

**Monticello, Utah, National
Priorities List Sites
Federal Facility Agreement
(FFA) Quarterly Report:
October 1–December 31, 2017**

February 2018



U.S. DEPARTMENT OF
ENERGY

Legacy
Management

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Contents

Abbreviations	ii
1.0 Introduction	1
1.1 Quarterly Site Status	1
2.0 Monticello Vicinity Properties	2
3.0 Monticello Mill Tailings Site	2
3.1 Operable Unit I	3
3.1.1 Repository	3
3.1.2 Temporary Storage Facility	4
3.1.3 Former Mill Site	4
3.2 Operable Unit II	4
3.3 Operable Unit III	5
3.3.1 Groundwater Restricted Area / Institutional Controls	5
3.3.2 OU III Groundwater Contingency Remedy Optimization System	5
3.3.2.1 Quarterly Performance Summary	6
4.0 Schedule of Activities and Deliverables	7
5.0 References	8

Tables

Table 1. GRO System Treatment Volumes and Rates: Monthly and Cumulative Volumes	6
Table 2. Uranium Mass Removal from Groundwater in the AOA	7
Table 3. Recent and Near-Term Activities and Deliverables	7

Appendixes

Appendix A	Monthly and Quarterly Surveillance Checklists
Appendix B	Graphs Showing Performance History for Disposal Cell and Pond 4 LCRS and LDS

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
GRO	groundwater remedy optimization
ICs	institutional controls
LCRS	Leachate Collection and Removal System
LDS	Leak Detection System
LM	Office of Legacy Management
LMS	Legacy Management Support
LTS&M	long-term surveillance and maintenance
MMTS	Monticello Mill Tailings Site
MVP	Monticello Vicinity Properties
OU	Operable Unit
PRB	permeable reactive barrier
TSF	temporary storage facility
UDEQ	Utah Department of Environmental Quality
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 the Utah Department of Environmental Quality (UDEQ) of the status of the Monticello Vicinity Properties (MVP) and the Monticello Mill Tailings Site (MMTS), also called the Monticello, Utah, Disposal and Processing Sites, from October through December 2017. 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 February (for October through December), May (January through March), August (April through June), and November (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* (DOE 2007), also called the LTS&M Plan; (2) semiannual monitoring of groundwater and surface water under the *Record of Decision for the Monticello Mill Tailings (USDOE) Site Operable Unit III, Surface Water and Ground Water, Monticello, Utah* (DOE 2004); and (3) CERCLA Five-Year Reviews.

The primary long-term surveillance and maintenance (LTS&M) activities at the MVP and MMTS are conducted 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 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 that was 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* (DOE 2014). This system focuses on groundwater remediation within a specified region of the alluvial aquifer called the Area of Attainment (AOA).

Project milestones and guiding documents are further described in the *Draft Final Monticello Site Management Plan* (DOE 2003). Annual groundwater reports present comprehensive data evaluation for the groundwater and surface water OU III remedy.

1.1 Quarterly Site Status

- The groundwater remedy optimization (GRO) system operated as planned during the current period with the exception of a 5-day shutdown from November 30, 2017, to December 4, 2017, resulting from a component failure in the supervisory control and data acquisition (SCADA) cabinet. A transformer that converts 110 volts to 12 volts failed and was replaced.
- Water samples were collected from the monitoring and extraction wells in the AOA on a monthly schedule this quarter. The water samples were analyzed for uranium concentrations in each well.
- 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.
- Water collection in the Pond 4 Leachate Collection and Removal System (LCRS) continued to exceed the action level. LM has previously notified EPA and UDEQ of this Pond 4 action level exceedance.
- No operating deficiencies for the temporary storage facility (TSF) were noted during routine surveillance.
- The semiannual water sampling event occurred during the week of October 9, 2017.
- The Federal Facility Agreement (FFA) semiannual meeting was held on October 12, 2017. The meeting was attended by DOE, EPA, UDEQ, and Navarro Research and Engineering, Inc. (the Legacy Management Support [LMS] contractor).
- Work was performed in the parking lot area this quarter. A drainpipe was installed south of the administration building to carry water away from walking paths, and delineator posts were installed near the electrical panels.

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 within the city limits, and at property MS-00176-VL (privately owned supplemental standards property). During this quarter:

- No anomalous conditions for the MVP remedy were noted.
- LM representatives continued to coordinate with City of Monticello (City) officials in 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 streets or utility corridors that required LM management of radiologically contaminated material.
- Neither excessive erosion nor unauthorized excavations were observed at the U.S. 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 repository and operating the associated LCRS and Leak Detection System (LDS) for the disposal cell and Pond 4 (the engineered solar evaporation pond), (2) surveillance of properties affected by

groundwater-use 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 repository. Radioactively contaminated materials were removed from the MVP, 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 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 the waste remains isolated from the environment. During the quarter's inspections and maintenance activities:

- No indications of settling, slumping, fracturing, seepage, ponding, or significant erosion were found on the cover.
- No anomalous surface feature conditions were found at the disposal cell and Pond 4. Surveillance checklists for this quarter are attached as Appendix A.
- Minor burrowing by voles and small ground squirrels was observed on the disposal cell and the Pond 4 berm. These burrows are not deep and do not pose a concern.
- The disposal cell LCRS and LDS were operated in accordance with the requirements specified in the LTS&M Plan. Findings include:
 - Leachate production from the disposal cell was approximately 700 gallons per week combined for LCRS sumps LCRS 1 and LCRS 2. This collection rate is typical for 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 GRO 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 exceeded the action level during the quarter (see Appendix B). LM has previously notified EPA and UDEQ of this Pond 4 action level exceedance.
 - Water collection in the Pond 4 LDS remained below the action level (see Appendix B). LM has previously notified EPA and UDEQ of water collection and removal in the Pond 4 LDS.

3.1.2 Temporary Storage Facility

Routine surveillance of the TSF ensures that maintenance and radiological controls that govern access to the TSF and the placement, storage, and transfer of contaminated material in the TSF are current and effective. During surveillance for this quarter:

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

LM is required to initiate the transfer of TSF materials for permanent disposal at the Grand Junction, Colorado, Disposal Site when the contents reach approximately 75 cubic yards. In the past quarter:

- No waste was added to the TSF.
- The volume of waste stored in the TSF was approximately 1 cubic yard.

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. ICs applicable to the former mill site preserve the properties as a public park for day-use recreation and prohibit installation of domestic-use wells in the alluvial aquifer, construction of habitable structures, and camping.

During this quarter:

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

3.2 Operable Unit II

OU II consists of private land 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.

During this quarter:

- In the Montezuma Creek Restrictive Easement Area (supplemental standards properties, both City-owned and privately owned), no evidence was observed of nonconformance with land-use restrictions (no soil removal or construction of habitable structures in supplemental standards areas).
- No evidence was observed of nonconformance with groundwater-use restrictions (i.e., no installation of domestic-use wells in the alluvial aquifer). These restrictions were applied to several OU II properties under the 2004 covenant by which DOE transferred selected properties to the City.
- No evidence of nonconformance with the land-use restriction on building construction was observed in property MS-00211-VL (City-owned).

- No evidence of nonconformance with land- and groundwater-use restrictions was observed in pinyon-juniper supplemental standards properties (City-owned).
- 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 comprises groundwater and surface water contamination resulting from operation of the former Monticello mill. Routine monitoring of OU III (water quality and water level) is performed semiannually in April and October.

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. While the alluvial aquifer has no record of past or present use, a portion of the aquifer is subject to ICs to restrict use. Montezuma Creek is used for limited irrigation and livestock watering. There are no ICs that affect surface water use.

The groundwater remedy includes (1) monitored natural attenuation with ICs and (2) pump-and-treat remediation by evaporation that was implemented as the GRO system in January 2015. Previous remediation efforts included (1) treatment by a zero-valent iron (ZVI) in situ permeable reactive barrier (PRB) and (2) pump-and-treat remediation that used ex situ ZVI treatment. The operation and performance of these remedies are reported annually. The ex situ system was deactivated in December 2014 and replaced by the GRO system, which is described in greater detail in Section 3.3.2. The PRB remains a component of the GRO as a groundwater flow barrier.

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 (i.e., 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 during the quarter found:

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

3.3.2 OU III Groundwater Contingency Remedy Optimization System

The GRO system began full operation in January 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 23 monitoring wells (22 active wells and one dry well) that were installed in the AOA. Sixteen active wells were installed south of Montezuma Creek, and six were installed north of Montezuma Creek. These wells are sampled monthly for uranium concentration.

3.3.2.1 Quarterly Performance Summary

- Groundwater was extracted at a combined rate of approximately 8 gallons per minute (gpm). Wells OR-1 and OR-2 were not active because of relatively dilute uranium concentration and in anticipation of low pond evaporation over the winter.
- The volume of water stored in Pond 4 increased from approximately 5.66 million gallons to 5.94 (or by 0.28 million gallons) during the quarter. The pond level remained below the capacity (approximately 15.6 million gallons) and is below the operating level for the GRO system of 8 million gallons. Periodically increasing or decreasing the groundwater extraction rate may be required to balance the inflow from pumping and precipitation with seasonal evaporation.
- Cumulatively, the system has removed approximately 14.9 million gallons of contaminated groundwater from the aquifer since system startup in January 2015 (Table 1), equivalent to about 7.5 pore volumes in the AOA.
- Water monitoring during the quarter consisted of:
 - Monthly sampling from the monitor and extraction wells for uranium concentration.
 - Transfer tank sampling resumed in October 2017 following the extraction well tests and also in November and December 2017 (see Table 2 for recent tank sample uranium concentrations; results for the December 2017 sample are not available but will be provided in the next quarterly report).
 - Continuous water level monitoring was conducted in AOA extraction and monitoring wells with the LM System Operation and Analysis at Remote Sites (SOARS) system.
 - The semiannual sampling event, which occurred the week of October 9, 2017.
- Table 2 provides the estimated mass of uranium removed from groundwater in the AOA. The remediation system has removed approximately 86 pounds of uranium from the aquifer in the AOA as of November 15, 2017.

Table 1. GRO System Treatment Volumes and Rates: Monthly and Cumulative Volumes (from January 2015)

Calendar Month	Approximate Volume Pumped^a (million gallons)	Effective Pumping Rate (gpm)	Approximate Cumulative Volume^b (million gallons)
October 2017	0.30	6.8	14.2
November 2017	0.37	8.5	14.6
December 2017 ^c	0.34	8.5	14.9

Notes:

^a Total pumped from all operating extraction wells.

^b Cumulative volume is based on the volume of groundwater extracted by the GRO system since system startup in January 2015.

^c Reporting end date is December 29, 2017.

Table 2. Uranium Mass Removal from Groundwater in the AOA

Tank Effluent Sample Date	Uranium Concentration (µg/L)	Volume Removed Between Tank Samples (million gallons)	Uranium Removed (lb) ^a	Cumulative Mass Uranium Removed ^b (lb)
June 29, 2017 ^c	520	Not applicable	Not applicable	82.2
October 12, 2017	520	0.48	2.1	84.3
November 15, 2017	538	0.38	1.7	86.0
December 27, 2017	Not available	0.52 ^c	Not available	Not available

Notes:

^a Based on median concentration between sampling dates.

^b Cumulative mass is based on mass of uranium removed by the GRO system since system startup in January 2015.

^c The last tank sampling before extraction well testing during August and September 2017. Tank sample concentration for July, August, and September 2017 is assumed to equal that detected in June and October 2017 (both equal to 520 µg/L). A tank sample for July 2017 inadvertently was not collected.

Abbreviations:

lb = pounds

µg/L = micrograms per liter

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* (DOE 2014). Analysis of water quality trending toward meeting remediation goals, in the AOA and sitewide, is beyond the scope of the FFA quarterly report but is provided in annual groundwater reports that are submitted to EPA and UDEQ, typically in October.

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 sites.

Table 3. Recent and Near-Term Activities and Deliverables

Activity or Deliverable	Schedule
Recent	
<i>2017 Annual Inspection Report for the DOE Monticello, Utah, Mill Tailings Site and Monticello Vicinity Properties</i> (DOE 2017b)	Submitted to EPA and UDEQ December 28, 2017 (not subject to review)
Comment resolutions and updated Appendix H of the <i>Long-Term Surveillance and Maintenance Plan for Monticello NPL Sites</i> (DOE 2017a)	Submitted to EPA and UDEQ November 22, 2017
<i>Monticello, Utah, National Priorities List Sites Federal Facility Agreement (FFA) Quarterly Report: July 1–September 30, 2017</i> (DOE 2017c)	Submitted to EPA and UDEQ November 3, 2017 (not subject to review)
<i>Monticello Mill Tailings Site Operable Unit III Annual Groundwater Report, May 2016–April 2017</i> (DOE 2017d)	Submitted to EPA and UDEQ October 24, 2017

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

Activity or Deliverable	Schedule
Fall FFA Meeting with DOE, EPA, UDEQ, LMS contractor (Navarro)	Completed October 12, 2017
Semiannual OU III groundwater and surface water monitoring	Completed the week of October 9, 2017
Near-Term	
Semiannual OU III groundwater and surface water monitoring	Week of April 9, 2018
LM submittal of FFA quarterly report: October–December, 2017	Submit to EPA and UDEQ February 15, 2017
Semiannual FFA meeting	Spring 2018; date to be determined
Well ranking test data sheet	May 2018

5.0 References

DOE (U.S. Department of Energy), 2003. *Draft Final Monticello Site Management Plan*, GJO-2003-493-TAC, Section 5, Office of Legacy Management, October.

DOE (U.S. Department of Energy), 2004. *Record of Decision for the Monticello Mill Tailings (USDOE) Site Operable Unit III, Surface Water and Ground Water, Monticello, Utah*, May.

DOE (U.S. Department of Energy), 2007. *Long-Term Surveillance and Maintenance Plan for the Monticello NPL Sites*, DOE-LM/1465-2007, Office of Legacy Management, June.

DOE (U.S. Department of Energy), 2014. *Final Groundwater Contingency Remedy Optimization Remedial Design/Remedial Action Work Plan, for the Monticello Mill Tailings Site Operable Unit III, Monticello, Utah*, LMS/MNT/S10629, May.

DOE (U.S. Department of Energy), 2017a. *Draft Long-Term Surveillance and Maintenance Plan for Monticello NPL Sites*, LMS/MNT/S00387, Office of Legacy Management, October.

DOE (U.S. Department of Energy), 2017b. *2017 Annual Inspection Report for the DOE Monticello, Utah, Mill Tailings Site and Monticello Vicinity Properties*, LMS/MNT/S17109, Office of Legacy Management, December.

DOE (U.S. Department of Energy), 2017c. *Monticello, Utah, National Priorities List Sites Federal Facility Agreement (FFA) Quarterly Report: July 1–September 30, 2017*, LMS/MNT/17307, Office of Legacy Management, November.

DOE (U.S. Department of Energy), 2017d. *Monticello Mill Tailings Site Operable Unit III Annual Groundwater Report, May 2016–April 2017*, LMS/MNT/S16451, Office of Legacy Management.

Appendix A

Monthly and Quarterly Surveillance Checklists

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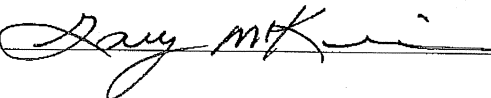
U.S. Department of Energy Office of Legacy Management

Monthly Pond 4 Surveillance Checklist

Level of water in Pond 4 7.4501

Inspection Item	Acceptable		Comments and Recommendation
	Yes	No	
Condition of:			
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 type="checkbox"/>	
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"/>	Boat remains at the pond.
Evidence of erosion of:			
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"/>	
Evidence of:			
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: Everything appears to be in good shape.

Monticello LM Representative:  Date: 10/30/2017

MONTHLY CLIMATOLOGICAL SUMMARY for OCT. 2017

NAME: Monticello Office CITY: STATE:
 ELEV: 7069 ft LAT: 37° 54' 00" N LONG: 109° 18' 00" W

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	52.9	65.1	3:30p	44.2	6:30a	12.1	0.0	0.00	11.1	39.0	6:00p	WSW
2	38.4	46.7	12:30a	32.7	7:30a	26.6	0.0	0.00	12.4	31.0	7:30a	ENE
3	48.2	62.5	5:00p	29.8	1:30a	16.8	0.0	0.00	9.2	34.0	3:30p	ENE
4	59.2	71.4	4:30p	45.4	11:30p	6.9	1.1	0.00	16.0	41.0	10:30a	WNW
5	58.2	70.3	4:00p	41.6	3:00a	7.8	1.0	0.00	10.0	35.0	1:00p	WNW
6	48.8	55.5	12:30a	41.7	9:30p	16.3	0.0	0.00	9.5	38.0	10:00a	ENE
7	50.2	65.6	4:00p	34.3	7:30a	14.8	0.0	0.00	5.0	20.0	12:30a	NE
8	52.1	65.9	3:00p	37.8	4:30a	12.9	0.0	0.00	14.8	47.0	9:00p	WNW
9	34.2	40.3	4:00p	28.6	8:00a	30.8	0.0	0.00	17.3	46.0	8:30a	ENE
10	39.9	52.4	4:30p	21.4	7:00a	25.1	0.0	0.00	8.5	28.0	12:00p	ENE
11	51.1	62.2	4:00p	43.3	5:00a	13.9	0.0	0.00	10.2	38.0	4:30p	WNW
12	55.5	65.8	3:30p	43.7	7:00a	9.5	0.0	0.00	10.3	35.0	3:00p	WNW
13	51.9	63.3	4:30p	33.7	6:00a	13.1	0.0	0.00	8.3	35.0	12:30p	WNW
14	45.1	57.0	12:30a	36.0	7:30a	19.9	0.0	0.00	13.1	38.0	11:00a	ENE
15	44.3	63.4	3:30p	28.1	7:30a	20.7	0.0	0.00	5.0	23.0	3:30a	ENE
16	47.4	68.0	3:30p	25.2	5:00a	17.8	0.2	0.00	6.4	25.0	1:30p	NE
17	49.9	68.1	3:30p	33.1	4:00a	15.3	0.1	0.00	3.8	15.0	12:30p	NE
18	53.5	70.4	2:30p	38.3	7:30a	11.9	0.4	0.00	3.4	17.0	2:30p	NE
19	54.2	64.0	2:00p	43.4	2:30a	10.8	0.0	0.00	7.0	29.0	10:30p	WNW
20	53.0	63.5	5:00p	41.1	12:00m	12.0	0.0	0.00	14.1	45.0	3:30p	WNW
21	38.0	48.5	4:00p	27.2	8:00a	27.0	0.0	0.00	8.7	30.0	12:30a	NW
22	46.9	62.6	4:30p	32.1	6:00a	18.1	0.0	0.00	5.5	20.0	3:00p	NNW
23	52.6	62.3	4:00p	42.0	6:00a	12.4	0.0	0.00	10.0	32.0	2:30p	NW
24	52.6	61.4	2:30p	45.0	4:30a	12.4	0.0	0.00	11.8	24.0	4:00p	NW
25	51.1	63.2	4:00p	39.5	8:00a	13.9	0.0	0.00	5.8	20.0	1:00p	SSE
26	50.9	62.8	12:00p	39.4	5:30a	14.1	0.0	0.00	8.2	35.0	4:30p	NW
27	46.7	56.9	3:00p	37.7	8:00a	18.3	0.0	0.00	9.5	23.0	3:00p	NW
28	47.8	57.5	3:30p	39.3	6:30a	17.2	0.0	0.00	8.3	20.0	12:30p	WNW
29	49.0	62.7	4:00p	37.4	8:00a	16.0	0.0	0.00	4.9	18.0	12:30p	WSW
30	49.1	59.8	3:00p	37.2	8:00a	15.9	0.0	0.00	6.1	30.0	11:00p	SW
31	50.9	62.3	3:30p	44.0	12:00m	14.1	0.0	0.00	6.9	22.0	10:30a	SE
	49.1	71.4	4	21.4	10	494.4	2.8	0.00	9.1	47.0	8	WNW

Max >= 90.0: 0
 Max <= 32.0: 0
 Min <= 32.0: 6
 Min <= 0.0: 0
 Max Rain: 0.00 ON 10/01/17
 Days of Rain: 0 (>.01 in) 0 (>.1 in) 0 (>1 in)
 Heat Base: 65.0 Cool Base: 65.0 Method: Integration

Monthly Pond 4 Surveillance Checklist

Level of water in Pond 4 7.6058

Inspection Item	Acceptable		Comments and Recommendation
	Yes	No	
Condition of:			
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 type="checkbox"/>	Replaced one Radiological sign.
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"/>	Boat remains at the pond.
Evidence of erosion of:			
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"/>	
Evidence of:			
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: Everything appears to be in good shape.

Monticello LM Representative: *Jay McK*

Date: 11/29/2017

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: There is no radiologically contaminated material in the concrete bin.

Bill Cary / Bill Cary

Signature of Monticello LM Representative

11/29/2017

Date of Inspection

MONTHLY CLIMATOLOGICAL SUMMARY for NOV. 2017

NAME: Monticello Office CITY: STATE:
 ELEV: 7069 ft LAT: 37° 54' 00" N LONG: 109° 18' 00" W

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	49.3	61.2	3:30p	35.0	7:00a	15.7	0.0	0.00	8.6	30.0	7:30p	SSE
2	47.7	57.6	4:00p	37.7	8:00a	17.3	0.0	0.00	11.4	29.0	11:30a	SSE
3	47.9	57.5	5:00p	38.0	8:00a	17.1	0.0	0.00	12.9	34.0	1:00p	S
4	51.2	58.3	5:00p	45.6	6:30a	13.8	0.0	0.00	13.1	33.0	12:00p	S
5	45.3	54.8	2:30p	34.8	7:00a	19.7	0.0	0.00	7.4	30.0	3:00p	SSE
6	44.8	54.1	3:30p	37.8	5:30a	20.2	0.0	0.00	7.5	32.0	12:00p	E
7	42.6	53.3	2:30p	28.9	12:00m	22.4	0.0	0.01	8.4	27.0	5:30p	WSW
8	36.3	50.4	3:00p	25.6	7:00a	28.7	0.0	0.00	7.0	27.0	1:00a	NW
9	43.3	53.7	2:30p	29.6	3:00a	21.7	0.0	0.00	8.3	22.0	2:00p	SSE
10	47.1	56.5	3:30p	40.5	6:30a	17.9	0.0	0.00	8.4	27.0	2:00p	SSE
11	43.5	55.3	2:00p	31.9	7:30a	21.5	0.0	0.00	3.5	14.0	4:30a	WSW
12	46.5	55.5	1:30p	33.0	1:30a	18.5	0.0	0.00	6.3	22.0	12:00p	SSE
13	50.8	60.5	2:30p	38.8	7:30a	14.2	0.0	0.00	7.6	24.0	1:00p	S
14	46.7	60.8	2:00p	38.7	11:00p	18.3	0.0	0.00	7.6	26.0	11:00a	S
15	46.0	55.4	3:00p	35.0	7:00a	19.0	0.0	0.00	7.9	23.0	12:00p	WSW
16	47.1	53.5	3:00p	36.8	7:00a	17.9	0.0	0.00	11.2	27.0	10:00a	S
17	45.8	56.2	12:00p	27.0	12:00m	19.2	0.0	0.05	17.5	44.0	8:30p	SSW
18	27.9	38.1	3:00p	19.2	4:00a	37.1	0.0	0.00	8.4	34.0	12:30a	NW
19	29.8	45.2	2:30p	15.5	7:00a	35.2	0.0	0.00	4.0	19.0	11:30a	SW
20	33.9	45.4	12:00p	21.1	12:30a	31.1	0.0	0.00	3.2	17.0	12:00p	WSW
21	44.1	55.3	12:30p	30.4	2:00a	20.9	0.0	0.00	8.4	32.0	12:00p	NW
22	48.4	59.2	2:30p	39.1	6:00a	16.6	0.0	0.00	6.6	20.0	3:00p	NNW
23	48.9	62.3	4:00p	38.4	11:30p	16.1	0.0	0.00	3.1	11.0	12:00p	WSW
24	46.7	60.1	3:30p	32.0	7:00a	18.3	0.0	0.00	4.6	23.0	10:00a	WSW
25	49.9	63.3	2:30p	39.2	7:30a	15.1	0.0	0.00	4.6	21.0	1:30p	WSW
26	48.4	61.2	1:00p	38.3	4:00a	16.6	0.0	0.00	6.0	21.0	12:00p	SSW
27	47.3	54.6	2:30p	38.8	10:00p	17.7	0.0	0.00	8.7	29.0	11:00a	S
28	41.8	49.6	2:00p	35.0	6:30p	23.2	0.0	0.00	9.0	28.0	6:00a	NW
29	39.3	48.0	2:30p	28.8	12:00m	25.7	0.0	0.00	9.1	34.0	7:30a	WNW
30	40.9	54.0	2:00p	25.7	3:30a	24.1	0.0	0.00	7.5	24.0	2:00p	SSE

	44.3	63.3	25	15.5	19	620.8	0.0	0.06	7.9	44.0	17	S

Max >= 90.0: 0
 Max <= 32.0: 0
 Min <= 32.0: 12
 Min <= 0.0: 0
 Max Rain: 0.05 ON 11/17/17
 Days of Rain: 1 (>.01 in) 0 (>.1 in) 0 (>1 in)
 Heat Base: 65.0 Cool Base: 65.0 Method: Integration

Monthly Pond 4 Surveillance Checklist

Level of water in Pond 4 7.8212

Inspection Item	Acceptable		Comments and Recommendation
	Yes	No	
Condition of:			
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 type="checkbox"/>	
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"/>	Boat remains at the pond.
Evidence of erosion of:			
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"/>	
Evidence of:			
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: The pond is nearly frozen other than that everything appears to be in fine.

Monticello LM Representative: *Day MK*

Date: 12/28/2017

MONTHLY CLIMATOLOGICAL SUMMARY for DEC. 2017

NAME: Monticello Office CITY: STATE:
 ELEV: 7069 ft LAT: 37° 54' 00" N LONG: 109° 18' 00" W

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	44.5	54.6	2:00p	33.0	4:30a	20.5	0.0	0.00	7.7	25.0	12:00p	S
2	43.0	54.4	2:00p	33.7	7:30a	22.0	0.0	0.00	6.9	25.0	2:30p	SE
3	42.3	49.2	4:00p	30.0	12:00m	22.7	0.0	0.00	10.5	34.0	11:30p	S
4	24.7	32.3	2:30p	15.0	7:00a	40.3	0.0	0.00	8.7	33.0	12:30a	NW
5	26.0	36.4	3:00p	19.0	7:30a	39.0	0.0	0.00	7.6	21.0	9:30a	NW
6	28.0	37.1	12:30p	19.5	10:30p	37.0	0.0	0.00	11.6	29.0	1:30p	NW
7	24.0	29.4	4:30p	16.5	4:30a	41.0	0.0	0.00	13.5	33.0	3:00p	ENE
8	35.9	46.4	3:00p	21.2	3:00a	29.1	0.0	0.00	12.5	26.0	10:00a	NW
9	38.6	51.8	1:00p	27.8	6:30p	26.4	0.0	0.00	6.1	19.0	2:30p	NNW
10	37.9	52.2	2:00p	28.3	7:00a	27.1	0.0	0.00	4.9	13.0	2:00p	WSW
11	42.3	56.6	2:00p	25.0	6:30a	22.7	0.0	0.00	6.5	18.0	3:30p	NW
12	45.2	56.7	2:00p	34.8	7:00a	19.8	0.0	0.00	5.0	14.0	12:30a	WNW
13	42.8	54.3	12:30p	29.7	7:30a	22.2	0.0	0.00	6.4	29.0	10:30p	NW
14	33.2	38.8	12:30a	28.4	8:00a	31.8	0.0	0.00	17.2	40.0	8:00a	NW
15	33.2	46.7	2:30p	24.0	7:00a	31.8	0.0	0.00	4.0	13.0	1:00p	SE
16	31.9	40.3	2:30p	24.3	1:00a	33.1	0.0	0.00	7.3	26.0	2:00a	SSE
17	28.8	41.2	1:30p	18.6	8:00a	36.2	0.0	0.00	3.8	16.0	2:30p	WNW
18	30.6	43.5	1:00p	20.3	3:30a	34.4	0.0	0.00	4.2	16.0	2:00p	WNW
19	34.4	48.3	4:00p	22.7	4:30a	30.6	0.0	0.00	4.6	17.0	12:00p	NNW
20	35.0	43.6	3:00p	26.7	12:30a	30.0	0.0	0.00	12.0	34.0	12:00p	S
21	24.4	34.3	1:30a	15.8	12:00m	40.6	0.0	0.00	9.9	28.0	2:30a	SSE
22	24.9	34.7	4:30p	16.1	12:30a	40.1	0.0	0.02	9.3	29.0	1:00a	NW
23	27.3	35.2	4:00p	18.4	7:30a	37.7	0.0	0.00	7.2	27.0	2:00p	SE
24	30.6	39.9	3:00p	19.1	3:30a	34.4	0.0	0.00	3.6	16.0	12:00m	WNW
25	36.5	46.8	2:00p	27.9	8:00a	28.5	0.0	0.00	5.5	23.0	5:30a	SE
26	33.7	45.2	3:30p	25.8	5:00a	31.3	0.0	0.00	3.3	15.0	12:00p	SW
27	34.5	46.0	2:00p	25.0	7:30a	30.5	0.0	0.00	5.2	26.0	2:00p	WSW
28	37.5	53.0	2:30p	26.6	1:30a	27.5	0.0	0.00	3.3	19.0	1:00p	WSW
29	36.6	52.3	3:00p	26.6	6:00a	28.4	0.0	0.00	3.2	11.0	7:00a	S
30	36.2	50.2	1:30p	26.9	6:00a	28.8	0.0	0.00	5.9	24.0	4:30p	SSE
31	37.5	48.0	3:30p	28.1	6:30a	27.5	0.0	0.00	3.9	21.0	3:00p	SSW
	34.3	56.7	12	15.0	4	953.0	0.0	0.02	7.1	40.0	14	NW

Max >= 90.0: 0

Max <= 32.0: 1

Min <= 32.0: 28

Min <= 0.0: 0

Max Rain: 0.02 ON 12/22/17

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

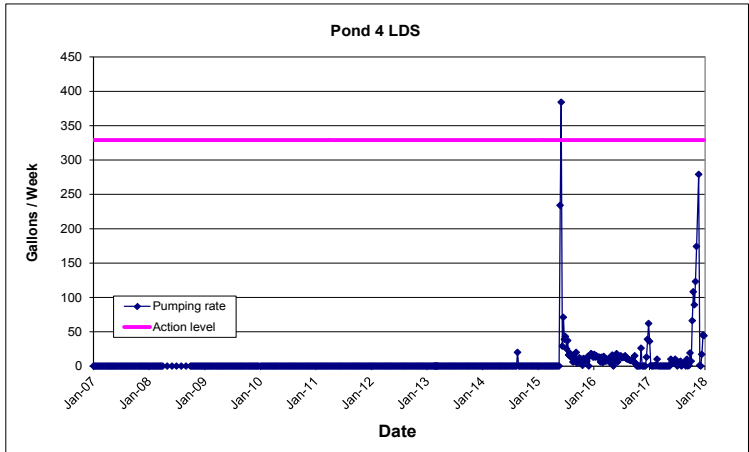
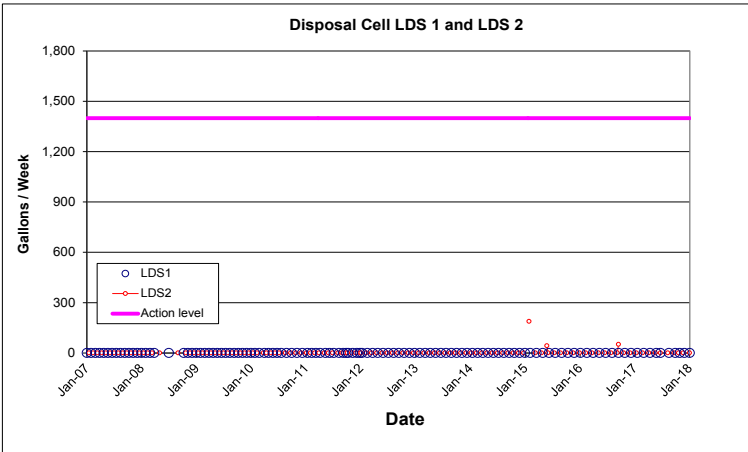
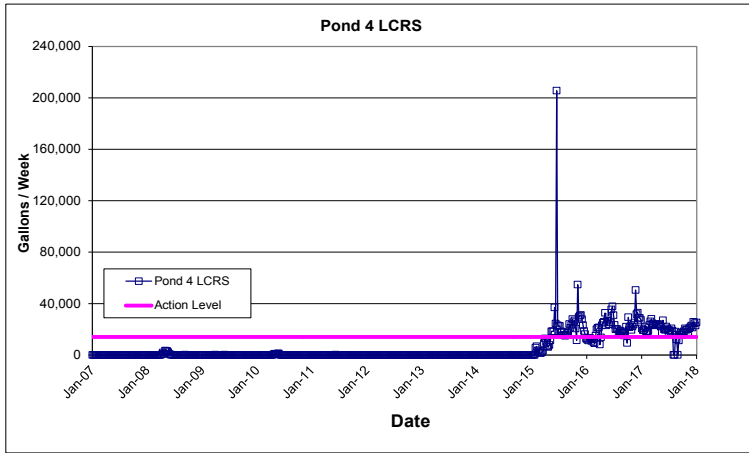
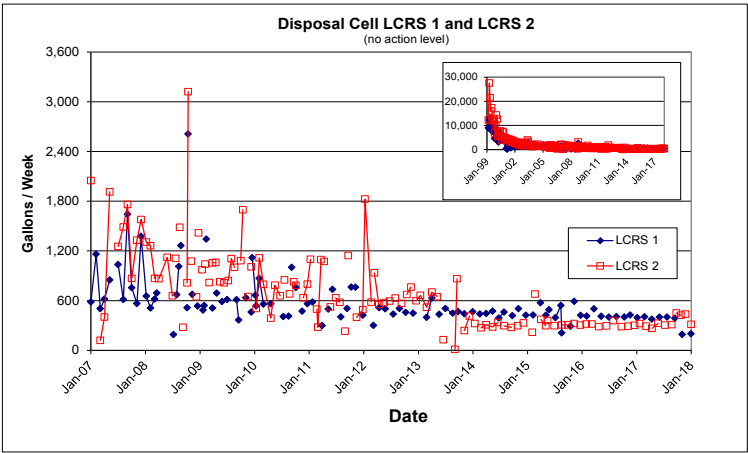
Heat Base: 65.0 Cool Base: 65.0 Method: Integration

Appendix B

Graphs Showing Performance History for Disposal Cell and Pond 4 LCRS and LDS

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Graphs Showing Performance History for Disposal Cell and Pond 4 LCRS and LDS



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