

Monticello National Priorities List Sites Federal Facilities Agreement (FFA) Quarterly Report: April 1–June 30, 2009

This report summarizes project status and activities implemented April through June 2009, and provides a schedule of near-term activities for the Monticello Mill Tailings Site (MMTS) and the Monticello Vicinity Properties (MVP) sites. This report also includes disposal cell and Pond 4 leachate collection data, quarterly site inspection reports, site meteorological data, and a performance summary for the ex situ groundwater treatment system.

1.0 MMTS Activities/Status

1.1 Disposal Cell and Pond 4

- Monthly and quarterly inspections of the repository identified livestock damage to a section of the repository outer fence. Repairs are in progress. No other abnormalities are reported (see attached inspection reports).
- Vole infestation and new damage to shrubs are not evident.
- Monthly inspections of Pond 4 identified no abnormalities (see attached inspection reports).
- Repository and Pond 4 telemetry systems are functional.
- On-site Long-Term Surveillance and Maintenance (LTSM) personnel completed a radiologic scan of sediment retention basins A, B, and C on June 9, 2009. The scans were appropriately documented and indicate background levels of radioactivity in the basins.
- Repository leachate collection in the upper sumps (Leachate Collection and Recovery System [LCRS]) was normal for the quarter. Leachate continues to decrease in quantity from approximately 30,000 gallons per week in 2000 to current values of about 1,000 gallons per week per sump (see attached graph).
- Pond 4 LCRS operation was normal (no water collected during the quarter).
- Disposal cell and Pond 4 leachate collection in the lower sumps (Leachate Detection System [LDS]) remains at zero (see attached graphs).

1.2 Former Millsite

- No land use or groundwater use compliance issues to report.

1.3 Peripheral Properties (Private and City-Owned)

- No land use/supplemental standards compliance issues to report.
- The U.S. Department of Energy (DOE) continues with activities to excess property MP-01080-VL.

1.4 Temporary Storage Facility (TSF)

- Approximately 16 cubic yards of radiologically contaminated material are present in the TSF. DOE will initiate the process of transferring TSF materials to the Grand Junction, Colorado, Disposal Site for permanent disposal when TSF contents approach 75 cubic yards.

1.5 Operable Unit III (Surface Water and Groundwater)

- No land use or groundwater use compliance issues to report.
- Semiannual groundwater and surface water monitoring was completed the week of April 6, 2009. All data have been validated and entered into the DOE Office of Legacy Management (LM) database.
- Fieldwork was completed in April 2009 to investigate the extent of uranium-contaminated groundwater in the region between the permeable reactive barrier (PRB) and eastern portion of the millsite. Results of the filed study will be documented in the annual water quality report (fall 2009 submittal).

1.6 Ex Situ Groundwater Treatment System

- The ex situ treatment system operated continuously for the quarter at an average rate of 8.5 gallons per minute (gpm). Adjustments are ongoing to maximize the treatment rate and divert all effluent in excess of 10 gpm to the infiltration trench. Currently all treated water is discharged to Montezuma Creek.
- Treatment system performance is summarized in Table 1. Flow information is from the LM Systems Operations and Analysis at Remote Sites telemetry system. Uranium concentrations are from inflow and outflow water samples collected monthly. Prior to June 2008, water samples were analyzed at the LM Environmental Sciences Laboratory (ESL) in Grand Junction. Since then, the samples have been analyzed at the LM contract laboratory Paragon Analytics in Ft. Collins, Colorado. DOE continues to analyze a split of each sample at the ESL for operational purposes.
- Monthly results of total iron and pH (discharge allowances specified by the Utah Division of Water Quality) for the combined effluent of the two treatment cells are provided in Table 2. Iron concentration and pH for this quarter are within the discharge allowances.
- The uranium concentrations in outfall samples shown in Table 1 show the effect of media change-out in March 2009. Uranium concentrations in the effluent were very low for the quarter.

Table 1. Ex Situ Treatment System Performance

Treatment Parameter	Mar 2009 ^a	Apr 2009	May 2009	June 2009
Gallons treated	270,074 ^b	384,840	350,765	334,239
Average treatment rate, gpm	6.3	9.5	7.9	8.3
Uranium influent, µg/L ^c	330	360	340	310
Uranium outfall, µg/L ^d	180	2.6	6.3	8.3
Uranium mass removed, pounds	0.34	1.15	0.97	0.84
Cumulative uranium mass removed, pounds	22.0	23.7	24.7	25.5
Cumulative volume treated, gallons	9,737,140	10,130,178	10,480,943	10,815,182

^aBoth treatment cells were changed out on March 18 (the system was down from March 14 to March 18). The marked increase in monthly gallons treated for March reflects this change-out, as pumping rates (and total volumes treated) for both treatment cells approximately doubled after the change-out.

^bThe March volume (270,074 gallons) was determined using a surrogate pumping rate of 5.1 gpm for treatment cell 2 (TC2) for the period March 28 through March 31, when the flow meter for TC2 was not functioning; the system was still operational, however. The 5.1 gpm rate is the average TC2 flow rate for the preceding period (March 20 through March 26). Flow meters for treatment cell 1 and TC2 were replaced on April 1.

^cµg/L = micrograms per liter

^dThe increasing outfall uranium concentrations reflect the fact that inclement weather and access restrictions prevented the change-out of the treatment cell media until March 18 (see page 2). Samples collected by ESL on March 19 were below the detection limit for effluent and outfall samples (< 2 µg/L). Despite the increase in outfall concentrations exhibited this period, uranium concentrations in Montezuma Creek samples a short distance downstream of the outfall remained below the Utah water quality protection standard for uranium (30 picocuries per liter, equivalent to 44 µg/L). Although uranium is not a required analyte for the discharge monitoring, DOE measures uranium concentrations in the creek as a best management practice.

Table 2. Ex Situ Treatment System Discharge Monitoring

Outfall	Mar 2009	Apr 2009	May 2009	June 2009
pH ^a	7.15	7.61	7.35	7.47
Iron (total, micrograms per liter) ^b	13	34	33	34

^aDischarge allowance range = 6.5 – 9 standard units

^bDischarge limit = 45.4 micrograms per liter at outfall to creek

2.0 MVP Activities/Status

2.1 City Streets and Utilities & Utah Department of Transportation (UDOT) Rights-of-Way

- Major construction activities are underway on Highways 191 and 491 through town for infrastructure upgrades.
- On-site LTSM personnel continue to coordinate with City, UDOT, and utility company officials regarding radiological control at the highway excavations.
- The main intersection in town is scheduled for a utility upgrade in summer 2009. On-site LM contractor staff expects that radiologically contaminated soil mixed with gasoline underlies this portion of the roads. DOE will manage such material at the TSF.

3.0 Deliverables and Schedule

- The FFA quarterly report for January through March 2009 was submitted to the U.S. Environmental Protection Agency (EPA) and the Utah Department of Environmental Quality (UDEQ) via e-mail on April 3, 2009.
- The Monticello Site Management Plan, fiscal year 2008 update, was submitted in hard copy to EPA and UDEQ on May 13, 2009, following comment resolution.
- The final proceedings of the April 29, 2009, FFA meeting held in Grand Junction were sent to EPA and UDEQ in hard copy on June 4, 2009.
- A revised Water Quality Compliance Strategy was submitted to EPA and UDEQ via e-mail for review on June 11, 2009.
- The status of action items from the April 2009 FFA meeting will be addressed at the fall 2009 FFA meeting. Many of the action items have been completed or are in progress.
- Scheduled upcoming activities and deliverables are listed in Table 3.

Table 3. Near-Term Activities and Deliverables

Activity/Deliverable	Status/Schedule
OU III Annual Water Quality Report	In preparation for fall 2009 submittal. No EPA or UDEQ review.
Formalize operational parameters for groundwater treatment system	In preparation for EPA and UDEQ review in fall 2009.
Revise repository vegetation inspection method and health index	In preparation for EPA and UDEQ review in fall 2009.
Annual site inspection	Tentatively scheduled for September 2009 in conjunction with fall FFA meeting.
Annual site inspection report	Winter 2009 submittal. EPA and UDEQ reviewable document.
Biomonitoring	No biomonitoring activities for 2009. Biomonitoring will resume in 2010. A program directive will be prepared in winter 2009 for EPA and UDEQ review to document the work scope and sampling and analytical procedures for the activity.
PRB coring for engineering evaluation.	Scheduled for fall 2009.
OU III groundwater and surface water monitoring	October 2009.

Monthly Pond 4 Surveillance Checklist

Level of Water in Pond 4 3.1

Inspection Item	Acceptable (Yes/No)	Comments & Recommendation
Condition of:		
Fences, gates, and locks	<u>yes</u>	_____
Roads	<u>yes</u>	_____
Signs	<u>yes</u>	_____
Visible piping	<u>yes</u>	_____
Visible liner and anchors	<u>yes</u>	_____
Rescue equipment	<u>yes</u>	_____
 Evidence of erosion of:		
Top of Pond 4 berm	<u>no</u>	_____
Pond 4 sideslopes	<u>no</u>	_____
Ditches	<u>no</u>	_____
Surrounding area	<u>no</u>	_____
Seepage from Pond 4	<u>no</u>	_____
Overtopping of Pond 4	<u>no</u>	_____
 Evidence of:		
Vandalism	<u>no</u>	_____
Intrusion by wildlife	<u>no</u>	_____
Intrusion by humans	<u>no</u>	_____
Accumulation of trash	<u>no</u>	_____

Additional Comments _____

Monticello LM Representative Judd Moon Date 4-7-09

Repository Area Surveillance Checklist

Monthly Surveillance Quarterly Surveillance (Feb., May, Aug., Nov.)

Storm Event Triggered Surveillance due to inches of rainfall over the past 24 hours.

Inspection Item	Acceptable (Yes/No)	Comments and Recommendations
Condition of:		
Fences and gates	Yes	
Roads ^a	Yes	
Signs	Yes	
Site monuments	Yes	
Drainage ditches ^a	Yes	
Manholes	Yes	
Vegetation	Yes	
Evidence of erosion of:		
Top of disposal cell ^a	No	
Disposal cell sideslopes ^a	No	
Ditches	No	
Surrounding area	No	
Evidence of:		
Vandalism	No	
Intrusion by livestock	Yes	South east fence down
Burrowing animal damage	No	
Intrusion by humans	No	
Accumulation of trash	No	

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

Signature Fadd Moon
Monticello LM Representative

Date 4-7-09

^aInspections required following a significant storm event
^bOpen to inspect quarterly

Monthly Pond 4 Surveillance Checklist

Level of Water in Pond 4 2.9

Inspection Item	Acceptable (Yes/No)	Comments & Recommendation
Condition of:		
Fences, gates, and locks	<u>yes</u>	_____
Roads	<u>yes</u>	_____
Signs	<u>yes</u>	_____
Visible piping	<u>yes</u>	_____
Visible liner and anchors	<u>yes</u>	_____
Rescue equipment	<u>yes</u>	_____

Evidence of erosion of:		
Top of Pond 4 berm	<u>NO</u>	_____
Pond 4 sideslopes	<u>NO</u>	_____
Ditches	<u>NO</u>	_____
Surrounding area	<u>NO</u>	_____
Seepage from Pond 4	<u>NO</u>	_____
Overtopping of Pond 4	<u>NO</u>	_____

Evidence of:		
Vandalism	<u>NO</u>	_____
Intrusion by wildlife	<u>NO</u>	_____
Intrusion by humans	<u>NO</u>	_____
Accumulation of trash	<u>NO</u>	_____

Additional Comments _____

Monticello LM Representative Judd Moon Date 5-12-09

Repository Area Surveillance Checklist

___ Monthly Surveillance Quarterly Surveillance (Feb., May, Aug., Nov.)

___ Storm Event Triggered Surveillance due to ___ inches of rainfall over the past 24 hours.

Inspection Item	Acceptable (Yes/No)	Comments and Recommendations
Condition of:		
Fences and gates	<u>yes</u>	_____
Roads ^a	<u>yes</u>	_____
Signs	<u>yes</u>	_____
Site monuments	<u>yes</u>	_____
Drainage ditches ^a	<u>yes</u>	_____
Manholes	<u>yes</u>	_____
Vegetation	<u>yes</u>	_____
Evidence of erosion of:		
Top of disposal cell ^a	<u>NO</u>	_____
Disposal cell sideslopes ^a	<u>NO</u>	_____
Ditches	<u>NO</u>	_____
Surrounding area	<u>NO</u>	_____
Evidence of:		
Vandalism	<u>NO</u>	_____
Intrusion by livestock	<u>yes</u>	<u>southeast fence down</u>
Burrowing animal damage	<u>NO</u>	_____
Intrusion by humans	<u>NO</u>	_____
Accumulation of trash	<u>NO</u>	_____

Additional Quarterly Surveillance Requirements

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

Condition of:		
Settlement plate structures	<u>OK</u>	_____
Manholes ^b	<u>OK</u>	_____
Sediment Ponds	<u>OK</u>	_____
Evidence of:		
Structural Instability	<u>NO</u>	_____

Additional Comments _____

Signature Jodd Moon
 Monticello LM Representative

Date 5-12-09

^aInspections required following a significant storm event
^bOpen to inspect quarterly

Monthly Pond 4 Surveillance Checklist

Level of Water in Pond 4 2.2

Inspection Item	Acceptable (Yes/No)	Comments & Recommendation
Condition of:		
Fences, gates, and locks	<u>YES</u>	_____
Roads	<u>YES</u>	_____
Signs	<u>YES</u>	_____
Visible piping	<u>YES</u>	_____
Visible liner and anchors	<u>YES</u>	_____
Rescue equipment	<u>YES</u>	_____
 Evidence of erosion of:		
Top of Pond 4 berm	<u>NO</u>	_____
Pond 4 sideslopes	<u>NO</u>	_____
Ditches	<u>NO</u>	_____
Surrounding area	<u>NO</u>	_____
Seepage from Pond 4	<u>NO</u>	_____
Overtopping of Pond 4	<u>NO</u>	_____
 Evidence of:		
Vandalism	<u>NO</u>	_____
Intrusion by wildlife	<u>NO</u>	_____
Intrusion by humans	<u>NO</u>	_____
Accumulation of trash	<u>NO</u>	_____

Additional Comments _____

Monticello LM Representative Jodd Moon Date 06-10-09

Repository Area Surveillance Checklist

Monthly Surveillance Quarterly Surveillance (Feb., May, Aug., Nov.)

Storm Event Triggered Surveillance due to inches of rainfall over the past 24 hours.

Inspection Item	Acceptable (Yes/No)	Comments and Recommendations
Condition of:		
Fences and gates	yes	
Roads ^a	yes	
Signs	yes	
Site monuments	yes	
Drainage ditches ^a	yes	
Manholes	yes	
Vegetation	yes	
Evidence of erosion of:		
Top of disposal cell ^a	NO	
Disposal cell sideslopes ^a	NO	
Ditches	NO	
Surrounding area	NO	
Evidence of:		
Vandalism	NO	
Intrusion by livestock	yes	Fence Repairs in progress
Burrowing animal damage	NO	
Intrusion by humans	NO	
Accumulation of trash	NO	

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

Signature Judd Moon
Monticello LM Representative

Date 6-10-09

^aInspections required following a significant storm event
^bOpen to inspect quarterly

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

