LMS/MNT/46974

Monticello, Utah, National Priorities List (NPL) Sites Federal Facility Agreement (FFA) Quarterly Report: October 1–December 31, 2023

February 2024

U.S. DEPARTMENT OF ENERGY | Legacy Management

This document has been designed for online viewing.

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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
gpad	gallons per acre per day
gpm	gallons per minute
GRO	Groundwater Remedy Optimization
IC	institutional control
LCRS	Leachate Collection and Removal System
LDS	Leak Detection System
LM	Office of Legacy Management
LTS&M	long-term surveillance and maintenance
LTS&M Plan	Long-Term Surveillance and Maintenance Plan
MMTS	Monticello Mill Tailings Site
MVP	Monticello Vicinity Properties
NCP	National Contingency Plan
NPL	National Priorities List
OU	Operable Unit
PRB	permeable reactive barrier
P&T	pump-and-treat
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), collectively called the LM Monticello, Utah, Disposal and Processing Sites, for October 1 through December 31, 2023. The MVP and MMTS are National Priorities List (NPL) sites regulated under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), as described in Title 42 *United States Code* Section 9601 et seq. (42 USC 9601 et seq.). Quarterly reports are submitted to EPA and UDEQ in February (for October through December), May (for January through March), August (for April through June), and November (for July through September).

LM assesses MVP and MMTS conditions and remedy protectiveness through (1) monthly, quarterly, and annual inspections of site infrastructure and operations as specified under the *Long-Term Surveillance and Maintenance Plan for Monticello NPL Sites* (LMS/MNT/S00387), also called the Long-Term Surveillance and Maintenance Plan (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 Review reports.

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 uranium 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 (P&T) groundwater contingency remedy optimization system. This system, implemented in January 2015, focuses on groundwater remediation within a specified region of the alluvial aquifer called the Area of Attainment (AOA).

Annual groundwater reports present comprehensive data evaluation for the groundwater and surface water OU III remedy. LM has utilized the data presented in the most recent annual groundwater report to update the conceptual site model and develop a three-dimensional numerical fate and transport model to assess remedial time frames.

Project milestones and guiding documents are further described in the *Monticello Site Management Plan* (GJO-2003-493-TAC). Section 5.0 of that document is updated annually.

1.1 Quarterly Site Status

In summary, the activities and observations for this quarter consist of the following:

- The Groundwater Remedy Optimization (GRO) system operated from October 27 to December 31 this quarter. A leak on the transmission water line that transfers water to Pond 4 was discovered on August 7 near vault CS-MNT-10. The leak was repaired on October 23–27, 2023. The system pumped approximately 350,927 gallons of water from the AOA.

- The previous period's Federal Facility Agreement (FFA) quarterly report was sent to EPA and UDEQ in December 2023.
- Weekly site inspections were performed by site personnel to verify the integrity of the site's systems and monitor activities that might occur in supplemental standards properties (e.g., City of Monticello streets and utility corridors).
- Site personnel performed monthly and quarterly site inspections in accordance with the LTS&M Plan.
- Routine surveillance did not note any anomalous conditions for the MVP remedy.
- Routine surveillance did not note any violations of MMTS ICs that restrict land and groundwater use.
- Routine surveillance did not note any anomalous conditions for the surface features of the disposal cell and Pond 4, the engineered solar evaporation pond.
- Routine surveillance noted no operational deficiencies for the Temporary Storage Facility (TSF).

2.0 MVP

LTS&M for the MVP consists of providing radiological control at excavations in Monticello site roadway and utility corridors, in Utah Department of Transportation (UDOT) rights-of-way within city limits, and at property MS-00176-VL (a privately owned supplemental standards property).

Surveillance results for this quarter are as follows:

- No anomalous conditions for the MVP remedy were noted.
- LM representatives continued to coordinate with city and UDOT officials via telecommunications regarding construction and excavation activities by the city, UDOT, and utility companies in roadway and utility corridors. LM follows the normal LTS&M protocol to provide radiological control in the affected roadways.
- Five excavations occurred in city streets this quarter. Site personnel radiologically surveyed the removed soils from the excavations, and no radiologically contaminated materials were found.
- A small amount of erosion was noticed during the 2023 Annual Inspection on the U.S. Highway 191 embankment at Montezuma Creek (a supplemental standards property). The erosion is located near the top of the embankment near the highway right-of-way. The erosion area was scanned by the site Safety and Health technician for radiological contamination. No radiologically contaminated material was found. UDOT is aware of the erosion issue and has stabilized the erosion on the embankment until permanent repairs can be performed. Site personnel continue to monitor for excessive erosion. No unauthorized excavations were observed.
- A surveillance of property MS-00176-VL identified no excessive erosion of supplemental standards material or violation of the land-use restriction on building construction.

3.0 MMTS

LTS&M activities for the MMTS consist of (1) maintaining the onsite repository and operating the associated Leachate Collection and Removal System (LCRS) and Leak Detection System (LDS) for the disposal cell and Pond 4, (2) surveillance of properties affected by groundwater-use and land-use ICs on the former Monticello mill (mill site) and peripheral properties, and (3) operation and maintenance of the OU III GRO system.

3.1 OU I

OU I consists of the properties that contain the mill site and 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 completed in 1999. LM owns and manages the repository, and the city owns the former mill site and manages it as a public park.

3.1.1 Repository and Pond 4

Monthly, quarterly, and annual inspections of the repository ensure that remedy controls remain intact, and the waste remains isolated from the environment.

Inspection observations and maintenance activities for the quarter consisted of the following:

- No area of the repository cover showed settling, slumping, fracturing, seepage, ponding, or significant erosion.
- No anomalous surface feature conditions were observed at the disposal cell or Pond 4. Surveillance checklists for this quarter are attached as Appendix A. No further minor burrowing by voles and small ground squirrels was observed this quarter on the disposal cell and Pond 4 berm.
- The disposal cell LCRS and LDS were operated in accordance with the requirements specified in the LTS&M Plan. Findings for the disposal cell LCRS and LDS this quarter include the following:
  - Leachate production from the disposal cell was approximately 970 gallons per week combined for sumps LCRS 1 and LCRS 2. 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.
- Operation of the OU III GRO system resulted in increased water collection in the Pond 4 LCRS. Pond 4 LCRS and LDS action levels, approved by EPA and UDEQ, were formally developed in the *Repository and Pond 4 Groundwater Contingency Plan-Final* (DOE 1998) and are also found in Appendix D, Section 5.0 of the LTS&M Plan. The leakage rate action level established for the Pond 4 LCRS is 851 gallons per acre per day (gpad) (2000 gallons per day), and the leakage rate action level for the LDS is 20 gpad (47 gallons per day), which is averaged over a 7-day period. These leakage rates are based on the area of the floor of Pond 4, which is 2.35 acres. Currently, the LCRS and LDS monitoring and pumping systems are functioning as designed to recirculate water back into Pond 4.

- Findings for the Pond 4 LCRS and LDS for this quarter are as follows:
  - Water collection at the Pond 4 LCRS continued but did not exceed the action level this quarter (Appendix B)
  - Water collection at the Pond 4 LDS remained below the action level (Appendix B)

3.1.2 TSF

Routine surveillance of the TSF ensures that the maintenance and radiological controls that govern the access to and placement, storage, and transfer of contaminated material in the TSF are current and effective. Surveillance this quarter (see the surveillance checklists in Appendix A) revealed that:

- The TSF cover, fencing, radiological controls, and signs have been maintained in accordance with the LTS&M Plan, and the TSF has been inspected and verified as being ready to receive contaminated materials.

LM is required to initiate the transfer of TSF materials for permanent disposal at the Grand Junction, Colorado, Disposal Site when the contents reach a volume of approximately 75 cubic yards. Recent TSF activity consists of the following:

- No excavated soil from city streets was added to the TSF during October 1–December 31.
- Approximately 6 cubic yards of soil excavated from the city streets is currently stored in the TSF. All 6 cubic yards of soil originated from an excavation that occurred on July 26, 2022.

3.1.3 Mill Site

LM conducts surveillance of the mill site (properties MP-00181-VL and MS-00893-OT) to ensure compliance with ICs implemented to preserve the OU I remedy for soil and groundwater. ICs applicable to the mill site include prohibitions on installing domestic-use wells in the alluvial aquifer, using the property for residential purposes, constructing habitable structures, and overnight camping, as well as preserving the property for day use as a public park.

Surveillance results for this quarter revealed:

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

3.2 OU II

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

Surveillance results for this quarter are summarized below for the different components of OU II.

- **Montezuma Creek Restrictive Easement Area (supplemental standards properties, both city-owned and privately owned):** No evidence of nonconformance with land-use restrictions (e.g., prohibitions on soil removal and construction of habitable structures in supplemental standards properties) was observed.

- **Groundwater-Use Restrictions:** These were applied to several OU II properties under the 2000 quitclaim deed by which DOE transferred selected properties to the city. No evidence of nonconformance with these restrictions (e.g., prohibition on installing domestic-use wells in the alluvial aquifer) was observed.
- **Property MP-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-use and groundwater-use restrictions was observed.
- **Excessive Erosion:** No storm events resulted in more than 2.8 inches of precipitation in 24 hours, which would require surveillance of supplemental standards cleanup properties for excessive erosion.

3.3 OU III

OU III consists of groundwater and surface water contamination resulting from operation of the mill site. Routine monitoring of OU III (water quality and water level) is normally performed semiannually in April (spring) and October (fall). The fall semiannual groundwater sampling event took place from October 16–19, 2023.

The contaminated groundwater is within the alluvial aquifer beneath the valley of Montezuma Creek, some sections of which are contaminated by the influent of contaminated groundwater. A portion of the aquifer is subject to ICs restricting use. Montezuma Creek is used for limited irrigation and livestock watering. There are no ICs restricting surface water use.

The current groundwater remedy includes (1) monitored natural attenuation with ICs and (2) P&T remediation by evaporation that was implemented as the GRO system in January 2015. Operation and performance of the groundwater remedy are reported annually. Previous remediation efforts have included (1) in situ treatment by zero-valent iron (ZVI) within a permeable reactive barrier (PRB) and (2) P&T remediation that used ex situ ZVI treatment. The ex situ ZVI treatment 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 system as a groundwater flow barrier.

3.3.1 Groundwater Restricted Area

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 State of Utah Division of Water Rights. Surveillance found:

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

3.3.2 OU III GRO System

The GRO system includes eight vertical extraction wells strategically placed in the AOA to extract contaminated groundwater and an associated monitoring system. The water from the extraction wells 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 22 wells installed in the AOA. Sixteen of the 22 wells were installed south of Montezuma Creek in 2014, and 6 wells were installed north of Montezuma Creek in 2017. These 22 monitoring wells are sampled recurrently following the extraction of approximately 1,000,000 gallons of water from the GRO system as stated in Section 1.5 of the *Remedial Action Completion Report for Operable Unit III Groundwater Contingency Remedy Optimization System, Monticello Mill Tailings Site, Monticello, Utah* (DOE 2016).

- A 1,000,000-gallon sampling event was performed from November 1–2, 2023.

3.3.2.1 GRO System Quarterly Performance Summary

The GRO system performance for the quarter is summarized here.

- Groundwater extraction during the quarter was approximately 351,000 gallons, equivalent to an average flow rate of 2.65 gallons per minute (gpm). Assuming the uranium concentration in groundwater extracted throughout the quarter was equal to the uranium concentration of the holding tank effluent on November 2, 2023 (the date of the most recent sample collected), approximately 1.7 pounds of uranium was removed during this quarter.
- The GRO system operated from October 27 to December 31 this quarter. A leak on the transmission water line that transfers water to Pond 4 was discovered on August 7 near vault CS-MNT-10. The leak was repaired October 23–27, 2023. The GRO system has been operating normally since that repair and has not experienced any issues or downtime. The system pumped approximately 351,000 gallons of water from the AOA from October 27 to December 31.
- During the quarter, the volume of water stored in Pond 4 decreased by approximately 110,000 gallons. The GRO system operates by balancing the extraction rate and the Pond 4 evaporation rate while maintaining the Pond 4 storage volume between 5,000,000 and 8,000,000 gallons (the maximum storage volume of Pond 4 is approximately 15,600,000 gallons).
- Water-level monitoring during the quarter consisted of:
  - Continuous water-level monitoring in AOA extraction and monitoring wells using pressure transducers and dataloggers (programmed to record at 5-minute intervals) connected to the LM System Operation and Analysis at Remote Sites (SOARS) system.
- Cumulatively, the system has removed 31,400,000 gallons of contaminated groundwater from the aquifer since system startup in January 2015 (Table 1).

- Assuming a minimum AOA uranium plume pore volume of 2,400,000 gallons and a maximum pore volume of 3,300,000 gallons, the GRO system has removed between 9.5 and 13.1 pore volumes since system startup.
- From January 2015 through November 2, 2023, the GRO system removed approximately 155 pounds of uranium from the AOA aquifer (Table 2). Estimates of the cumulative uranium mass removed are updated only at sampling events.

Table 1. GRO System Treatment: Monthly Volumes and Rates for This Quarter and Cumulative Volumes Since January 2015

Calendar Month	Approximate Volume Pumped (millions of gallons)	Effective Pumping Rate (gpm)	Approximate Cumulative Volume[a] (millions of gallons)
October 2023	0.12	2.65	31.1
November 2023	0.13	2.99	31.3
December 2023	0.10	2.31	31.4

Note:
[a] Cumulative volume is based on the volume of groundwater extracted by the GRO system since system startup in January 2015.

Table 2. Uranium Mass Removal from Groundwater in the AOA

Tank Effluent Sample Date[a]	Effluent Tank Uranium Concentration (µg/L)	Volume Removed Between Tank Samples (millions of gallons)	Uranium Removed (pounds)[b]	Cumulative Mass of Uranium Removed[c] (pounds)
June 14, 2023	355	1.04	4.2	150
November 2, 2023	591	1.13	4.5	155

Notes:
[a] Sampling occurs following the extraction of approximately 1,000,000 gallons.
[b] Uranium removed since last sampling event. Estimate is based on the median concentration between sampling dates.
[c] Since GRO system startup in January 2015. Estimates of cumulative mass removed are updated every sampling event.

Abbreviation:
µg/L = micrograms per liter

Monitoring and reporting guidelines for the GRO system 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). Evaluation of water quality trends and whether remediation goals are being met, in the AOA and sitewide, is beyond the scope of this FFA quarterly report but is provided in annual groundwater reports submitted to EPA and UDEQ.

3.3.3 OU III Closure Strategy

Regarding the OU III closure strategy, LM continued to develop the draft Feasibility Study for OU III. Several scenarios are being evaluated to develop a closure strategy for OU III; these

are detailed in the *OU III Closure Strategy for the Monticello Mill Tailings Site, Monticello, Utah* (DOE 2018). Work focused on additional follow-up actions from the 2022 Sixth Five-Year Review report that will support the Feasibility Study, including an ecological risk evaluation of Montezuma Creek and an assessment of IC options for restricting the use of Montezuma Creek as a drinking water source. Preferred IC options were evaluated against the nine criteria of the National Contingency Plan (NCP) and will be incorporated into the MMTS OU III Feasibility Study. Note that one action among these follow-up actions required a reissue of the Monticello site LTS&M Plan.

4.0 Schedule of Activities and Deliverables

Table 3 summarizes the completion dates of recently completed and near-term planned activities and deliverables for the Monticello NPL sites.

Table 3. Monticello Sites Recent and Near-Term Activities and Deliverables

Activity or Deliverable	Schedule
Revising the *Quality Assurance Project Plan, Monticello, Utah, Disposal and Processing Sites* (LM-Plan-3-21-1.0, LMS/MNT/S27252)	The Quality Assurance Project Plan was submitted to regulators on September 7, 2023
Monticello, Utah, National Priorities List (NPL) Sites Federal Facility Agreement (FFA) Quarterly Report: July 1–September 30, 2023 (DOE 2023)	Submitted to EPA and UDEQ on December 11, 2023
CERCLA Sixth Five-Year Review reports for the MVP and MMTS: • *Sixth Five-Year Review Report for Monticello Mill Tailings (USDOE) Site, San Juan County, Monticello, Utah* (DOE 2022a) • *Sixth Five-Year Review Report for Monticello Radioactively Contaminated Properties Superfund Site, San Juan County, Monticello, Utah* (DOE 2022b)	Submitted to EPA and UDEQ on May 2, 2022
Five-Year Review addendum activities include the following:	**Submittal and proposed dates for Five-Year Review addendum documents:**
Submittal and resolution of errata sheets	Errata sheets were resolved and submitted on April 6, 2023
DOE to confirm human health risk evaluation using EPA Preliminary Remediation Goals calculator	Submitted on July 29, 2022
LTS&M Plan clarification letter regarding Table 7	Letter submitted on March 2, 2023
DOE to create and send an informational letter to landowners with deed restrictions that clearly explains the restrictions on their property	Letters were sent to landowners on December 19, 2022
DOE to update the Uniform Federal Policy for Quality Assurance Project Plans, Sampling and Analysis Plan, Program Directive 2021-10-MNT, and the LTS&M Plan to be consistent regarding the monitoring well network	Update was submitted on April 5, 2023
DOE to evaluate risk to aquatic organisms using current Utah water quality standards	Risk evaluation response to EPA and UDEQ comments submitted to EPA and UDEQ on December 31, 2023
DOE to evaluate risk to human health and environment using current Utah water quality standards	Submitted on December 31, 2023

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

Activity or Deliverable	Schedule
DOE to complete a Feasibility Study to evaluate: • IC options to prevent human consumption of water from Montezuma Creek as a domestic drinking water source against the nine criteria of the NCP • Remedial alternatives for achieving the water quality restoration Remedial Action Objectives	Draft Feasibility Study will be submitted by June 30, 2024
DOE to complete a vulnerability and resilience assessment for Monticello sites, provide the assessment to EPA and UDEQ, and schedule a meeting to discuss findings	Assessment will be submitted by December 31, 2025

5.0 References

42 USC 9601 et seq. "Comprehensive Environmental Response, Compensation, and Liability Act" as amended, *United States Code.*

DOE (U.S. Department of Energy), 1998. *Repository and Pond 4 Groundwater Contingency Plan-Final*, MAC-MRAP 3.5.8, February.

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*, DOE-LM/GJ629-2004, Office of Legacy Management, May.

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, Office of Legacy Management, May.

DOE (U.S. Department of Energy), 2016. *Remedial Action Completion Report for Operable Unit III Groundwater Contingency Remedy Optimization System, Monticello Mill Tailings Site, Monticello, Utah*, LMS/MNT/S13373, Office of Legacy Management, May.

DOE (U.S. Department of Energy), 2018. *OU III Closure Strategy for the Monticello Mill Tailings Site, Monticello, Utah*, LMS/MNT/S18146, Office of Legacy Management, May.

DOE (U.S. Department of Energy), 2022a. *Sixth Five-Year Review Report for Monticello Mill Tailings (USDOE) Site, San Juan County, Monticello, Utah*, LMS/MNT/S35986, Office of Legacy Management, July.

DOE (U.S. Department of Energy), 2022b. *Sixth Five-Year Review Report for Monticello Radioactively Contaminated Properties Superfund Site, San Juan County, Monticello, Utah*, LMS/MNT/S36208, Office of Legacy Management, June.

DOE (U.S. Department of Energy), 2023. *Monticello, Utah, National Priorities List (NPL) Sites Federal Facility Agreement (FFA) Quarterly Report: July 1–September 30, 2023*, LMS/MNT/46220, Office of Legacy Management, August.

Long-Term Surveillance and Maintenance Plan for Monticello NPL Sites, LMS/MNT/S00387, continually updated, prepared by the LMS contractor for the U.S. Department of Energy Office of Legacy Management.

Monticello Site Management Plan, GJO-2003-493-TAC, continually updated, prepared by the LMS contractor for the U.S. Department of Energy Office of Legacy Management.

Quality Assurance Project Plan, Monticello, Utah, Disposal and Processing Sites, LM-Plan-3-21-1.0, LMS/MNT/S27252, continually updated, prepared by the LMS contractor for the U.S. Department of Energy Office of Legacy Management.

Appendix A

Monthly and Quarterly Surveillance Checklists

Monthly Pond 4 Surveillance Checklist

Level of water in Pond 4 6.01 Feet

Inspection Item	Acceptable		Comments and Recommendation
	Yes	No	
Condition of:			
Fences, gates, and locks	☒	☐	
Roads	☒	☐	
Signs	☒	☐	
Visible piping	☒	☐	
Visible liner and anchors	☒	☐	
Rescue equipment	☒	☐	
Evidence of erosion of:			
Top of Pond 4 berm	☒	☐	
Pond 4 sideslopes	☒	☐	
Ditches	☒	☐	
Surrounding area	☒	☐	
Seepage from Pond 4	☒	☐	
Overtopping of Pond 4	☒	☐	
Evidence of:			
Vandalism	☒	☐	
Intrusion by wildlife	☒	☐	
Intrusion by humans	☒	☐	
Accumulation of trash	☒	☐	

Additional comments: Pond appears to be in good condition.

Monticello LM Representative: [redacted] Date: 10/30/2023

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 Yes	Acceptable No	Comments and Recommendation
Condition of:			
Fences, gates, and locks	☒	☐	Fences and gates in good conditon
Roads[a]	☒	☐	
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: Things appear to be in good condition.

Signature: [redacted] Date: 10/30/2023

Monticello LM Representative

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

MONTHLY CLIMATOLOGICAL SUMMARY for OCT. 2023

NAME: Monticello Office Station CITY: Monticello STATE: Utah
ELEV: 7069 ft LAT: 37° 48' 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	58.0	66.8	4:30p	49.2	8:00a	7.1	0.1	0.10	12.9	45.0	2:00p	S
2	49.7	59.8	4:00p	39.8	12:00m	15.3	0.0	0.21	8.1	33.0	3:00p	SSW
3	47.6	58.2	2:00p	35.0	7:30a	17.4	0.0	0.00	5.5	26.0	12:30p	SW
4	49.6	60.2	4:00p	40.5	8:00a	15.4	0.0	0.00	7.5	23.0	3:30p	W
5	54.2	65.4	4:00p	43.2	6:00a	10.8	0.0	0.00	7.4	19.0	3:00p	WNW
6	57.1	69.5	3:00p	46.8	7:30a	8.5	0.6	0.00	6.0	17.0	3:30p	WNW
7	56.6	70.3	3:30p	42.2	6:30a	9.1	0.7	0.00	6.0	22.0	10:00a	WSW
8	59.0	71.7	2:30p	48.5	4:30a	7.5	1.6	0.00	5.6	19.0	1:00p	WSW
9	59.0	71.6	2:00p	48.4	3:30a	7.1	1.2	0.00	4.7	21.0	2:00p	WSW
10	57.9	69.2	4:00p	47.5	7:00a	7.7	0.6	0.00	6.5	25.0	4:00p	S
11	52.7	64.5	3:30p	41.8	12:00m	12.3	0.0	0.00	11.2	42.0	9:30p	S
12	42.5	50.4	3:30p	34.6	8:00a	22.5	0.0	0.00	10.5	28.0	10:00a	NW
13	44.2	55.6	3:30p	34.2	5:30a	20.8	0.0	0.00	5.4	22.0	11:00a	NW
14	47.0	62.3	3:30p	34.9	6:30a	18.0	0.0	0.00	3.6	13.0	2:30p	WSW
15	53.0	66.9	3:00p	39.8	6:30a	12.1	0.1	0.00	6.5	17.0	3:00p	WNW
16	57.1	71.8	6:00p	45.4	5:30a	9.1	1.2	0.00	3.8	14.0	3:30p	WSW
17	57.8	73.1	3:30p	44.4	7:30a	8.9	1.7	0.00	4.3	19.0	3:30p	SW
18	60.4	70.5	4:00p	51.0	5:00a	5.6	1.0	0.00	8.8	25.0	11:00a	WNW
19	60.8	72.9	3:30p	50.1	7:30a	6.0	1.8	0.00	6.5	19.0	2:30p	NNW
20	60.4	76.0	4:30p	50.4	12:00m	7.1	2.5	0.00	4.5	15.0	5:00p	WSW
21	58.1	72.4	2:30p	43.2	7:00a	8.5	1.6	0.00	5.1	20.0	12:30p	SSE
22	57.6	69.9	2:30p	44.3	7:30a	8.2	0.9	0.00	5.6	21.0	12:00p	SW
23	54.1	66.0	4:30p	41.8	7:30a	11.0	0.1	0.00	6.4	29.0	3:00p	S
24	51.5	63.0	3:30p	41.8	12:00m	13.5	0.0	0.00	6.6	22.0	9:00a	SW
25	51.0	62.3	3:00p	39.5	8:00a	14.0	0.0	0.00	6.5	26.0	1:00p	SSW
26	45.3	55.9	5:00p	38.6	11:00p	19.7	0.0	0.00	7.8	29.0	12:00p	SSE
27	45.6	57.7	4:30p	34.2	3:30a	19.4	0.0	0.04	5.0	27.0	3:30p	SSE
28	44.3	55.1	3:30p	36.9	10:00p	20.7	0.0	0.07	8.5	33.0	11:30p	SSE
29	32.6	38.6	2:30p	26.2	11:30p	32.4	0.0	0.00	15.3	28.0	9:00a	NW
30	30.6	42.9	4:00p	16.7	7:30a	34.4	0.0	0.00	6.0	23.0	1:00a	NNW
31	37.0	51.5	3:30p	23.9	7:30a	28.0	0.0	0.00	4.2	14.0	5:00p	WNW
	51.4	76.0	20	16.7	30	438.1	15.7	0.42	6.8	45.0	1	WNW

Max >= 90.0: 0
Max <= 32.0: 0
Min <= 32.0: 3
Min <=   0.0: 0
Max Rain: 0.21 ON 10/02/23
Days of Rain: 4 (>.01 in) 1 (>.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 6.00 Feet

Inspection Item	Acceptable		Comments and Recommendation
	Yes	No	
Condition of:			
Fences, gates, and locks	☒	☐	
Roads	☒	☐	
Signs	☒	☐	
Visible piping	☒	☐	
Visible liner and anchors	☒	☐	
Rescue equipment	☒	☐	
Evidence of erosion of:			
Top of Pond 4 berm	☒	☐	
Pond 4 sideslopes	☒	☐	
Ditches	☒	☐	
Surrounding area	☒	☐	
Seepage from Pond 4	☒	☐	
Overtopping of Pond 4	☒	☐	
Evidence of:			
Vandalism	☒	☐	
Intrusion by wildlife	☒	☐	
Intrusion by humans	☒	☐	
Accumulation of trash	☒	☐	

Additional comments: Pond appears to be in good condition. Inpected South Vault and CSMNT-10 vault. No issues.

Monticello LM Representative: [redacted] Date: 11/30/2023

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 Yes	Acceptable No	Comments and Recommendation
Condition of:			
Fences, gates, and locks	☒	☐	Fences and gates in good conditon
Roads[a]	☒	☐	
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: Things appear to be in good condition.

Signature: [redacted] Date: 11/30/2023

Monticello LM Representative

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

MONTHLY CLIMATOLOGICAL SUMMARY for NOV. 2023

NAME: Monticello Office Station CITY: Monticello STATE: Utah
ELEV: 7069 ft LAT: 37° 48' 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	40.1	54.7	4:30p	27.5	6:30a	24.9	0.0	0.00	4.5	17.0	12:00p	SW
2	45.0	60.2	4:30p	33.8	2:30a	20.0	0.0	0.00	3.7	13.0	4:30p	WSW
3	48.6	63.5	4:00p	35.4	5:30a	16.4	0.0	0.00	3.3	14.0	4:00p	SW
4	51.1	65.8	4:00p	39.5	6:30a	13.9	0.0	0.00	3.1	13.0	1:30p	W
5	52.1	61.3	2:00p	39.2	5:30a	12.9	0.0	0.00	8.1	24.0	2:00p	SSE
6	52.7	63.2	3:00p	41.1	3:30a	12.3	0.0	0.00	9.0	31.0	1:00p	S
7	50.4	62.6	3:00p	36.2	6:30a	14.6	0.0	0.00	9.8	39.0	12:30p	S
8	37.6	44.7	12:30a	29.2	10:30p	27.4	0.0	0.00	11.2	27.0	10:00a	NW
9	34.8	43.3	2:30p	28.3	7:00a	30.2	0.0	0.00	10.0	22.0	1:30p	WNW
10	35.5	48.2	1:30p	23.8	7:00a	29.5	0.0	0.00	4.7	19.0	9:30a	W
11	37.3	52.6	3:30p	26.5	6:00a	27.7	0.0	0.00	3.5	14.0	1:00p	WSW
12	40.8	55.8	3:00p	28.7	6:30a	24.2	0.0	0.00	4.3	15.0	11:30a	NNW
13	45.9	54.1	3:30p	39.0	11:00p	19.1	0.0	0.00	7.9	30.0	10:00a	S
14	46.1	56.1	2:30p	36.6	12:00m	18.9	0.0	0.00	8.0	24.0	11:00a	S
15	47.8	57.0	1:00p	35.1	1:00a	17.2	0.0	0.00	5.4	18.0	12:30p	SSE
16	47.7	56.7	2:30p	36.4	12:00m	17.3	0.0	0.00	6.2	20.0	4:00p	S
17	45.3	56.4	2:30p	36.3	6:30a	19.7	0.0	0.00	5.4	20.0	1:30p	WSW
18	42.1	49.8	2:30p	36.2	1:00a	22.9	0.0	0.00	7.2	28.0	10:30a	S
19	37.3	39.8	12:30p	34.7	12:00m	27.7	0.0	0.10	7.8	25.0	11:30p	NW
20	36.8	43.8	2:00p	32.8	7:00a	28.2	0.0	0.06	16.5	33.0	5:00a	NW
21	35.9	45.8	2:00p	28.1	11:00p	29.1	0.0	0.00	6.7	19.0	10:00a	NW
22	36.1	50.8	4:00p	26.7	5:30a	28.9	0.0	0.00	3.0	9.0	12:00p	W
23	34.8	41.5	2:00p	24.9	6:00a	30.2	0.0	0.00	5.9	21.0	11:30a	S
24	30.4	34.8	12:30a	25.6	9:00p	34.6	0.0	0.00	7.7	28.0	8:30p	SSE
25	24.7	29.0	2:00p	19.4	8:00p	40.3	0.0	0.00	9.4	29.0	12:00p	NW
26	21.6	32.0	3:30p	11.8	7:30a	43.4	0.0	0.01	4.2	16.0	1:00a	NW
27	23.5	34.0	3:00p	13.6	7:00a	41.5	0.0	0.00	4.5	15.0	2:30p	NNW
28	27.7	41.6	2:30p	18.0	6:30a	37.3	0.0	0.00	2.9	9.0	1:00p	W
29	30.5	41.2	2:30p	20.3	3:00a	34.5	0.0	0.00	3.7	18.0	10:30a	SSE
30	32.0	40.0	12:00p	25.1	7:30a	33.0	0.0	0.00	2.9	11.0	12:00p	NNW
	39.1	65.8	4	11.8	26	777.8	0.0	0.17	6.3	39.0	7	SSE

Max >= 90.0: 0
Max <= 32.0: 2
Min <= 32.0: 16
Min <=   0.0: 0
Max Rain: 0.10 ON 11/19/23
Days of Rain: 2 (>.01 in) 0 (>.1 in) 0 (>1 in)
Heat Base: 65.0 Cool Base: 65.0 Method: Integration

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

Are these areas acceptable?		
Yes	**No**	
☒	☐	Was the gate locked upon arrival?
☒	☐	Are signs posted in accordance with 10 CFR 835.602[a]?
☒	☐	Are all postings 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 10 CFR 835.405[d]?
☒	☐	Is the security fence in good condition?

Comments:

The concrete bin contains 6 cubic yards of radiologically contaminated material.

[redacted] Digitally signed by WILLIAM CARY (Affiliate) [redacted]

Signature of Monticello LM Representative

11/29/2023
Date of Inspection

Monthly Pond 4 Surveillance Checklist

Level of water in Pond 4 6.13 Feet

Inspection Item	Acceptable		Comments and Recommendation
	Yes	No	
Condition of:			
Fences, gates, and locks	☒	☐	
Roads	☒	☐	
Signs	☒	☐	
Visible piping	☒	☐	
Visible liner and anchors	☒	☐	
Rescue equipment	☒	☐	
Evidence of erosion of:			
Top of Pond 4 berm	☒	☐	
Pond 4 sideslopes	☒	☐	
Ditches	☒	☐	
Surrounding area	☒	☐	
Seepage from Pond 4	☒	☐	
Overtopping of Pond 4	☒	☐	
Evidence of:			
Vandalism	☒	☐	
Intrusion by wildlife	☒	☐	
Intrusion by humans	☒	☐	
Accumulation of trash	☒	☐	

Additional comments: Pond appears to be in good condition. Inpected South Vault and CSMNT-10 vault. No issues.

Monticello LM Representative: [redacted] Date: 12/28/2023

MONTHLY CLIMATOLOGICAL SUMMARY for DEC. 2023

NAME: Monticello Office Station CITY: Monticello STATE: Utah
ELEV: 7069 ft LAT: 37° 48' 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	26.7	31.5	3:30p	21.0	9:30p	38.3	0.0	0.07	1.9	12.0	12:30p	WSW
2	29.1	34.4	1:30p	21.2	12:30a	35.9	0.0	0.01	9.1	32.0	7:00a	S
3	33.6	42.3	3:30p	25.9	7:30a	31.4	0.0	0.00	6.1	22.0	1:30a	SE
4	38.3	46.7	2:30p	28.0	5:30a	26.7	0.0	0.00	6.2	21.0	3:00p	WNW
5	41.7	52.2	1:30p	33.6	12:00m	23.3	0.0	0.00	5.5	14.0	10:00a	NNW
6	39.8	49.8	2:30p	30.3	7:00a	25.2	0.0	0.00	6.3	21.0	11:30a	S
7	39.1	47.4	1:30p	28.2	6:30a	25.9	0.0	0.00	8.3	27.0	11:00a	SSW
8	29.4	36.0	1:30a	21.7	12:00m	35.6	0.0	0.00	11.8	35.0	11:00a	WNW
9	23.4	30.6	2:30p	17.1	11:30p	41.6	0.0	0.00	10.6	30.0	2:00a	WNW
10	26.0	41.5	3:30p	14.0	4:00a	39.0	0.0	0.00	2.0	9.0	1:00a	WSW
11	30.8	41.4	3:00p	21.0	8:00a	34.2	0.0	0.00	3.9	13.0	11:30a	W
12	38.1	44.4	2:00p	31.4	12:00m	26.9	0.0	0.00	5.7	20.0	11:00a	S
13	35.9	45.4	12:00p	30.4	5:00a	29.1	0.0	0.05	4.0	18.0	11:30a	S
14	33.2	41.2	1:00p	26.7	11:00p	31.8	0.0	0.20	2.1	11.0	2:00p	NW
15	32.4	43.6	3:30p	23.1	4:30a	32.6	0.0	0.00	3.6	13.0	3:00p	NNW
16	34.3	44.7	1:30p	27.2	3:30a	30.7	0.0	0.00	3.1	10.0	1:00p	SE
17	35.0	45.7	4:00p	27.8	1:00a	30.0	0.0	0.00	3.7	13.0	11:30a	NNW
18	38.1	46.3	2:30p	27.6	5:00a	26.9	0.0	0.00	7.0	23.0	1:30p	SSE
19	41.9	49.9	2:00p	34.3	5:30a	23.1	0.0	0.00	7.8	23.0	11:30a	SSE
20	37.0	45.5	12:00p	31.7	7:30a	28.0	0.0	0.17	3.9	19.0	12:00p	SSE
21	34.8	38.9	3:00p	29.1	11:00p	30.2	0.0	0.02	2.2	9.0	4:30a	W
22	36.5	44.0	12:30p	29.2	5:00a	28.5	0.0	0.15	4.7	19.0	11:30p	WSW
23	32.8	36.5	12:30a	23.4	12:00m	32.2	0.0	0.17	6.6	23.0	10:30p	SSE
24	22.6	27.8	1:00p	16.6	6:00a	42.4	0.0	0.00	9.7	28.0	1:30a	NNW
25	21.9	31.6	1:00p	12.7	5:30a	43.1	0.0	0.00	6.6	24.0	2:30p	WNW
26	25.2	32.4	3:00p	16.2	3:00a	39.8	0.0	0.00	10.1	24.0	5:30a	NNW
27	29.2	41.2	1:30p	16.9	3:30a	35.8	0.0	0.00	6.5	20.0	3:30p	NNW
28	31.1	42.7	2:00p	18.6	3:30a	33.9	0.0	0.00	4.9	20.0	2:30p	NW
29	30.8	43.7	4:00p	21.8	2:00a	34.2	0.0	0.00	2.9	10.0	12:30p	W
30	31.6	44.4	2:30p	21.0	5:30a	33.4	0.0	0.00	3.2	17.0	12:00p	SSE
31	34.1	46.0	3:00p	24.4	7:00a	30.9	0.0	0.00	3.7	14.0	10:30a	S
	32.7	52.2	5	12.7	25	1000.6	0.0	0.84	5.6	35.0	8	NW

Max >= 90.0: 0
Max <= 32.0: 4
Min <= 32.0: 29
Min <=   0.0: 0
Max Rain: 0.20 ON 12/14/23
Days of Rain: 7 (>.01 in) 4 (>.1 in) 0 (>1 in)
Heat Base: 65.0 Cool Base: 65.0 Method: Integration

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 Yes	Acceptable No	Comments and Recommendation
Condition of:			
Fences, gates, and locks	☒	☐	Fences and gates in good conditon
Roads[a]	☒	☐	
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: Things appear to be in good condition.

Signature: [redacted] Date: 12/28/2023

Monticello LM Representative

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

Appendix B

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

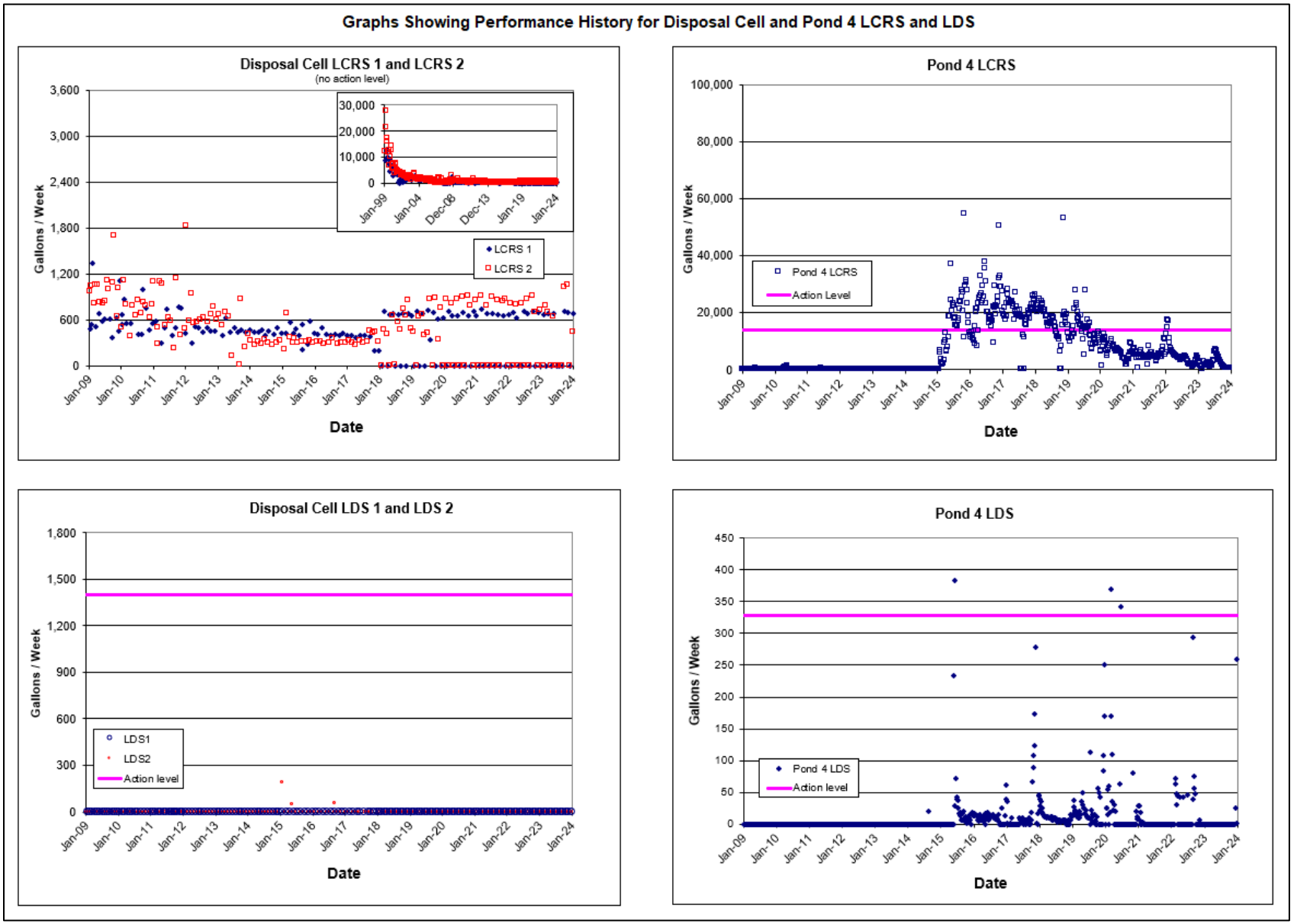

Figure B-1. Graphs Showing Performance History for Disposal Cell and Pond 4 LCRS and LDS