

**Monticello, Utah, National
Priorities List Sites
Federal Facility Agreement
(FFA) Quarterly Report:
July 1–September 30, 2015**

October 2015



U.S. DEPARTMENT OF
ENERGY

Legacy
Management

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Abbreviations

AOA	Area of Attainment
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
DOE	U.S. Department of Energy
EPA	U.S. Environmental Protection Agency
FFA	Federal Facility Agreement
gpm	gallons per minute
ICs	institutional controls
LCRS	Leachate Collection and Removal System
LDS	Leak Detection System
LM	Office of Legacy Management
LTS&M	long-term surveillance and maintenance
LTS&M Plan	<i>Long-Term Surveillance and Maintenance Plan for the Monticello NPL Sites</i>
µg/L	microgram per liter
MMTS	Monticello Mill Tailings Site
MVP	Monticello Vicinity Properties
NPL	National Priorities List
OU	Operable Unit
PRB	permeable reactive barrier
TSF	Temporary Storage Facility
UDEQ	Utah Department of Environmental Quality
UDOT	Utah Department of Transportation
ZVI	zero-valent iron

1.0 Introduction

The U.S. Department of Energy (DOE) Office of Legacy Management (LM) submits this quarterly report to inform the U.S. Environmental Protection Agency (EPA) and Utah Department of Environmental Quality (UDEQ) of the status of the Monticello Vicinity Properties (MVP) and the Monticello Mill Tailings Site (MMTS) (the LM Monticello, Utah, Disposal and Processing Sites) for the period of July through September 2015. The MVP and MMTS are regulated under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). Quarterly reports are submitted to EPA and UDEQ in January (for October through December), April (January through March), July (April through June), and October (July through September).

LM assesses MVP and MMTS conditions and remedy protectiveness through (1) inspections (monthly, quarterly, and annually) of site infrastructure and operations as specified under the *Long-Term Surveillance and Maintenance Plan for the Monticello NPL Sites* (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 and Ground Water, Monticello, Utah, May 2004*, and (3) CERCLA five-year reviews.

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

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

1.1 Quarterly Site Status

- The 2015 annual site inspection was conducted in September 2015. In general, the site is well maintained and in good condition. No maintenance items or need for a follow-up inspection were identified. LM will prepare a separate annual inspection report for this activity.
- As reported in the last quarterly report, a system failure (break in a check valve) occurred on May 31, 2015, in the Groundwater Transfer Building, the control building of the OU III groundwater contingency remedy optimization system, and necessitated a system shutdown. After repairs and design improvements were implemented, phased system operation began on July 21, 2015, and the system resumed full-scale, continuous operation on July 27, 2015. Other than a planned shutdown to facilitate sample collection at the system's monitoring wells in August, the system has run continuously since July 27.
- Routine surveillance noted no anomalous conditions for the MVP remedy.

- Routine surveillance noted no violations of MMTS institutional controls (ICs) regarding land- and groundwater-use restrictions.
- Routine surveillance noted no anomalous operating conditions for the repository Leachate Collection and Removal Systems (LCRS) and Leak Detection System (LDS).
- Routine surveillance noted no anomalous conditions for the surface features of the disposal cell and Pond 4.
- As reported in the last quarterly report, operation of the OU III groundwater contingency remedy optimization system has resulted in increased water collection in the Pond 4 LCRS. The LCRS is functional in recirculating water; however, the leakage rate exceeded the action level during the quarter (see Appendix B for graphs of leakage rates). DOE notified EPA and UDEQ of the exceedances on May 22, 2015.
- As reported in the last quarterly report, operation of the OU III groundwater contingency remedy optimization system has resulted in increased water collection in the Pond 4 LDS. The LDS is functional in recirculating water. The action level leakage rate was not exceeded during the quarter (see Appendix B for graphs of leakage rates).

2.0 Monticello Vicinity Properties

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

- LM representatives continued to coordinate with City of Monticello officials in daily planning meetings regarding construction and excavation activities by the City, UDOT, and utility companies in roadway and utility corridors. The City of Monticello made significant improvements to roadways during this quarter. LM has followed and will continue to follow normal LTS&M protocol to provide radiological control in the affected roadways.
- There were no planned or unplanned excavations in City of Monticello street or utility corridors where radiologically contaminated material was encountered that exceeded LTS&M threshold criteria.
- Neither excessive erosion nor unauthorized excavations were observed at the Highway 191 embankment at Montezuma Creek (supplemental standards property).
- Surveillance of property MS-00176-VL identified no excessive erosion of supplemental standards material or violation of the land-use restriction.

3.0 Monticello Mill Tailings Site

LTS&M activities for the MMTS consist of (1) maintaining the onsite disposal cell and operating the associated leachate collection and leak detection systems for the repository and Pond 4, (2) surveillance of properties affected by groundwater- and land-use ICs on the former mill site and peripheral properties, and (3) operation and maintenance of the OU III groundwater remediation system.

3.1 Operable Unit I

OU I consists of the property of the former Monticello mill (mill site) and the waste disposal facility (repository). Solid wastes were removed from the MVP, mill site, and peripheral properties (OU II) and encapsulated at the repository as a remedial action that was completed in 1999. LM owns and manages the repository; the City of Monticello owns the former mill site and manages it as a public park.

3.1.1 Repository

Monthly, quarterly, and annual inspections of the repository ensure that remedy controls remain intact and that the waste remains isolated from the environment. Inspection observations and maintenance activities for the quarter are:

- No anomalous conditions were observed at the repository with respect to the surveillance items included in the LTS&M repository area surveillance checklists for the disposal cell and Pond 4 (attached for this quarter in Appendix A).
- Leachate production from the repository was about 700 gallons per week combined for LCRS sumps LCRS 1 and LCRS 2. See Appendix B for a graphical depiction of leachate production history.
- Operation of the OU III groundwater contingency remedy optimization system has resulted in increased water collection in the Pond 4 LCRS and LDS. Water collection at the Pond 4 LCRS slightly exceeded the action level during the quarter. The action level at the Pond 4 LDS did not exceed the action level during the quarter. The LCRS and LDS monitoring and pumping systems are functional. Appendix B provides a graph summarizing Pond 4 LCRS and LDS performance.
- LM notified EPA and UDEQ of the Pond 4 action level exceedances during the last quarter and will review the action levels for relevance to current site conditions for future discussion with these agencies.

3.1.2 Temporary Storage Facility

Routine surveillance of the Temporary Storage Facility (TSF) ensures that maintenance and radiological controls that govern access to, and placement, storage, and transfer of, contaminated material in the TSF are current and effective. No anomalous conditions were observed for the TSF (see the surveillance checklist attached for this quarter in Appendix A).

Only minor quantities of investigative-derived waste (generated during the Seep 6 soil sampling in September 2015) were placed in the TSF during the quarter. The inventory of contaminated material in the TSF remains at approximately 25 cubic yards. Approximately 4 cubic yards of the contaminated material derives from street and utility excavations from previous quarters. Radiologically contaminated material from supplemental standards properties has not been placed in the TSF since 2011. Approximately 21 cubic yards of the material in the TSF derives from maintenance and repairs to Pond 4 in August 2013. Ballasts that were removed from Pond 4 in 2013 were radiologically scanned during July 2015, and when appropriate, unrestricted released for disposal at the city of Monticello landfill.

LM initiates the transfer of TSF materials for permanent disposal at the LM Grand Junction, Colorado, Disposal Site when the contents reach 75 cubic yards. TSF materials were last transferred to the Grand Junction disposal site in June 2010.

3.1.3 Former Mill Site

LM conducts surveillance of the former mill site (properties MP-00181-VL and MS-00893-VL) to ensure compliance with ICs that were implemented to preserve the OU I remedy for soil and groundwater. The ICs applicable to the former mill site are no installation of domestic-use wells in the alluvial aquifer, no construction of habitable structures, no camping, and preserving the properties as a public park for day-use recreation.

Surveillance results for this quarter are:

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

3.2 Operable Unit II

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

Surveillance results for this quarter are:

- Montezuma Creek Restrictive Easement Area (supplemental standards properties, both City-owned and privately owned): No evidence of nonconformance with land-use restrictions (no soil removal or construction of habitable structures in supplemental standards areas) was observed.
- Groundwater-use restrictions (no installation of domestic-use wells in the alluvial aquifer) were applied to several OU II properties under the 2004 covenant by which DOE transferred selected properties to the City of Monticello. No evidence of nonconformance with this restriction was observed during the quarter.
- Property MS-00211-VL (City-owned): No evidence of nonconformance with the land-use restriction on building construction was observed.
- Pinyon-juniper supplemental standards properties (City-owned): No evidence of nonconformance with land- and groundwater-use restrictions was observed.
- No storm events exceeding 2.8 inches of rain in a 24-hour period occurred to require nonroutine surveillance of supplemental standards cleanup properties. Appendix C provides climatological data for the quarter.

3.3 Operable Unit III

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

Groundwater remediation efforts at OU III include (1) monitored natural attenuation with institutional controls, (2) treatment by a zero-valent iron (ZVI) in situ permeable reactive barrier (PRB), (3) pump-and-treat remediation using ex situ ZVI treatment, and (4) pump-and-treat by evaporation that was implemented as the groundwater contingency remedy optimization system in January 2015.

3.3.1 Groundwater Restricted Area/Institutional Controls

During spring and fall, LM conducts surveillance of properties where groundwater contamination is present to ensure compliance with the groundwater-use restriction (no installation of domestic-use wells in the alluvial aquifer). The affected OU III properties constitute the Monticello Groundwater Restricted Area, as defined and administered by the State of Utah Division of Water Rights. Surveillance results are:

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

3.3.2 Permeable Reactive Barrier

The permeable reactive barrier was installed in 1999 as a technology demonstration project. The PRB is now considered a hydraulic barrier to groundwater flow because of internal mineral accumulation and serves as the downgradient boundary of a focused remediation effort in the Area of Attainment (AOA) (see Section 3.3.4). Decommissioning the PRB is dependent on remediation progress in the AOA.

3.3.3 Ex Situ Remediation System

An ex situ pump-and-treat groundwater remediation system (see Section 3.3.4) was installed in May 2005 as a technology demonstration project. This system is located approximately 600 feet east of the former mill site on private property. The system operated using a single extraction well and two aboveground ZVI-based treatment vessels.

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

The OU III groundwater remedy optimization system replaces the ex situ treatment system as the active groundwater contingency remedy remediation component for OU III. The contingency remedy optimization is consistent in concept with the Record of Decision and the Explanation of Significant Difference (January 2009). The decommissioning/closure strategy for the ex situ system is yet to be determined.

3.3.4 OU III Groundwater Contingency Remedy Optimization System

The OU III groundwater contingency remedy optimization system began full operation in February 2015 in the AOA described in *Final Groundwater Contingency Remedy Optimization*

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 pipeline for about 1 mile to Pond 4 for evaporative treatment. Sixteen new monitoring wells were also installed in the AOA.

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

3.3.4.1 Quarterly Performance Summary

- As reported last quarter, system repairs and improvements (including the installation of a redundant fail-safe component) were made following the unplanned shutdown of the OU III contingency groundwater remedy optimization system on May 31, 2015. The shutdown was necessary to repair a system failure (break in a check valve) in the Groundwater Transfer Building. Phased system operation began on July 21, 2015, and the system resumed full-scale, continuous operation on July 27. Other than a planned shutdown to facilitate sample collection at the system's monitoring wells in August, the system has run continuously since July 27. Typical flow rates are between about 15 and 20 gallons per minute (gpm).
- Construction warranty work continued to repair flow meters in the Groundwater Transfer Building during this quarter.
- The revegetation of land disturbed by the construction of the treatment system occurred this quarter.
- Table 1 shows treatment volumes and rates for the quarter and cumulatively.
- As documented in the latest annual groundwater report (pending release in October 2015), concentrations of uranium in the AOA have decreased by about 200 micrograms per liter ($\mu\text{g/L}$) at many monitoring well locations from baseline concentrations of about 700 to 1,000 $\mu\text{g/L}$.
- Water-quality monitoring consisted of:
 - Monthly analysis of the transfer tank effluent to Pond 4 (July, August, and September 2015).
 - Analysis of extraction well effluent to the transfer tank for operational purposes.
 - Analysis of groundwater samples collected at AOA monitoring wells on August 17–18, 2015 (at approximately 4 million gallons of water extracted cumulatively since system start-up in January 2015).
- Table 2 provides the estimated mass of uranium removed from groundwater in the AOA.

Table 1. OU III Remedy Optimization Treatment Volumes and Rates: Calendar Month and Cumulative

Calendar Month	Approximate Volume Pumped ^a (gallons)	Effective Pumping Rate ^b (gpm)	Approximate Cumulative Volume (million gallons)
July 2015	707,300	4.6	3.5
August 2015	732,500	16.4	4.2
September 2015	956,000	22.1	5.2

Notes:

^a Total pumped from all eight extraction wells.

^b Includes system downtime during month.

Table 2. Uranium Mass Removal from Groundwater in the AOA

Tank Effluent Sample Date	Uranium Concentration (micrograms per liter)	Volume Removed Between Tank Samples (gallons)	Uranium Removed (pounds) ^a	Cumulative Mass Uranium Removed (pounds)
May 7, 2015	792	–	–	19.9
July 30, 2015	1,061	641,500	5.0	24.9
August 27, 2015	589	624,959	4.3	29.2
September 24, 2015	519	919,292	4.2	33.4

Notes:

^a Based on median concentration between sampling dates.

Monitoring and reporting guidelines are described in *Final Groundwater Contingency Remedy Optimization Remedial Design/Remedial Action Work Plan for the Monticello Mill Tailings Site Operable Unit III, Monticello, Utah, May 2014*. Analysis of water quality trending toward meeting remediation goals in the AOA is beyond the scope of the FFA quarterly report but is documented in annual groundwater reports.

4.0 Schedule of Activities and Deliverables

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

Table 3. Recent and Near-Term Activities and Deliverables

Activity/Deliverable	Schedule
Recent	
Water-quality monitoring at 16 AOA monitoring wells: 4 million gallons pumped cumulatively since system start-up in January 2015.	Completed August 17–18, 2015.
DOE submittal of final <i>Site Management Plan</i> , Section 5.0, Annual Update to EPA and UDEQ (penalty milestone).	Final submitted to EPA and UDEQ on August 26, 2015. DOE is awaiting acceptance letter.
Conducted 2015 annual site inspection.	Week of September 21, 2015.
Performed Seep 6 soil sampling for uranium concentrations as recommended by the Utah Department of Health.	September 29, 2015.
Revegetate land disturbed by construction of groundwater remedy optimization system and the potable water line replacement.	July 2015.
Semiannual FFA meeting. (Monthly meetings and updates pertaining to the construction of the remedy optimization system were discontinued by agreement effective March 24, 2015).	Teleconference held July 23, 2015.
Near-Term	
Perform semiannual OU III groundwater and surface water monitoring.	October 2015.
Perform water-quality monitoring at 16 AOA monitoring wells when 5 million gallons cumulatively pumped since system start-up in January 2015 is achieved.	October 2015.
DOE submittal of OU III Annual Groundwater Report.	Submit to EPA and UDEQ in late October 2015.
DOE submittal of draft <i>OU III Groundwater Contingency Remedy Optimization System Construction Remedial Action Completion Report</i> to EPA and UDEQ for review.	Submit to EPA and UDEQ in late October 2015.
ZVI removal from ex situ treatment cells and waste removal from TSF for haul and disposal at LM Grand Junction, Colorado, Disposal Site.	November 2015.
DOE submittal of 2015 Annual Inspection Report (penalty milestone).	Submit to EPA and UDEQ by December 31, 2015.
DOE submittal of FFA quarterly report: October–December 2015.	Submit to EPA and UDEQ in January 2016.

Appendix A

Monthly and Quarterly Surveillance Checklists

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U.S. Department of Energy Office of Legacy Management

Repository Area Surveillance Checklist

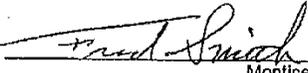
Monthly surveillance Quarterly surveillance: February May August November
 Storm event triggered surveillance due to _____ inches of rainfall over the past 24 hours.

Inspection Item	Acceptable		Comments and Recommendation
	Yes	No	
Condition of:			
Fences, gates, and locks	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Roads ^a	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Road to the GWTB is rutted and eroded.
Signs	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Will repair in Oct. after monsoonal rains.
Site monuments	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Drainage ditches ^a	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Manholes	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Vegetation	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Evidence of erosion of:			
Top of disposal cell ^a	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Disposal cell sideslopes ^a	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Ditches	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Surrounding area	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Evidence of:			
Vandalism	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Intrusion by livestock	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Burrowing animal damage	<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 Quarterly Surveillance Requirements
 Note: All transects, shown in Figure 3-1, must be walked during this inspection.

Condition of:			
Settlement plate structures	<input type="checkbox"/>	<input type="checkbox"/>	
Manholes ^b	<input type="checkbox"/>	<input type="checkbox"/>	
Sediment ponds	<input type="checkbox"/>	<input type="checkbox"/>	
Evidence of:			
Structural instability	<input type="checkbox"/>	<input type="checkbox"/>	

Additional comments:

Signature:  Date: 7-30-15
 Monticello LM Representative

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

Repository Area Surveillance Checklist

- Monthly surveillance
 Quarterly surveillance:
 February
 May
 August
 November
 Storm event triggered surveillance due to N/A inches of rainfall over the past 24 hours.

Inspection Item	Acceptable		Comments and Recommendation
	Yes	No	
Condition of:			
Fences, gates, and locks	<input checked="" type="checkbox"/>	<input type="checkbox"/>	_____
Roads ^a	<input checked="" type="checkbox"/>	<input type="checkbox"/>	_____
Signs	<input checked="" type="checkbox"/>	<input type="checkbox"/>	_____
Site monuments	<input checked="" type="checkbox"/>	<input type="checkbox"/>	_____
Drainage ditches ^a	<input checked="" type="checkbox"/>	<input type="checkbox"/>	_____
Manholes	<input checked="" type="checkbox"/>	<input type="checkbox"/>	_____
Vegetation	<input checked="" type="checkbox"/>	<input type="checkbox"/>	_____
Evidence of erosion of:			
Top of disposal cell ^a	<input checked="" type="checkbox"/>	<input type="checkbox"/>	_____
Disposal cell sideslopes ^a	<input checked="" type="checkbox"/>	<input type="checkbox"/>	_____
Ditches	<input checked="" type="checkbox"/>	<input type="checkbox"/>	_____
Surrounding area	<input checked="" type="checkbox"/>	<input type="checkbox"/>	_____
Evidence of:			
Vandalism	<input checked="" type="checkbox"/>	<input type="checkbox"/>	_____
Intrusion by livestock	<input checked="" type="checkbox"/>	<input type="checkbox"/>	_____
Burrowing animal damage	<input checked="" type="checkbox"/>	<input type="checkbox"/>	_____
Intrusion by humans	<input type="checkbox"/>	<input checked="" type="checkbox"/>	North of the repository just inside our fenceline someone has cut and layed down some rabbit brush. A No Hunting sign was installed on a tee post at that location. An existing No Hunting sign was within 30-feet of the location.
Accumulation of trash	<input checked="" type="checkbox"/>	<input type="checkbox"/>	_____

Additional Quarterly Surveillance Requirements

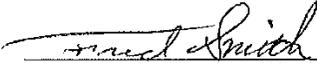
Note: All transects, shown in Figure 3-1, must be walked during this inspection.

Condition of:			
Settlement plate structures	<input checked="" type="checkbox"/>	<input type="checkbox"/>	_____
Manholes ^b	<input checked="" type="checkbox"/>	<input type="checkbox"/>	_____
Sediment ponds	<input checked="" type="checkbox"/>	<input type="checkbox"/>	_____
Evidence of:			
Structural instability	<input checked="" type="checkbox"/>	<input type="checkbox"/>	_____

Additional comments:

The site looks very good. We have had plenty of moisture this year and the vegetation has responded well. Empire Electric has installed locks within our locks so they can access electrical areas that are of their concern.

Title (continued)

Signature: 
Monticello LM Representative

Date: 8-27-15

^aInspections required following a significant storm event

^bOpen to inspect quarterly

Monthly Pond 4 Surveillance Checklist

Level of water in Pond 4 ~ 3.8 Feet

Inspection Item	Acceptable		Comments and Recommendation
	Yes	No	
Condition of:			
Fences, gates, and locks	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<u>new welded wire fabric added to the bottom of the pond 4 fence.</u>
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"/>	<u>received new life jackets.</u>
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 new fencing was added to keep smaller animals from getting into pond 4.

Monticello LM Representative: *Frank Smith* Date: 7-30-15

Monthly Pond 4 Surveillance Checklist

Level of water in Pond 4 ~ 4-feet

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"/>	Rescue type signs ordered for the cabinets.
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: Additional fencing has been placed on the outside and bottom of the existing fence to help keep smaller animals out of the pond area. The bottom fence is 2 X 4-inch welded wire fabric.

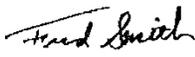
Monticello LM Representative: *Frank Smith* Date: 08/27/2015

Monthly Pond 4 Surveillance Checklist

Level of water in Pond 4 ~ 4.8 feet

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"/>	Ring buoys have been placed on each side.
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 annual inspection occurred this month. The Pond 4 area passed inspection.

Monticello LM Representative:  Fred L. Smith
 2015.09.30 12:52:01 -06'00' Date: _____

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.)?

~12 yds 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:

Material in TSF At time of Inspection
Couple Piles of Soil + Rock, Plastic sheeting (2) Bags
with Bush Branches + Roots.

Anthony Martin
Signature of Monticello LM Representative

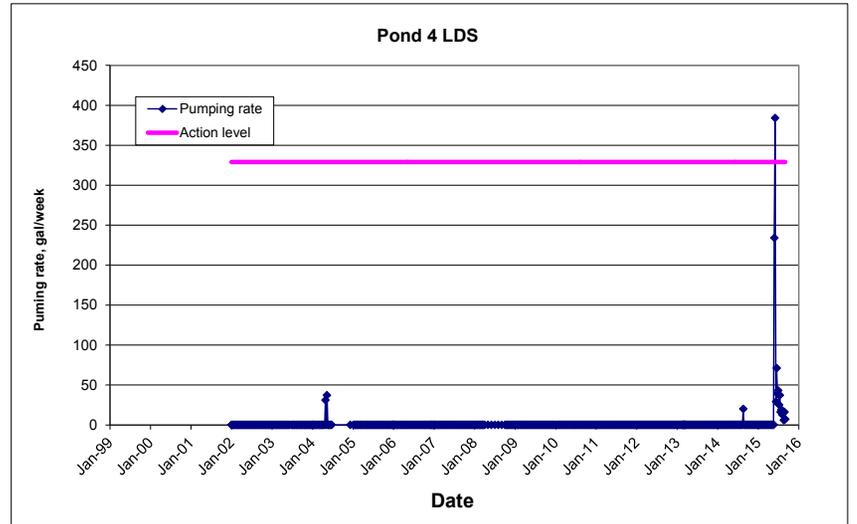
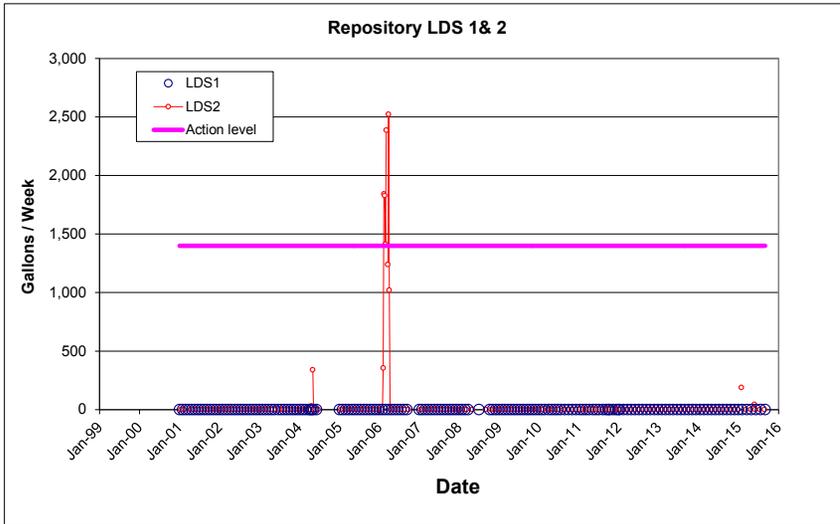
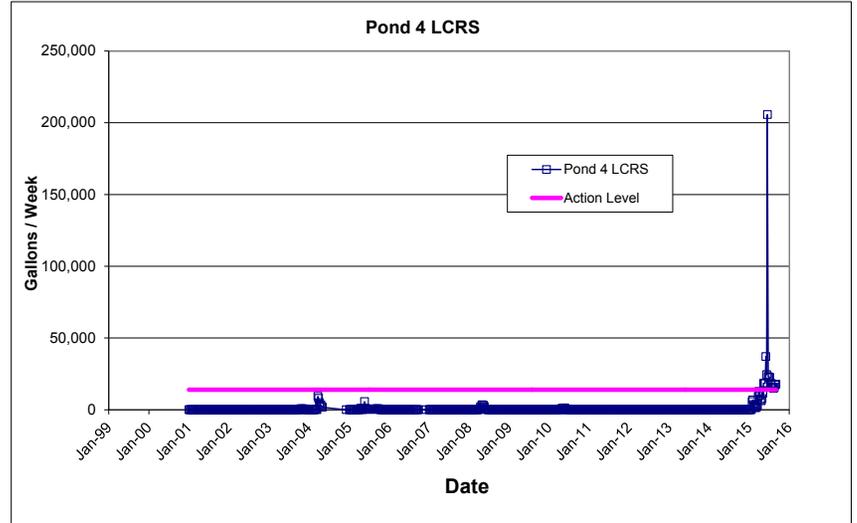
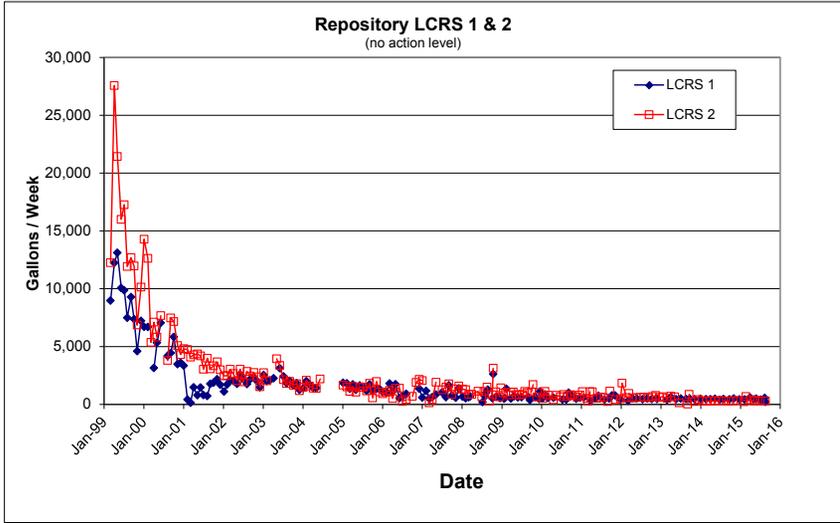
8/12/15
Date of Inspection

Appendix B

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

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



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Appendix C

Monthly Climatological Summaries for the Quarter

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MONTHLY CLIMATOLOGICAL SUMMARY for JUL. 2015

NAME: Monticello Office CITY: STATE:
 ELEV: 0 ft LAT: LONG:

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

DAY	MEAN		TIME	LOW	TIME	HEAT	COOL	RAIN	AVG		TIME	DOM
	TEMP	HIGH				DEG	DEG		WIND	HIGH		
1	78.3	90.4	5:00p	65.3	7:00a	0.0	13.3	0.00	4.1	18.0	4:30p	NW
2	73.4	88.0	6:00p	60.6	6:00a	0.7	9.1	0.20	3.6	21.0	6:30p	NNE
3	70.2	81.4	2:30p	58.4	6:30a	0.8	6.0	0.00	6.4	23.0	10:00a	SSW
4	70.8	84.1	5:30p	59.0	12:00m	1.2	6.9	0.18	6.1	28.0	5:00a	SW
5	63.6	72.6	6:00p	57.4	9:30p	3.1	1.6	0.61	3.9	26.0	9:30p	E
6	66.0	76.0	3:00p	57.8	1:00a	1.5	2.4	0.01	6.0	27.0	5:30p	NW
7	60.7	68.9	12:00p	55.2	11:30p	4.6	0.3	0.86	2.9	22.0	11:00p	NNE
8	58.6	67.0	11:30a	52.8	6:30a	6.5	0.1	0.14	1.8	29.0	11:30a	WSW
9	58.4	71.0	2:00p	51.5	2:30a	7.2	0.6	0.06	6.9	33.0	3:30p	S
10	60.3	71.9	5:00p	49.2	5:00a	5.7	1.0	0.06	5.5	23.0	9:30a	SSW
11	63.2	74.8	7:00p	51.8	4:30a	4.0	2.3	0.02	4.2	23.0	10:00a	W
12	65.7	78.1	4:00p	53.8	5:30a	3.6	4.3	0.14	4.9	25.0	3:00p	S
13	66.2	78.8	6:30p	53.1	5:00a	2.8	4.0	0.01	5.3	22.0	12:00p	SSW
14	63.6	74.9	3:30p	55.0	9:00p	3.0	1.5	0.23	5.3	32.0	8:30p	S
15	62.4	73.6	2:00p	53.1	5:00a	3.9	1.3	0.12	4.6	24.0	8:00p	SSE
16	67.4	78.6	6:00p	52.2	6:30a	2.5	4.9	0.00	5.0	20.0	5:00p	W
17	70.3	80.4	5:00p	60.6	12:30a	0.7	6.0	0.00	6.5	23.0	1:00p	WSW
18	64.0	73.9	5:00p	56.2	11:00a	3.0	2.0	0.10	7.0	32.0	9:00p	S
19	61.0	71.0	6:30p	54.2	5:00a	4.8	0.8	0.05	1.8	14.0	11:30a	N
20	65.0	78.2	4:00p	56.2	11:00p	3.4	3.4	0.01	2.6	20.0	4:30p	W
21	64.6	75.3	6:00p	54.4	4:30a	3.7	3.3	0.00	5.7	29.0	2:30p	SW
22	68.1	79.7	5:00p	54.1	6:30a	2.1	5.2	0.00	4.1	26.0	1:00p	SW
23	70.4	81.0	5:00p	57.4	6:30a	1.0	6.4	0.00	3.7	22.0	1:00p	W
24	63.9	72.2	3:30p	55.3	11:00p	3.0	1.9	0.00	2.8	18.0	4:00p	SW
25	68.3	83.1	5:30p	51.3	3:00a	3.4	6.7	0.00	2.3	23.0	1:00p	WNW
26	69.7	79.4	5:00p	58.9	4:30a	0.5	5.2	0.00	3.8	21.0	5:30p	W
27	71.2	82.4	4:30p	61.1	6:30a	0.6	6.8	0.00	7.5	33.0	2:00p	SW
28	70.7	80.7	4:30p	59.5	5:00a	0.5	6.2	0.00	6.3	22.0	3:00a	NNW
29	71.9	83.7	4:30p	59.2	6:00a	0.6	7.5	0.00	4.5	31.0	5:00p	NW
30	71.7	84.2	2:30p	60.6	5:30a	0.6	7.3	0.00	6.4	23.0	5:00p	SSW
31	69.4	80.3	3:00p	60.5	3:30a	0.7	5.1	0.00	7.5	22.0	4:00a	SSW

	66.7	90.4	1	49.2	10	79.7	133.4	2.80	4.8	33.0	9	SSW

Max >= 90.0: 1
 Max <= 32.0: 0
 Min <= 32.0: 0
 Min <= 0.0: 0

Max Rain: 0.86 ON 07/07/15

Days of Rain: 13 (>.01 in) 8 (>.1 in) 0 (>1 in)

Heat Base: 65.0 Cool Base: 65.0 Method: Integration

MONTHLY CLIMATOLOGICAL SUMMARY for AUG. 2015

NAME: Monticello Office CITY: STATE:
 ELEV: 0 ft LAT: LONG:

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	67.3	77.1	6:00p	61.6	12:00m	0.4	2.7	0.00	5.7	17.0	9:00a	SSW
2	62.5	71.1	2:30p	58.2	8:30a	3.1	0.6	0.00	4.5	18.0	5:00p	SSE
3	65.5	78.2	4:00p	56.6	7:00a	2.7	3.3	0.00	7.4	30.0	11:30p	SSW
4	67.5	79.9	1:30p	54.8	3:30a	2.3	4.8	0.00	4.3	22.0	12:30a	W
5	72.7	84.3	4:30p	59.8	5:30a	0.7	8.4	0.00	6.2	25.0	4:30p	W
6	75.7	85.3	4:30p	64.1	7:00a	0.0	10.7	0.00	5.2	27.0	2:30a	NW
7	66.8	75.5	2:30p	55.2	12:00m	1.9	3.7	0.01	5.7	28.0	4:00p	SW
8	64.3	75.2	7:00p	53.3	7:00a	4.0	3.2	0.00	8.2	26.0	12:30p	SW
9	66.8	79.8	5:30p	51.9	7:00a	2.9	4.7	0.00	2.4	22.0	5:00p	W
10	69.0	82.0	1:30p	59.2	5:30a	1.2	5.1	0.00	4.9	30.0	3:30p	WNW
11	65.7	77.6	5:00p	56.9	12:00m	1.9	2.6	0.04	7.1	35.0	7:30p	S
12	65.9	77.4	4:30p	55.7	6:30a	2.9	3.8	0.00	5.9	22.0	4:00p	S
13	67.9	80.4	12:30p	58.9	5:00a	1.2	4.2	0.20	4.0	22.0	2:00p	WNW
14	73.9	86.2	5:30p	60.1	4:00a	0.6	9.4	0.00	3.6	18.0	11:00a	W
15	73.6	86.1	5:30p	61.3	5:30a	0.3	8.9	0.00	2.3	19.0	2:00p	NW
16	72.6	84.7	5:30p	61.4	3:30a	0.2	7.8	0.11	5.4	21.0	1:30p	W
17	74.2	84.2	3:30p	65.6	6:00a	0.0	9.2	0.02	6.7	32.0	4:30p	NW
18	71.0	81.8	4:00p	60.2	12:00m	0.7	6.8	0.00	9.0	28.0	2:00p	NNW
19	65.6	76.8	5:30p	54.1	5:00a	2.8	3.4	0.00	7.3	24.0	2:30p	N
20	71.3	82.8	3:00p	57.7	6:30a	1.3	7.6	0.00	4.3	24.0	3:30p	W
21	73.8	83.7	4:30p	59.2	7:00a	0.4	9.2	0.00	7.9	33.0	10:00p	SSW
22	68.5	81.2	1:30p	53.5	7:00a	1.3	4.8	0.06	4.4	20.0	12:30p	W
23	71.0	81.7	2:00p	60.3	7:30a	0.1	6.2	0.01	6.5	38.0	6:30a	W
24	70.5	82.3	5:30p	59.4	7:00a	0.9	6.4	0.00	4.8	17.0	11:30a	SSW
25	71.4	84.5	4:00p	58.9	6:00a	0.5	6.9	0.01	7.2	28.0	6:00p	SSW
26	62.3	67.3	5:30p	58.0	5:30a	3.0	0.3	0.04	5.3	20.0	1:00p	SSW
27	65.6	76.6	3:30p	56.9	7:00a	2.9	3.5	0.02	7.3	27.0	3:00p	S
28	69.5	80.8	4:00p	57.3	7:00a	1.2	5.7	0.00	5.1	22.0	12:30p	NNE
29	70.0	82.7	5:00p	55.7	7:30a	1.5	6.5	0.00	5.3	26.0	3:00p	SSW
30	69.8	81.7	4:00p	61.1	9:00p	0.4	5.2	0.00	8.8	35.0	7:00p	SSW
31	62.3	75.7	1:00p	56.8	7:30a	3.7	1.0	0.44	3.8	31.0	1:00p	NW
	68.9	86.2	14	51.9	9	47.0	166.6	0.96	5.7	38.0	23	SSW

Max >= 90.0: 0
 Max <= 32.0: 0
 Min <= 32.0: 0
 Min <= 0.0: 0
 Max Rain: 0.44 ON 08/31/15
 Days of Rain: 8 (>.01 in) 3 (>.1 in) 0 (>1 in)
 Heat Base: 65.0 Cool Base: 65.0 Method: Integration

MONTHLY CLIMATOLOGICAL SUMMARY for SEP. 2015

NAME: Monticello Office CITY: STATE:
 ELEV: 0 ft LAT: LONG:

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	63.7	75.1	1:30p	55.3	5:30a	3.2	2.0	0.00	4.8	21.0	6:30p	SSW
2	66.6	78.2	5:00p	54.4	4:30a	2.9	4.5	0.00	5.3	22.0	2:00p	SSW
3	67.1	76.6	5:00p	55.4	7:30a	1.5	3.6	0.00	6.9	21.0	10:30a	SSW
4	59.5	68.9	4:30p	51.8	12:00m	5.8	0.3	0.61	5.9	39.0	6:00p	S
5	59.4	70.2	3:30p	52.3	12:30a	6.2	0.7	0.04	4.5	28.0	7:00p	SSW
6	62.5	72.6	5:00p	53.0	7:00a	4.2	1.7	0.00	6.6	26.0	3:00p	SW
7	66.0	75.7	3:00p	58.0	7:30a	2.2	3.2	0.00	4.4	22.0	1:00p	SSW
8	66.0	76.5	4:00p	56.4	6:30a	2.8	3.7	0.00	4.6	19.0	2:00p	NNW
9	67.2	78.2	3:00p	57.1	7:00a	2.7	4.9	0.00	5.2	24.0	2:00p	NW
10	68.3	79.8	3:00p	57.8	7:00a	2.1	5.4	0.00	7.6	25.0	2:30p	NW
11	69.2	81.1	2:30p	55.8	7:00a	1.5	5.7	0.00	5.1	19.0	3:30p	NNE
12	69.8	83.0	3:00p	57.6	6:30a	1.6	6.4	0.00	4.4	17.0	6:30p	NW
13	70.0	81.8	4:30p	55.7	7:00a	0.9	5.9	0.00	4.8	22.0	11:30p	W
14	62.6	72.1	4:30p	55.4	11:00p	3.8	1.3	0.05	6.8	26.0	11:30a	SSW
15	59.5	69.4	5:00p	49.1	7:30a	6.0	0.5	0.27	7.5	34.0	3:30a	SSW
16	60.8	71.1	5:00p	53.7	7:30a	5.1	0.9	0.00	7.8	30.0	4:00p	SSW
17	60.3	71.5	4:30p	49.4	5:30a	6.0	1.3	0.00	5.4	26.0	2:30p	S
18	60.5	70.0	4:00p	50.6	11:30p	5.4	0.9	0.00	5.8	22.0	10:00a	NNW
19	61.1	73.9	5:30p	48.8	6:30a	6.1	2.2	0.00	5.0	21.0	11:30p	NW
20	63.4	75.3	3:30p	50.8	5:00a	4.5	2.8	0.00	4.9	20.0	2:00p	NW
21	65.3	78.0	5:00p	51.6	8:00a	3.6	3.9	0.00	2.5	14.0	1:00p	N
22	61.4	68.5	2:00p	52.4	12:00m	4.1	0.5	0.00	5.5	21.0	11:00a	SSW
23	61.6	76.0	3:30p	45.8	5:00a	6.5	3.1	0.00	4.3	21.0	2:30p	NNW
24	66.7	80.3	5:00p	49.8	6:30a	3.2	4.8	0.00	3.4	19.0	2:30p	W
25	64.2	76.6	6:30p	51.0	6:30a	4.1	3.3	0.00	3.4	20.0	12:00p	WNW
26	64.8	77.7	4:30p	54.2	4:00a	4.3	4.1	0.00	2.3	16.0	3:00p	E
27	65.7	79.2	3:30p	53.9	4:30a	3.6	4.3	0.00	2.6	30.0	3:30p	E
28	66.1	78.2	4:30p	53.0	7:00a	2.7	3.8	0.00	3.0	13.0	1:00p	NW
29	66.7	77.6	1:30p	56.4	6:00a	2.3	4.0	0.00	2.9	18.0	2:00p	WNW
30	67.2	78.9	3:30p	57.7	7:30a	2.0	4.1	0.00	5.7	22.0	2:30p	W

64.4 83.0 12 45.8 23 110.9 93.8 0.97 5.0 39.0 4 SSW

Max >= 90.0: 0

Max <= 32.0: 0

Min <= 32.0: 0

Min <= 0.0: 0

Max Rain: 0.61 ON 09/04/15

Days of Rain: 4 (>.01 in) 2 (>.1 in) 0 (>1 in)

Heat Base: 65.0 Cool Base: 65.0 Method: Integration

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