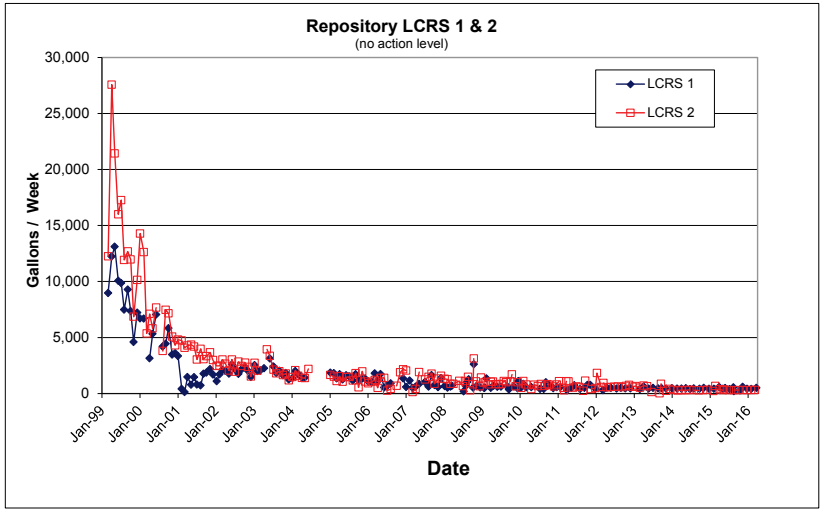
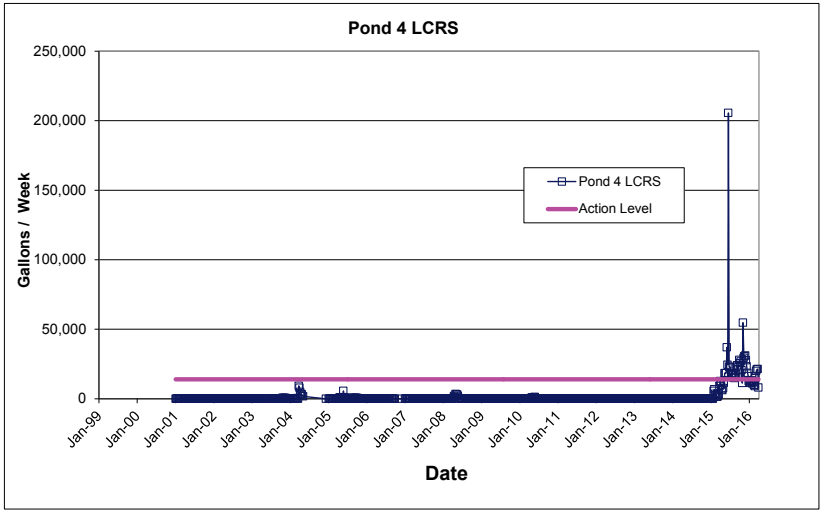
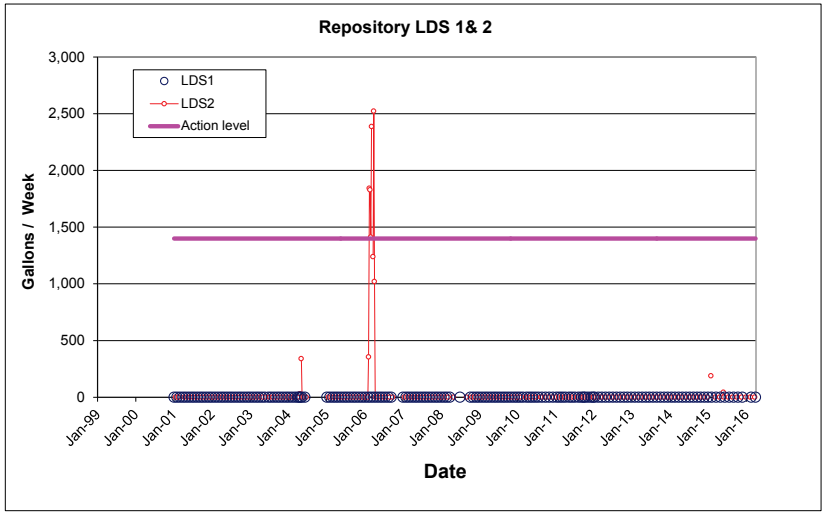
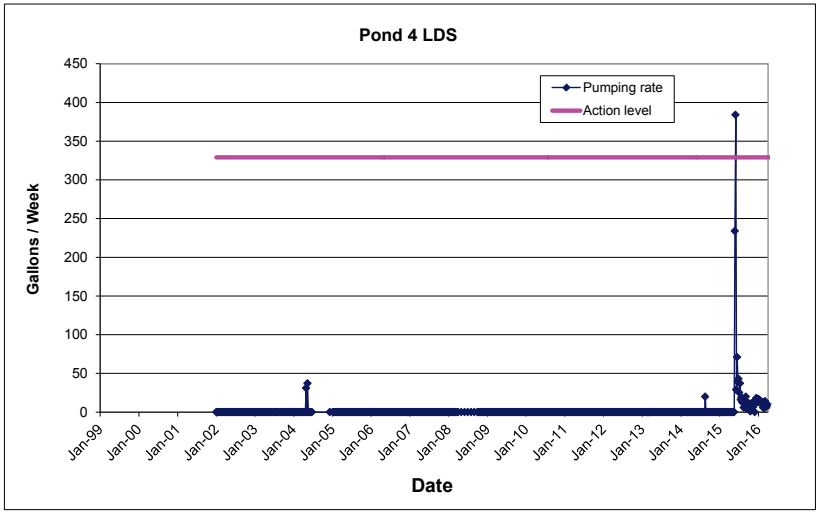
Graphs Showing Performance History for Repository and Pond 4 Leachate Collection and Recovery System (LCRS) and Leak Detection System (LDS)









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