

**Monticello, Utah, National
Priorities List Sites
Federal Facility Agreement (FFA)
Quarterly Report:
January 1–March 31, 2013**

April 2013



U.S. DEPARTMENT OF
ENERGY

Legacy
Management

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**Monticello, Utah, National Priorities List Sites
Federal Facility Agreement (FFA) Quarterly Report:
January 1–March 31, 2013**

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Abbreviations

| | |
|------------|---|
| DOE | U.S. Department of Energy |
| EPA | U.S. Environmental Protection Agency |
| FFA | Federal Facility Agreement |
| gpm | gallons per minute |
| ICs | institutional controls |
| LCRS | Leachate Collection and Removal System |
| LDS | Leak Detection System |
| LM | Office of Legacy Management |
| LMS | Legacy Management Support |
| LTS&M Plan | <i>Long-Term Surveillance and Maintenance Plan for the Monticello NPL Sites</i> |
| MMS | Monticello Mill Tailings Site |
| MVP | Monticello Vicinity Properties |
| NPL | National Priorities List |
| OU | Operable Unit |
| TSF | Temporary Storage Facility |
| UDEQ | Utah Department of Environmental Quality |
| UDOT | Utah Department of Transportation |

1.0 Introduction

This report summarizes the status of the Monticello Vicinity Properties (MVP) and the Monticello Mill Tailings Site (MMTS) located in and near Monticello, Utah, for the period of January through March 2013. The U.S. Department of Energy (DOE) Office of Legacy Management (LM) assesses the status of the sites primarily through routine monthly and quarterly inspections performed by onsite Legacy Management Support (LMS) contractor staff. The inspections are performed in accordance with the *Long-Term Surveillance and Maintenance Plan for the Monticello NPL Sites* (LTS&M Plan). Findings for the current reporting period indicate no anomalous site conditions with respect to radiological contaminant control, compliance with institutional controls (ICs), and action levels associated with the management of the disposal cell.

The report includes a summary of recently completed and projected near-term activities and reporting requirements. The Federal Facility Agreement (FFA) quarterly reports are submitted to the U.S. Environmental Protection Agency (EPA) and the Utah Department of Environmental Quality (UDEQ) to apprise project managers of project status and the near-term schedule of activities and reporting requirements.

The MVP and MMTS were placed on the EPA National Priorities List (NPL) in 1986 and 1989, respectively. DOE implemented remedial actions at the MVP in 1986 and at the MMTS in 1989 to comply with the Comprehensive Environmental Response, Compensation, and Liability Act, as amended by the Superfund Amendments and Reauthorization Act.

MVP and MMTS remedial actions were completed by September 1999, except for the remediation of contaminated groundwater and surface water of Operable Unit (OU) III of the MMTS. OU III remedial actions are ongoing. As of December 2003, LM administers the MVP and MMTS as the Monticello Disposal and Processing Site.

In addition to monthly and quarterly inspections, the status of the MVP and MMTS is evaluated in annual site inspections. The most recent annual inspection was conducted on September 25–26, 2012. The 2012 Annual Inspection Report was submitted to EPA and UDEQ on December 13, 2012. The status of the MVP and MMTS was also addressed in the most recent FFA meeting, held via telephone conference call on March 19, 2013.

2.0 MMTS Status

2.1 Operable Unit I

OU I of the MMTS consists of the onsite waste disposal cell and supporting infrastructure (collectively referred to as the repository) and the property comprising the former Monticello uranium- and vanadium-ore processing mill (mill site). The repository comprises supporting infrastructure that includes the disposal cell and disposal cell leachate management system, the LM field office, and a facility for interim storage of radiologically contaminated material encountered in city street and utility excavations. The disposal cell contains radioactively contaminated soil, sediment, and debris removed from the former mill site and surrounding private and municipal properties in Monticello.

2.1.1 Monticello LM Repository (DOE-Owned)

The repository is monitored and maintained by onsite LMS staff. As directed by Section 3.2 of the LTS&M Plan, monthly and quarterly inspections of the repository are conducted to ensure that the waste remains isolated from the environment.

Inspection findings for the reporting period, with reference to the applicable section of the LTS&M Plan, include the following:

- Condition of disposal site facilities (Section 3.2.2): Monthly and quarterly inspections identified no anomalous conditions at the repository site. The Repository Area Surveillance Checklists for this quarter are included in Appendix A. The integrity of the repository remains uncompromised.
- Meteorological monitoring and storm events (Sections 3.2.2.2, 3.2.2.3, and 4.3.1): Significant storm events initiate radiological monitoring to ensure that contaminated soil has not been transported from supplemental standards areas. There were no storm events that required nonroutine surveillance of affected properties (those designated as supplemental standards cleanup properties) during this quarter. The onsite meteorological station was operable during the entire quarter. Climatological summaries are included in Appendix B.
- Pond 4 surveillance (Section 3.2.3): Monthly inspections identified no anomalous conditions at Pond 4, which receives leachate from the disposal cell for subsequent treatment by evaporation. The Monthly Pond 4 Surveillance Checklists for this quarter are included in Appendix A.
- Disposal cell and Pond 4 Leachate Collection and Removal System (LCRS) and Leak Detection System (LDS) operation (Section 3.3):
 - Normal operation of the disposal cell leachate collection in the upper sumps (i.e., the LCRS) was interrupted this quarter by the malfunctioning of the LCRS vault 1 pump. The operational malfunction was confirmed on January 8, 2013. Onsite LMS staff completed the pump replacement on February 21, 2013, and the system returned to normal operations.
 - Leachate production has decreased from approximately 30,000 gallons per week following final waste encapsulation in 1999 to current values of about 1,000 gallons per week or less for each of the two sumps, LCRS 1 and LCRS 2. A graph showing the performance history for the repository LCRS is included in Appendix C.
 - Operation of the LCRS at the leachate collection pond (Pond 4) was normal (i.e., no water was collected during the quarter). A graph showing the performance history for the Pond 4 LCRS is included in Appendix C.
 - Disposal cell and Pond 4 leachate collection in the lower sumps (LDS) remains at 0 gallons per week. Graphs showing the performance history for the repository and Pond 4 are included in Appendix C.
 - Other than the temporary malfunctioning of the LCRS vault 1 pump, which was replaced, all disposal cell and Pond 4 leachate management equipment (pumps, pump controls, monitoring devices, and data transmission devices) are functional.

- Approximately 4 inches of water had accumulated at the bottom of LCRS vault 2 and was pumped to Pond 4 on March 18, 2013.
- Action levels in Appendix C graphs and associated response actions are described in Section 3.3 of the LTS&M Plan.
- Temporary Storage Facility (TSF) operation and maintenance (Section 3.4):
 - The quarterly inspection identified no anomalous conditions at the TSF. The inventory of contaminated soil material in the TSF is approximately 4 cubic yards. Additionally, waste generated from the LCRS vault 1 pump replacement activities (e.g., inoperable pump, piping, ropes, personal protective equipment, and other associated debris) was placed into the clamshell storage unit within the TSF in February. Waste was also placed into storage in the clamshell in March; this waste was associated with the pumping of some accumulated water at the bottom of LCRS vault 2 into Pond 4. The TSF Record Book Inspection Report for this quarter is included in Appendix A. In accordance with Section 3.4 of the LTS&M Plan, DOE will transfer material from the TSF to the LM Grand Junction, Colorado, Disposal Site when contents of the TSF approach 75 cubic yards (TSF capacity is about 100 cubic yards). The most recent transfer of material from the TSF to the disposal site occurred in June 2010 and was documented in the FFA quarterly report for July 1 through September 2010.

2.1.2 Former Mill Site (City-Owned)

Surveillance of the former mill site is conducted to ensure compliance with ICs implemented to preserve the OU I remedy for soil and groundwater. Findings for this quarter, with reference to the applicable section of the LTS&M Plan, are:

- Routine surveillance of the former mill site (Section 4.2.2): No evidence of nonconformance with groundwater-use restrictions (no installation of domestic-use wells in the alluvial aquifer) or land-use restrictions (no construction of habitable structures, no camping, and land-use preservation as a public park) was observed.

2.2 Operable Unit II (Peripheral Properties, Private and City-Owned)

Surveillance of the Peripheral Properties is conducted to ensure compliance with ICs implemented to preserve the OU II remedy for soil and groundwater. Findings for this quarter, with reference to the applicable section of the LTS&M Plan, are:

- Routine surveillance of the Montezuma Creek Restrictive Easement Area (privately owned; Section 4.2.6): No evidence of nonconformance with land-use restrictions (no soil removal or construction of habitable structures in supplemental standards areas) or groundwater-use restrictions (no installation of domestic-use wells in the alluvial aquifer) was observed.
- Routine surveillance of supplemental standards property MS-00211-VL (City-owned; Section 4.2.5): No evidence of nonconformance with the land use-restriction on building construction was observed.
- No evidence of nonconformance with land- and groundwater-use restrictions was noted on City-owned peripheral properties with supplemental standards areas (Section 4.1).

2.3 Operable Unit III (Contaminated Groundwater and Surface Water)

2.3.1 Groundwater Restricted Area

Surveillance of properties where residual groundwater contamination is present is conducted to ensure compliance with groundwater-use restrictions (i.e., ICs to prevent exposure to contaminated groundwater). The affected properties constitute the Monticello Groundwater Restricted Area, as defined by the State of Utah Division of Water Rights. Surveillance findings for this quarter, with reference to the applicable section of the LTS&M Plan, are:

- Routine surveillance of the Monticello Groundwater Restricted Area (Section 4.2.7 and Appendix I): No evidence of nonconformance with groundwater-use restrictions was observed (i.e., no installation of domestic-use wells in the alluvial aquifer).

2.3.2 Groundwater Remediation

In accordance with the contingency remedy implemented for OU III under the January 2009 Explanation of Significant Difference, contaminated alluvial groundwater is extracted and treated on private property at a location approximately 600 feet east of the former mill site. The contaminated groundwater is treated using zero-valent iron in two ex situ treatment vessels. The effluent is discharged to Montezuma Creek. There is also an infiltration trench available for the discharge of limited volumes (2–3 gallons per minute [gpm]) of treated water.

OU III remedy performance (monitored natural attenuation with pump-and-treat enhancement) is evaluated and reported annually in the annual groundwater report (LTS&M Plan Section 5.4). The following summary describes the performance of the ex situ pump-and-treat system from January through March 2013.

- The system operated continuously during the quarter.
- No treated water was transferred to the infiltration trench during this quarter because outfall flow metering was not operational. Outfall metering was not restored during the quarter because of excessive snow cover. Repairs to the outfall metering are scheduled for April 2013.
- Inflow metering confirmed that effluent discharge to Montezuma Creek did not exceed the allowed rate of 10 gpm.
- Monthly monitoring of the treatment effluent verified that iron concentrations and pH for the quarter were within discharge allowances. Monthly effluent monitoring results for the quarter and the discharge allowances are shown in Table 1.

Table 1. Treatment System Compliance Summary

| Treatment System Effluent to Montezuma Creek | January 2013 | February 2013 | March 2013 |
|---|--------------|---------------|------------|
| pH ^a | 7.13 | 7.22 | 7.21 |
| Iron (total, milligrams per liter) ^b | 17 | 14 | 13 |

^a Discharge allowance range = 6.5–9.0 standard units

^b Discharge limit = 45.4 milligrams per liter at outfall to Montezuma Creek

- Approximately 1.2 million gallons of water were treated during the quarter. The average monthly treatment rates are shown in Table 2. The effective average treatment rate for the quarter was 9.2 gpm.

Table 2. Treatment System Performance Summary

| Treatment Parameter | January 2013 | February 2013 | March 2013^a |
|---|---------------------|----------------------|-------------------------------|
| Gallons treated | 429,700 | 392,300 | 375,800 |
| Average treatment rate, gpm | 8.5 | 9.7 | 9.3 |
| Uranium influent, micrograms per liter | 280 | 250 | 280 |
| Uranium effluent, micrograms per liter | 9.2 | 9.2 | 13 |
| Uranium mass removed, pounds | 0.97 | 0.79 | 0.84 |
| Cumulative uranium mass removed, pounds | 58.74 | 59.52 | 60.36 |
| Cumulative volume treated, gallons | 25,593,300 | 25,985,600 | 26,361,400 |

^a Data collection cut-off date is March 24, 2013.

- Approximately 2.6 pounds of uranium were removed from the aquifer during the quarter as a result of groundwater extraction and treatment. The monthly mass of uranium removed from the groundwater, during the quarter, is shown in Table 2.
- DOE exchanges the reactive media when effluent concentrations of uranium exceed 150 micrograms/liter (or about one-half of the influent concentration) and the flow rate has been reduced by 40 percent of the discharge allowance to increase residence time in the treatment vessels. The reactive media was last exchanged on November 5 and 6, 2012. The previous exchange occurred in October 2011. Each treatment cell treated approximately 2.3 million gallons between these media exchanges. This treatment capacity is consistent with that of previous media exchanges, suggesting that media exchange will occur once per year under current operating conditions.

3.0 MVP Status

3.1 City Streets and Utilities, Utah Department of Transportation (UDOT) Rights-of-Way, and Property MS-00176-VL

Surveillance findings for this quarter, with reference to the applicable section of the LTS&M Plan, include the following:

- Routine radiological surveillance of city street and utility corridors and UDOT rights-of-way (supplemental standards properties; Section 4.2.3):
 - Onsite LMS staff continued to coordinate with the City of Monticello (daily briefings), UDOT, and utility company officials regarding radiological control at roadway and utility excavations.
- Upgrades to city and state subsurface utility infrastructure occurred during the reporting period. No radiologically contaminated material was encountered at the excavations during this quarter. No erosion or unauthorized excavations occurred on the Highway 191 embankment at Montezuma Creek. Routine surveillance of supplemental standards property

MS-00176-VL (Section 4.2.4) identified no excessive erosion or violation of the land-use restriction institutional control.

4.0 Schedule

Table 3 summarizes the schedule of recently completed and pending near-term activities and DOE reporting requirements for the Monticello NPL sites.

Table 3. Schedule of Recently Completed and Near-Term Activities and DOE Deliverables

| Activity/DOE Deliverable | Schedule |
|---|---|
| Recently Completed: | |
| DOE submittal of FFA quarterly report: October–December 2012, to EPA and UDEQ. | Completed January 8, 2013. |
| DOE submittal of Calendar Year 2012 Water Use Report for Monticello Water Right 09-2347 to Utah Division of Water Rights. | Completed January 28, 2013. |
| Conduct monthly monitoring of ex situ groundwater treatment system. | Completed for January, February, and March 2013. |
| DOE submittal of the updated Monticello Information Repository and the Operable Unit III Administrative Record Indexes to EPA and UDEQ. | Completed February 14, 2013. |
| Replacement of Disposal Cell's LCRS vault 1 pump. | Completed February 21, 2013. |
| DOE submittal of Draft Proposed Approach to Restore the MMTS OU III Monitored Natural Attenuation Remedy to EPA and UDEQ. | Completed March 7, 2013. |
| Convene FFA Spring 2013 Semiannual Meeting. | Completed; meeting conducted via telephone conference call on March 19, 2013. |
| Near-Term: | |
| DOE submittal of FFA quarterly report: January–March 2013, to EPA and UDEQ. | DOE to submit by April 10, 2013. |
| Conduct spring 2012 OU III water quality and hydrologic monitoring. | Scheduled for week of April 22, 2013. |
| Conduct monthly monitoring of ex situ groundwater treatment system. | Next monitoring scheduled for week of April 22, 2013. |
| DOE follow-up to previously submitted Draft Proposed Approach to Restore the MMTS OU III Monitored Natural Attenuation Remedy to EPA and UDEQ. Deliverable (including scope, content, approach) or conference call, to be determined. | Scheduled for approximately mid-May 2013. |
| DOE will post past FFA quarterly reports to the Site's public website. | Scheduled for Spring 2013. |

Appendix A

Monthly and Quarterly Surveillance Checklists

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Repository Area Surveillance Checklist

X Monthly Surveillance N/A Quarterly Surveillance (Feb., May, Aug., Nov.)

N/A Storm Event Triggered Surveillance due to N/A 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> | <u>snow covered - mostly.</u> |
| Signs | <u>yes</u> | |
| Site monuments | <u>yes</u> | |
| Drainage ditches ^a | <u>yes</u> | <u>snow covered Right now.</u> |
| Manholes | <u>yes</u> | |
| Vegetation | <u>yes</u> | <u>snow covered.</u> |
| Evidence of erosion of: | | |
| Top of disposal cell ^a | <u>yes</u> | |
| Disposal cell sideslopes ^a | <u>yes</u> | |
| Ditches | <u>yes</u> | |
| Surrounding area | <u>yes</u> | |
| Evidence of: | | |
| Vandalism | <u>yes</u> | |
| Intrusion by livestock | <u>yes</u> | |
| Burrowing animal damage | <u>yes</u> | |
| Intrusion by humans | <u>yes</u> | |
| Accumulation of trash | <u>yes</u> | |

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: *Paul Smith*
 Monticello LM Representative

Date: 1-9-13

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

Figure 3-5. Example Repository Area Surveillance Checklist

Repository Area Surveillance Checklist

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

N/A Storm Event Triggered Surveillance due to 0 inches of rainfall over the past 24 hours.

| Inspection Item | Acceptable (Yes/No) | Comments and Recommendations |
|---------------------------------------|------------------------|--|
| Condition of: | | |
| Fences and gates | <u>yes</u> | <u>Minor repairs will be required when the area can be accessed.</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>yes</u> | |
| Disposal cell sideslopes ^a | <u>yes</u> | |
| Ditches | <u>yes</u> | |
| Surrounding area | <u>yes</u> | |
| Evidence of: | | |
| Vandalism | <u>yes</u> | |
| Intrusion by livestock | <u>yes</u> | |
| Burrowing animal damage | <u>yes</u> | |
| Intrusion by humans | <u>yes</u> | |
| Accumulation of trash | <u>yes</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>yes</u> | |
| Manholes ^b | <u>yes</u> | |
| Sediment Ponds | <u>yes</u> | |
| Evidence of: | | |
| Structural Instability | <u>yes</u> | |

Additional Comments

We need spring to come to the site to make minor repairs.

Signature [Signature] Monticello LM Representative Date 2-25-13

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

Figure 3-5. Example Repository Area Surveillance Checklist

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>yes</u> | _____ |
| Disposal cell sideslopes ^a | <u>yes</u> | _____ |
| Ditches | <u>yes</u> | _____ |
| Surrounding area | <u>yes</u> | _____ |
| Evidence of: | | |
| Vandalism | <u>yes</u> | _____ |
| Intrusion by livestock | <u>yes</u> | _____ |
| Burrowing animal damage | <u>yes</u> | _____ |
| Intrusion by humans | <u>yes</u> | _____ |
| Accumulation of trash | <u>yes</u> | _____ |

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

Rocky Mr. Power removed Brush and trees that were in their Right of Way This Month. They did a good job.

Signature *Fred Smith* _____ Date 3-21-13

Monticello LM Representative

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

Figure 3-5. Example Repository Area Surveillance Checklist

Monthly Pond 4 Surveillance Checklist

Level of Water in Pond 4 Ice & snow

| Inspection Item | Acceptable (Yes/No) | Comments & Recommendation |
|--------------------------------|---------------------|--|
| Condition of: | | |
| Fences, gates, and locks | <u>yes</u> | |
| Roads | <u>yes</u> | <u>snow covered no vehicle access.</u> |
| Signs | <u>yes</u> | |
| Visible piping | <u>yes</u> | |
| Visible liner and anchors | <u>yes</u> | |
| Rescue equipment | <u>yes</u> | <u>checked 1st/Box. Did not approach 2nd/Box due to snow conditions. no one has been in the area to change conditions.</u> |
| Evidence of erosion of: | | |
| Top of Pond 4 berm | <u>yes</u> | |
| Pond 4 sideslopes | <u>yes</u> | |
| Ditches | <u>yes</u> | <u>what can be seen, snow covered.</u> |
| Surrounding area | <u>yes</u> | |
| Seepage from Pond 4 | <u>yes</u> | |
| Overtopping of Pond 4 | <u>yes</u> | |
| Evidence of: | | |
| Vandalism | <u>yes</u> | |
| Intrusion by wildlife | <u>yes</u> | |
| Intrusion by humans | <u>yes</u> | |
| Accumulation of trash | <u>yes</u> | |

Additional Comments

Viewed pond 4 from 1st Life saver box. did not walk around pond due to snow depth and hazard of a slick liner. pond 4 looks good. no changes.

Monticello LM Representative [Signature] Date 1-9-13

Figure 3-6. Example Checklist for Monthly Pond 4 Surveillance

Monthly Pond 4 Surveillance Checklist

Level of Water in Pond 4 ice & snow

| Inspection Item | Acceptable (Yes/No) | Comments & Recommendation |
|--------------------------------|------------------------|---|
| Condition of: | | |
| Fences, gates, and locks | <u>yes</u> | |
| Roads | <u>yes</u> | <u>Some muddy locations, not fixed.</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>yes</u> | |
| Pond 4 sideslopes | <u>yes</u> | |
| Ditches | <u>yes</u> | |
| Surrounding area | <u>yes</u> | |
| Seepage from Pond 4 | <u>yes</u> | |
| Overtopping of Pond 4 | <u>yes</u> | |
| Evidence of: | | |
| Vandalism | <u>yes</u> | |
| Intrusion by wildlife | <u>yes</u> | |
| Intrusion by humans | <u>yes</u> | |
| Accumulation of trash | <u>yes</u> | |

Additional Comments
The pond and surrounding area has done well
through this portion of winter.

Monticello LM Representative [Signature] Date 2-20-13

Figure 3-6. Example Checklist for Monthly Pond 4 Surveillance

Monthly Pond 4 Surveillance Checklist

Level of Water in Pond 4 8" east end 10" west end. Melting snow water.

| Inspection Item | Acceptable (Yes/No) | Comments & Recommendation |
|--------------------------------|---------------------|---|
| Condition of: | | |
| Fences, gates, and locks | <u>yes</u> | _____ |
| Roads | <u>yes</u> | _____ |
| Signs | <u>yes</u> | <u>still legible but will replace 2 signs</u> |
| Visible piping | <u>yes</u> | <u>access is okay</u> |
| Visible liner and anchors | <u>yes</u> | _____ |
| Rescue equipment | <u>yes</u> | _____ |
| Evidence of erosion of: | | |
| Top of Pond 4 berm | <u>yes</u> | _____ |
| Pond 4 sideslopes | <u>yes</u> | _____ |
| Ditches | <u>yes</u> | _____ |
| Surrounding area | <u>yes</u> | _____ |
| Seepage from Pond 4 | <u>yes</u> | _____ |
| Overtopping of Pond 4 | <u>yes</u> | _____ |
| Evidence of: | | |
| Vandalism | <u>yes</u> | _____ |
| Intrusion by wildlife | <u>yes</u> | _____ |
| Intrusion by humans | <u>yes</u> | _____ |
| Accumulation of trash | <u>yes</u> | _____ |

Additional Comments
The pond and fencing has held up well around Pond 4.

Monticello LM Representative [Signature] Date 3-21-13

Figure 3-6. Example Checklist for Monthly Pond 4 Surveillance

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

Acceptable?

Yes / No

yes Was the gate locked upon arrival?

yes Are signs posted in accordance with Section 3.4.4?

yes Are all postings legible?

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

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

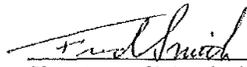
~4 cyd How much radiologically contaminated material is in the concrete bin? Note: the material should be shipped when the volume in storage approaches 75 percent of the storage capacity.

yes Is the surface area of the TSF in good physical condition (no erosion, no flood damage, no excessive vegetation growth, etc.)?

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

yes Is the security fence in good condition?

Comments: Approximately 4 cyd of soil has been placed in
the TSF as previously noted in other inspections.
The pump that was in LCRS #1 has been placed
in the TSF clam shell storage unit along with removal
debris from the pump change out.


Signature of Monticello LM Representative

2-25-13
Date of Inspection

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Appendix B
Climatological Summaries

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MONTHLY CLIMATOLOGICAL SUMMARY for JAN. 2013

NAME: UT Monticello CITY: STATE:
 ELEV: 7069 ft LAT: 37° 06' 00" N LONG: 109° 06' 00" W

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

| DAY | MEAN | | TIME | LOW | TIME | HEAT | COOL | RAIN | AVG | | TIME | DOM DIR |
|-------|------|------|--------|------|--------|----------|----------|------|-------|------|--------|---------|
| | TEMP | HIGH | | | | DEG DAYS | DEG DAYS | | SPEED | HIGH | | |
| 1 | 13.2 | 20.3 | 3:00p | 7.1 | 3:00a | 51.8 | 0.0 | 0.00 | 5.4 | 20.0 | 12:00p | NW |
| 2 | 16.2 | 26.5 | 12:30p | 6.7 | 8:00a | 48.8 | 0.0 | 0.00 | 6.4 | 19.0 | 9:30p | NNW |
| 3 | 15.8 | 24.0 | 3:30p | 8.7 | 9:30p | 49.2 | 0.0 | 0.00 | 5.3 | 18.0 | 5:30a | NNW |
| 4 | 13.6 | 27.6 | 3:30p | 4.1 | 3:30a | 51.4 | 0.0 | 0.00 | 1.6 | 8.0 | 12:00p | SSE |
| 5 | 19.0 | 32.9 | 2:30p | 9.9 | 12:30a | 46.0 | 0.0 | 0.01 | 2.7 | 8.0 | 4:30a | NW |
| 6 | 24.7 | 32.6 | 3:30p | 10.2 | 2:00a | 40.3 | 0.0 | 0.00 | 7.6 | 21.0 | 9:00a | SSW |
| 7 | 26.2 | 39.3 | 2:00p | 17.0 | 11:30p | 38.8 | 0.0 | 0.00 | 4.6 | 23.0 | 4:00p | NNW |
| 8 | 31.7 | 35.4 | 12:00p | 22.5 | 2:30a | 33.3 | 0.0 | 0.00 | 13.9 | 39.0 | 11:00a | NNW |
| 9 | 29.5 | 35.2 | 2:00p | 22.0 | 5:00a | 35.5 | 0.0 | 0.00 | 7.3 | 24.0 | 1:30p | S |
| 10 | 30.9 | 33.0 | 11:30a | 27.7 | 1:30a | 34.1 | 0.0 | 0.00 | 11.1 | 39.0 | 12:00m | SSW |
| 11 | 15.7 | 29.3 | 12:30a | 2.1 | 10:30p | 49.3 | 0.0 | 0.00 | 8.3 | 41.0 | 12:30a | SW |
| 12 | 6.6 | 15.5 | 12:30p | -0.3 | 2:30a | 58.4 | 0.0 | 0.00 | 2.8 | 9.0 | 2:30a | W |
| 13 | 6.9 | 12.3 | 12:30p | 0.9 | 12:00m | 58.1 | 0.0 | 0.00 | 4.1 | 15.0 | 9:30p | NNE |
| 14 | 4.3 | 9.5 | 1:30p | -3.2 | 6:30a | 60.8 | 0.0 | 0.00 | 11.4 | 24.0 | 4:00p | NNW |
| 15 | 10.3 | 18.5 | 3:30p | 0.6 | 6:00a | 54.7 | 0.0 | 0.00 | 11.5 | 28.0 | 1:00p | NNW |
| 16 | 24.2 | 34.4 | 4:30p | 9.5 | 9:00a | 40.8 | 0.0 | 0.00 | 7.6 | 24.0 | 12:30p | NNW |
| 17 | 25.3 | 40.2 | 3:00p | 14.8 | 9:00a | 39.7 | 0.0 | 0.00 | 2.1 | 9.0 | 4:30a | W |
| 18 | 27.9 | 40.6 | 2:00p | 19.0 | 3:00a | 37.1 | 0.0 | 0.00 | 3.5 | 13.0 | 8:00p | NNW |
| 19 | 29.2 | 42.5 | 2:30p | 19.4 | 3:30a | 35.8 | 0.0 | 0.00 | 4.1 | 11.0 | 12:30a | NNE |
| 20 | 27.9 | 39.2 | 4:30p | 17.0 | 7:00a | 37.1 | 0.0 | 0.00 | 5.2 | 19.0 | 3:30p | NW |
| 21 | 31.2 | 45.7 | 5:00p | 19.9 | 7:00a | 33.8 | 0.0 | 0.00 | 3.2 | 11.0 | 2:30a | NW |
| 22 | 32.8 | 44.9 | 3:30p | 25.7 | 4:30a | 32.2 | 0.0 | 0.00 | 2.9 | 8.0 | 8:00a | W |
| 23 | 30.4 | 37.9 | 3:30p | 22.9 | 7:30a | 34.6 | 0.0 | 0.00 | 3.8 | 12.0 | 11:30p | SSE |
| 24 | 35.3 | 42.1 | 11:30a | 30.1 | 8:00a | 29.7 | 0.0 | 0.00 | 2.9 | 18.0 | 5:30a | SSE |
| 25 | 35.1 | 37.6 | 1:30p | 33.0 | 4:00a | 29.9 | 0.0 | 0.01 | 4.6 | 17.0 | 3:30p | SSE |
| 26 | 34.6 | 36.5 | 6:30a | 32.9 | 7:00p | 30.4 | 0.0 | 0.63 | 6.2 | 19.0 | 12:00m | SSW |
| 27 | 35.0 | 39.6 | 3:30p | 30.4 | 7:30a | 30.0 | 0.0 | 0.28 | 9.9 | 28.0 | 5:00p | SSW |
| 28 | 27.7 | 35.4 | 12:30a | 17.3 | 12:00m | 37.3 | 0.0 | 0.03 | 9.7 | 29.0 | 1:00a | S |
| 29 | 17.6 | 23.0 | 3:00p | 12.9 | 3:30a | 47.4 | 0.0 | 0.00 | 14.4 | 29.0 | 8:30a | NNW |
| 30 | 22.0 | 30.8 | 4:30p | 10.8 | 5:30a | 43.0 | 0.0 | 0.00 | 4.8 | 17.0 | 6:00a | SSE |
| 31 | 29.4 | 39.7 | 3:30p | 19.4 | 6:30a | 35.6 | 0.0 | 0.00 | 3.5 | 16.0 | 2:30p | SSW |
| ----- | | | | | | | | | | | | |
| | 23.6 | 45.7 | 21 | -3.2 | 14 | 1284.9 | 0.0 | 0.96 | 6.2 | 41.0 | 11 | NNW |

Max >= 90.0: 0
 Max <= 32.0: 11
 Min <= 32.0: 29
 Min <= 0.0: 2
 Max Rain: 0.63 ON 01/26/13
 Days of Rain: 3 (>.01 in) 2 (>.1 in) 0 (>1 in)
 Heat Base: 65.0 Cool Base: 65.0 Method: Integration

MONTHLY CLIMATOLOGICAL SUMMARY for FEB, 2013

NAME: UT Monticello CITY: STATE:
 ELEV: 7069 ft LAT: 37° 06' 00" N LONG: 109° 06' 00" W

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

| DAY | MEAN | | TIME | LOW | TIME | HEAT | COOL | RAIN | AVG | | TIME | DOM |
|-------|------|------|--------|------|--------|--------|------|------|-------|------|--------|-----|
| | TEMP | HIGH | | | | DEG | DEG | | SPEED | HIGH | | DIR |
| 1 | 30.8 | 42.8 | 4:00p | 21.3 | 8:00a | 34.2 | 0.0 | 0.00 | 3.1 | 13.0 | 12:00p | SSE |
| 2 | 32.1 | 41.0 | 2:30p | 23.1 | 6:30a | 32.9 | 0.0 | 0.00 | 5.0 | 14.0 | 11:30a | NW |
| 3 | 31.0 | 38.4 | 2:00p | 22.8 | 10:30p | 34.0 | 0.0 | 0.00 | 2.2 | 13.0 | 8:30a | NE |
| 4 | 30.4 | 41.9 | 1:30p | 19.2 | 7:30a | 34.6 | 0.0 | 0.01 | 5.0 | 17.0 | 2:00p | NNE |
| 5 | 35.0 | 47.8 | 12:30p | 24.2 | 3:00a | 30.0 | 0.0 | 0.00 | 3.9 | 18.0 | 11:30p | NNE |
| 6 | 35.2 | 42.8 | 2:30p | 28.4 | 3:00a | 29.8 | 0.0 | 0.00 | 9.8 | 24.0 | 10:00p | SSW |
| 7 | 32.5 | 40.7 | 2:30p | 24.8 | 8:00a | 32.5 | 0.0 | 0.00 | 6.7 | 18.0 | 3:30p | SSW |
| 8 | 34.7 | 41.8 | 3:30p | 27.6 | 12:00m | 30.3 | 0.0 | 0.00 | 11.7 | 39.0 | 3:30p | SSW |
| 9 | 24.4 | 28.6 | 1:30a | 17.7 | 10:00p | 40.6 | 0.0 | 0.00 | 5.3 | 20.0 | 1:30a | S |
| 10 | 21.6 | 26.9 | 12:00p | 18.2 | 12:30a | 43.4 | 0.0 | 0.09 | 5.1 | 17.0 | 12:00p | SSE |
| 11 | 18.7 | 25.4 | 2:00p | 13.5 | 4:00a | 46.3 | 0.0 | 0.03 | 6.1 | 16.0 | 11:00p | NNW |
| 12 | 20.2 | 26.6 | 2:30p | 12.0 | 7:00a | 44.8 | 0.0 | 0.00 | 10.0 | 24.0 | 3:30a | NNW |
| 13 | 26.3 | 32.7 | 3:30p | 16.7 | 6:30a | 38.7 | 0.0 | 0.00 | 10.4 | 23.0 | 3:00p | NNW |
| 14 | 28.6 | 34.0 | 4:00p | 22.7 | 1:30a | 36.4 | 0.0 | 0.00 | 12.4 | 30.0 | 9:00a | NNW |
| 15 | 29.2 | 37.3 | 3:30p | 22.1 | 5:30a | 35.8 | 0.0 | 0.00 | 7.8 | 20.0 | 9:00a | N |
| 16 | 31.3 | 42.2 | 4:30p | 18.2 | 5:30a | 33.7 | 0.0 | 0.00 | 4.3 | 13.0 | 12:30p | SSE |
| 17 | 33.9 | 42.9 | 4:30p | 26.3 | 1:30a | 31.1 | 0.0 | 0.00 | 10.9 | 38.0 | 11:30p | S |
| 18 | 26.3 | 36.3 | 4:00p | 17.8 | 7:30a | 38.7 | 0.0 | 0.00 | 7.9 | 47.0 | 1:00a | SSE |
| 19 | 30.6 | 38.8 | 4:30p | 21.0 | 7:30a | 34.4 | 0.0 | 0.00 | 6.3 | 24.0 | 11:30a | SSW |
| 20 | 29.3 | 34.5 | 3:30p | 22.9 | 11:00p | 35.7 | 0.0 | 0.00 | 6.0 | 21.0 | 12:00p | SSW |
| 21 | 27.3 | 33.0 | 11:30a | 19.9 | 3:30a | 37.7 | 0.0 | 0.03 | 5.9 | 24.0 | 9:00a | NW |
| 22 | 23.0 | 28.2 | 3:30p | 15.3 | 11:30p | 42.0 | 0.0 | 0.00 | 11.5 | 30.0 | 12:30p | NNW |
| 23 | 22.3 | 31.8 | 2:30p | 13.8 | 3:00a | 42.7 | 0.0 | 0.00 | 12.1 | 34.0 | 7:00p | S |
| 24 | 18.8 | 23.3 | 5:00p | 8.8 | 7:00a | 46.2 | 0.0 | 0.00 | 18.2 | 37.0 | 12:00m | NNW |
| 25 | 26.4 | 36.1 | 5:00p | 19.0 | 6:30a | 38.6 | 0.0 | 0.00 | 9.6 | 36.0 | 1:00a | NNW |
| 26 | 23.8 | 27.9 | 3:30p | 18.5 | 12:00m | 41.2 | 0.0 | 0.00 | 15.6 | 43.0 | 10:30a | NNW |
| 27 | 23.6 | 30.7 | 3:00p | 16.6 | 7:00a | 41.4 | 0.0 | 0.00 | 11.4 | 24.0 | 4:00a | NNW |
| 28 | 28.6 | 37.0 | 3:00p | 19.4 | 7:00a | 36.4 | 0.0 | 0.00 | 10.0 | 28.0 | 5:00p | N |
| ----- | | | | | | | | | | | | |
| | 27.7 | 47.8 | 5 | 8.8 | 24 | 1044.1 | 0.0 | 0.16 | 8.4 | 47.0 | 18 | NNW |

Max >= 90.0: 0
 Max <= 32.0: 9
 Min <= 32.0: 28
 Min <= 0.0: 0
 Max Rain: 0.09 ON 02/10/13
 Days of Rain: 3 (>.01 in) 0 (>.1 in) 0 (>1 in)
 Heat Base: 65.0 Cool Base: 65.0 Method: Integration

MONTHLY CLIMATOLOGICAL SUMMARY for MAR. 2013

NAME: UT Monticello CITY: STATE:
 ELEV: 7069 ft LAT: 37° 06' 00" N LONG: 109° 06' 00" W

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

| DAY | MEAN TEMP | HIGH | TIME | LOW | TIME | HEAT DEG | COOL DEG | RAIN | AVG WIND SPEED | HIGH | TIME | DOM DIR |
|-------|-----------|------|--------|------|--------|----------|----------|------|----------------|------|--------|---------|
| 1 | 36.2 | 43.3 | 2:30p | 28.0 | 7:30a | 28.8 | 0.0 | 0.00 | 12.7 | 30.0 | 8:30a | NNW |
| 2 | 40.9 | 54.6 | 4:00p | 31.0 | 3:30a | 24.1 | 0.0 | 0.00 | 4.7 | 15.0 | 9:00a | NNW |
| 3 | 41.6 | 49.0 | 4:30p | 36.6 | 9:30a | 23.4 | 0.0 | 0.00 | 7.2 | 26.0 | 1:00p | SSW |
| 4 | 37.0 | 46.1 | 3:00p | 26.5 | 11:30p | 28.0 | 0.0 | 0.00 | 7.2 | 30.0 | 2:30p | NNW |
| 5 | 35.9 | 47.9 | 4:30p | 20.6 | 4:30a | 29.1 | 0.0 | 0.00 | 7.4 | 24.0 | 1:30p | S |
| 6 | 42.3 | 52.2 | 3:30p | 34.0 | 2:30a | 22.7 | 0.0 | 0.00 | 8.3 | 28.0 | 4:00p | SSW |
| 7 | 42.6 | 54.5 | 4:30p | 30.3 | 6:00a | 22.4 | 0.0 | 0.00 | 7.7 | 29.0 | 4:00p | SSE |
| 8 | 34.1 | 39.2 | 2:30a | 30.1 | 12:00m | 30.9 | 0.0 | 0.28 | 9.1 | 32.0 | 8:00a | S |
| 9 | 27.4 | 31.4 | 4:00p | 23.8 | 6:00a | 37.6 | 0.0 | 0.06 | 13.2 | 34.0 | 6:00p | S |
| 10 | 30.2 | 37.9 | 5:30p | 22.5 | 7:30a | 33.3 | 0.0 | 0.00 | 17.2 | 35.0 | 6:30a | NNW |
| 11 | 36.1 | 45.2 | 5:30p | 25.7 | 5:30a | 28.9 | 0.0 | 0.00 | 9.2 | 31.0 | 2:30p | NNW |
| 12 | 41.2 | 49.7 | 5:00p | 34.8 | 12:30a | 23.8 | 0.0 | 0.00 | 8.6 | 23.0 | 11:00a | N |
| 13 | 44.6 | 56.0 | 4:30p | 35.3 | 4:30a | 20.4 | 0.0 | 0.00 | 5.7 | 17.0 | 3:00p | NW |
| 14 | 50.4 | 65.8 | 5:30p | 37.1 | 6:00a | 14.6 | 0.0 | 0.00 | 4.0 | 25.0 | 2:00p | NNE |
| 15 | 51.8 | 64.8 | 4:00p | 41.9 | 6:30a | 13.2 | 0.0 | 0.00 | 6.2 | 23.0 | 12:30p | S |
| 16 | 47.3 | 55.1 | 3:00p | 40.0 | 12:00m | 17.7 | 0.0 | 0.00 | 6.3 | 32.0 | 1:30p | NNW |
| 17 | 43.8 | 52.5 | 3:00p | 34.3 | 11:30p | 21.2 | 0.0 | 0.00 | 11.7 | 34.0 | 6:30p | NNW |
| 18 | 40.0 | 50.7 | 5:30p | 32.8 | 7:30a | 25.0 | 0.0 | 0.00 | 9.8 | 31.0 | 9:00a | NNW |
| 19 | 40.2 | 47.9 | 5:00p | 32.7 | 11:00p | 24.8 | 0.0 | 0.00 | 7.8 | 28.0 | 4:30p | NNW |
| 20 | 40.7 | 49.0 | 6:00p | 31.0 | 5:00a | 24.3 | 0.0 | 0.00 | 6.7 | 25.0 | 12:00p | SW |
| 21 | 42.0 | 49.6 | 11:30a | 32.0 | 9:30p | 23.0 | 0.0 | 0.00 | 11.4 | 41.0 | 3:30p | NNW |
| 22 | 37.5 | 50.5 | 3:30p | 26.0 | 12:00m | 27.5 | 0.0 | 0.00 | 11.6 | 40.0 | 6:00p | NNW |
| 23 | 23.3 | 30.6 | 3:00p | 17.7 | 7:30a | 41.7 | 0.0 | 0.00 | 13.7 | 38.0 | 10:00a | NNW |
| 24 | 25.8 | 35.9 | 3:00p | 16.4 | 6:30a | 39.2 | 0.0 | 0.00 | 6.9 | 28.0 | 3:00p | N |
| 25 | 19.7 | 22.9 | 12:30a | 18.0 | 7:00a | 13.2 | 0.0 | 0.00 | 1.9 | 6.0 | 2:30a | NW |
| 26 | | | | | | | | | | | | |
| 27 | | | | | | | | | | | | |
| 28 | | | | | | | | | | | | |
| 29 | | | | | | | | | | | | |
| 30 | | | | | | | | | | | | |
| 31 | | | | | | | | | | | | |
| ----- | | | | | | | | | | | | |
| | 38.1 | 65.8 | 14 | 16.4 | 24 | 638.8 | 0.0 | 0.34 | 8.6 | 41.0 | 21 | NNW |

Max >= 90.0: 0
 Max <= 32.0: 3
 Min <= 32.0: 15
 Min <= 0.0: 0
 Max Rain: 0.28 ON 03/08/13
 Days of Rain: 2 (>.01 in) 1 (>.1 in) 0 (>1 in)
 Heat Base: 65.0 Cool Base: 65.0 Method: Integration

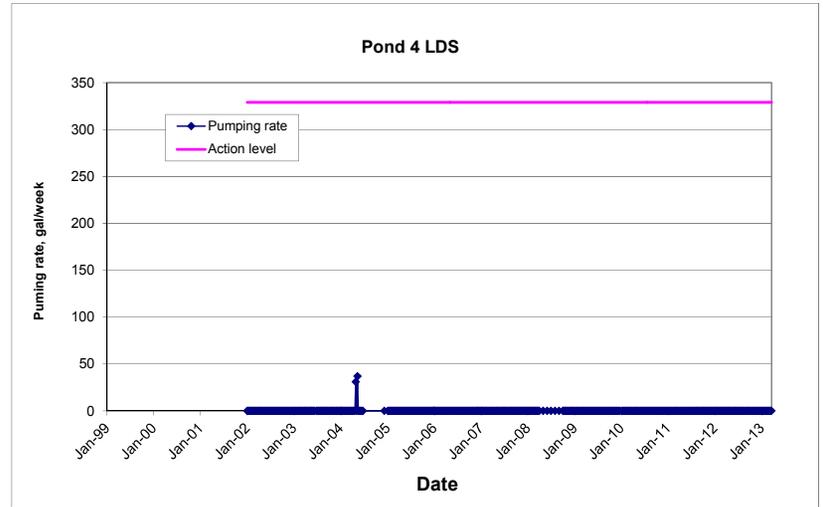
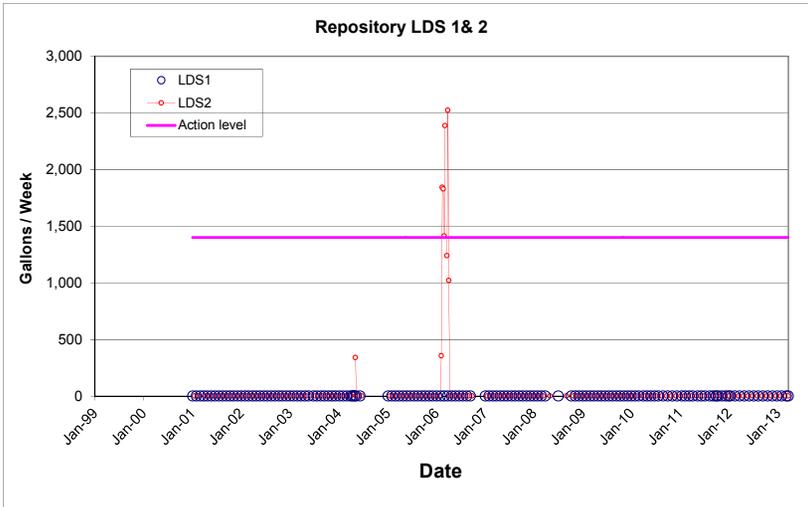
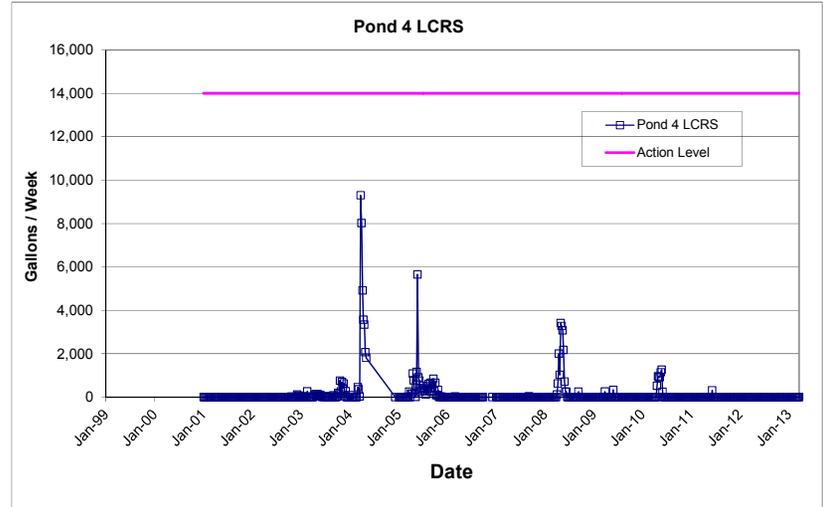
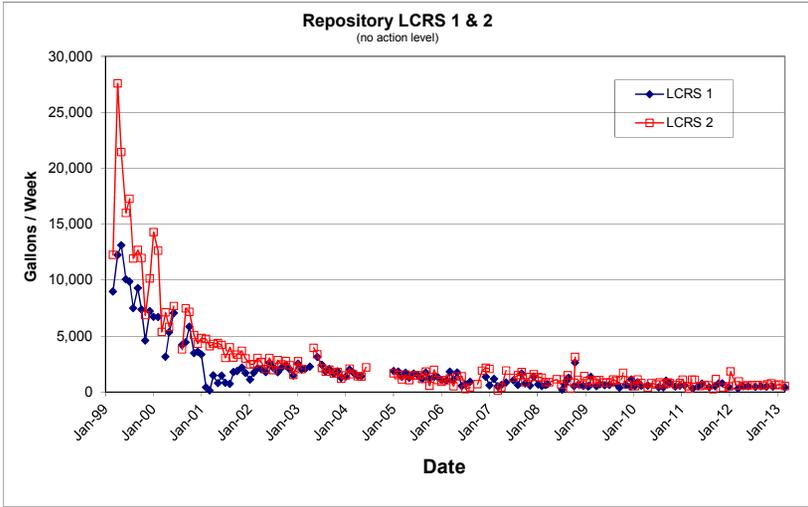
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Appendix C

Graphs Showing Performance History for Repository and Pond 4 Leachate Collection and Recovery System and Leak Detection System

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



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