5.0 Project Schedules and Milestones (FY 2019–FY 2021)

5.1 Establishing Project Schedules and Milestones

As stated in Section 1.1.2, the Site Management Plan (SMP) establishes the overall plan for remedial actions at the Monticello Mill Tailings Site (MMTS) and milestones against which progress can be measured. The SMP also documents the overall plan for remedial actions at the Monticello Vicinity Properties site (MVP), which was deleted from the National Priorities List (NPL) on February 28, 2000. The MMTS and MVP are also referred to as the Monticello Projects. The SMP was first prepared in 1995 and was revised annually from 1998 through fiscal year (FY) 2003. Starting in FY 2004, only Section 5.0 of the SMP, "Project Schedules and Milestones," is updated annually to reflect revised schedules agreed to by the U.S. Department of Energy (DOE), U.S. Environmental Protection Agency (EPA), and Utah Department of Environmental Quality (UDEQ). This update of Section 5.0 of the SMP contains project schedules and milestones for FY 2019–FY 2021. The stipulated penalty milestones listed in this section are enforceable milestones unless superseded by revised schedules agreed to by DOE, EPA, and UDEQ or by amendments to the Federal Facilities Agreement (FFA).

5.1.1 FFA Requirements

Section XXX of the FFA, "Enforceability," states that "All terms and conditions of this Agreement which relate to interim or final remedial actions, including corresponding timetables, deadlines, or schedules … shall be enforceable …" The FFA required DOE to submit a work plan establishing how DOE would complete the tasks required by the FFA and specific timetables and a schedule for completing remedial actions. The FFA Work Plan was completed in May 1989 and established the enforceable timetable for completing primary documents identified in the FFA and for completing remedial actions.

The scope of work, timetable, and schedule for remedial actions presented in the FFA Work Plan were superseded by the Remedial Design Work Plan, which was identified as a primary document and was submitted as a final document in January 1992. The Remedial Design Work Plan established a revised timetable with specific, stipulated penalty milestones. The stipulated penalty milestones were associated with the submittal of primary design documents that would be generated as part of the remedial design and notice of award to subcontractors for remedial action work.

The timetable in the Remedial Design Work Plan was superseded by the timetables established in the 1995 version of the SMP. DOE, EPA, and UDEQ concurrence on the SMP has been the basis for establishing new enforceable milestones and nonenforceable target dates for all activities extending through the completion of the Monticello Projects. The SMP is a primary document, and, in accordance with the FFA, the corresponding timetables, deadlines, and schedules are enforceable.

5.1.2 Enforceable Milestones and Nonenforceable Targets

DOE, with EPA and UDEQ concurrence, has developed a 3-year (FY plus 2 years) rolling milestone approach for establishing a schedule for completing remedial actions at the

Monticello NPL sites. Under this approach, schedule dates are designated as either "milestones" or "target dates." Milestones and target dates are established in consideration of the Monticello Projects environmental budget allocation. Milestones are enforceable deadlines established for near-term activities (FY plus 2 years) for which greater fiscal and technical certainty exists. Target dates are nonenforceable deadlines, generally for longer-term activities (greater than FY plus 2 years), and may be converted to milestones on an annual basis. Target dates may also be established in the FY plus 2-year time frame and beyond for completing activities associated with a stipulated penalty milestone. Each year, after receipt of the Approved Funding Program that reflects the final congressional appropriation for the current fiscal year, existing milestones are reviewed and adjusted, if necessary. An additional year of milestones is also established, adjusting the previous target dates, if necessary.

Enforceable milestones for the Monticello Projects are described in Table 5-1 for those activities in FY 2019–FY 2021 for which stipulated penalties may be assessed against DOE. Each penalty date listed in Table 5-1 is defined as the date EPA and UDEQ must receive the respective document in the form identified in the table. Nonenforceable target dates for the Monticello Projects are described in Table 5-2. As work on the projects progresses, additional documents may be submitted. Additional documents will be identified in FFA quarterly reports as it is determined that they are required.

Under DOE's rolling milestone approach, DOE, EPA, and UDEQ consider a variety of factors during the annual review and establishment of milestones and target dates. These include funding availability; latest information on cost estimates; site priorities identified through consultations among DOE, EPA, UDEQ, and stakeholders; new or emerging technologies; and other relevant factors. DOE provides the regulatory agencies and other stakeholders with an opportunity to assist in developing priorities at the sites. Milestones can be renegotiated if there are insufficient congressional appropriations. Out-year nonenforceable target dates are established using realistic assumptions. DOE, EPA, and UDEQ recognize the uncertainties associated with long-term target dates that lay out DOE's strategic vision of how it ultimately plans to accomplish projects. Beginning in September 2004, DOE, EPA, and UDEQ concurrence on updates to Section 5.0 of the SMP became the basis for establishing new enforceable milestones and nonenforceable target dates.

EPA and UDEQ agree to meet with DOE annually to renegotiate the milestones and target dates established in the SMP. The enforceable milestones described in Table 5-1 for activities in FY 2019–FY 2021 may be modified only as part of this renegotiation or through the existing procedures of the FFA. EPA and UDEQ reserve the right to initiate any action deemed necessary to enforce these milestones. DOE, EPA, and UDEQ agree to abide by the existing procedure for resolving disputes as described in FFA Section XIV, "Resolution of Disputes," and will make all reasonable efforts to informally resolve any disputes involving insufficient funding before invoking formal dispute procedures.

5.2 Site Status

Remedial actions at the Monticello NPL sites have been implemented in accordance with the Record of Decision (ROD) for the corresponding site and Operable Unit (OU):

- ROD for MVP, all OUs: *Monticello Vicinity Properties Project, Declaration for the Record of Decision and Record of Decision Summary*, November 1989 (MVP ROD). Remedial actions under this ROD are complete.
- ROD for MMTS, OUs I and II: *Monticello Mill Tailings Site, Declaration for the Record of Decision and Record of Decision Summary*, August 1990 (MMTS ROD). Remedial actions under this ROD are complete.
- ROD for MMTS, OU III: *Record of Decision for the Monticello Mill Tailings (USDOE) Site Operable Unit III, Surface Water and Groundwater, Monticello, Utah*, May 2004 (MMTS OU III ROD). Remedial actions under this ROD are ongoing.

  The remedy selected in the MMTS OU III ROD was modified in March 2009 by a contingency remedy implemented in the *Explanation of Significant Difference for the Monticello Mill Tailings (USDOE) Site Operable Unit III, Surface Water and Ground Water, Monticello Utah* (Explanation of Significant Difference [ESD]). As of January 2015, the contingency includes an expanded pump-and-treat remediation system in a focused area of the aquifer (area of attainment [AOA]; see Section 5.3.4).

5.2.1 CERCLA Five-Year Reviews

The remedial actions are protective of human health and the environment. However, the remedial actions do not allow for unlimited use and unrestricted exposure in all areas because (1) contaminated soil, sediment, and debris removed from the MMTS and MVP remain encapsulated in the onsite DOE repository; (2) contamination remains in soil at the MMTS and MVP where supplemental standards were applied; and (3) contamination remains in MMTS OU III groundwater and surface water. Under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), Section 121(c), these circumstances obligate DOE to conduct five-year reviews of the sites to ensure that the ROD-specified remedies remain protective of human health and the environment.

The most recent five-year reviews of the MMTS and MVP, finalized in June 2017, concluded that the remedies for all OUs remain protective of human health and the environment. A contingency remedy for MMTS OU III, discussed in Section 5.3.4, has been implemented under the March 2009 ESD to address alluvial aquifer restoration that is not progressing at rates that will attain remedial action objectives (RAOs) established in the MMTS OU III ROD. The regulatory agencies' review of the next draft CERCLA five-year reviews for the Monticello NPL sites begins on February 1, 2022.

5.3 Long-Term Surveillance and Maintenance (LTS&M)

In addition to five-year reviews required under CERCLA, DOE conducts routine inspections and surveillances (weekly, monthly, and quarterly) and annual site inspections as an ongoing evaluation of remedy effectiveness. These activities are directed under the DOE LTS&M program initiated in October 2001. DOE's Office of Legacy Management (LM) implements the

LTS&M program. LTS&M activities at the Monticello NPL sites consist of periodic surveillance and inspection of supplemental standards properties, monitoring of earthwork in city streets and utility corridors, management of recovered radioactive material in the temporary storage facility (TSF) located at the onsite repository, operation and maintenance of the onsite repository, monitoring for compliance with institutional controls (ICs) that restrict land and water use, monitoring groundwater and surface water, and pertinent documentation and reporting (see *Long-Term Surveillance and Maintenance Plan for the Monticello NPL Sites* [LTS&M Plan], June 2018, Rev. 1).

5.3.1 Mill Site Remediation and Restoration

Soil contamination removal activities were concluded at the former mill site in July 1999. DOE transferred ownership of the former mill site property and several adjacent properties (known as "peripheral properties") to the City of Monticello (City) in June 2000. Mill site restoration activities were completed in August 2001. The associated wetland areas (Wetlands 1–3) were fully restored by 2004. As a condition of the land transfer agreement, the City maintains the transferred properties for public recreation. DOE continues to monitor the properties for compliance with ICs that restrict land and water use and to ensure that the remedy remains protective. There are currently no violations of land or water use restrictions. The former mill site property, which is part of MMTS OU I, is partially underlain by contaminated groundwater (OU III) and so cannot be deleted from the NPL at this time.

5.3.2 Repository and Pond 4

Operation and maintenance of the onsite repository and Pond 4 are required to ensure that (1) leachate production from waste contained in the repository is properly managed, and (2) waste encapsulation is not compromised. The physical condition of the repository and Pond 4 is visually inspected on a monthly basis and during the annual site inspection. An automated measurement and data-recording system (telemetry system) continually measures leachate production from the repository and Pond 4. The telemetry system is integrated with the DOE System Operation and Analysis at Remote Sites (SOARS) for data management. Visual observations and telemetry-system data are reported quarterly in status reports.

Operation of the OU III groundwater remedy optimization system (starting in January 2015; see Section 5.3.4) has resulted in increased water collection in the Pond 4 Leachate Collection and Removal System (LCRS) and the Leak Detection System (LDS) that exceeded action levels documented in the LTS&M Plan. The LCRS and LDS monitoring and pumping systems are functioning as designed to recirculate water back into Pond 4. EPA and UDEQ have been apprised of this situation.

5.3.3 Monticello Mill Tailings Site OU II—Peripheral Properties

Completion reports, remedial action reports, and closeout documentation have been completed for the remediation of contaminated soil and sediment on all OU II properties. Twenty-two of the OU II properties without contaminated surface water or groundwater were deleted from the NPL on October 14, 2003. Twelve of the OU II properties that are underlain by contaminated groundwater have not been deleted from the NPL. DOE performs long-term surveillance of the OU II properties for compliance with ICs that restrict land and groundwater use and to ensure that the implemented remedies remain protective. There are no violations of land or groundwater

use restrictions. MMTS OU II properties that have been remediated for soil and sediment contamination but are underlain by contaminated groundwater are not eligible for deletion from the NPL until water quality RAOs are achieved.

5.3.4 Monticello Mill Tailings Site OU III—Surface Water and Groundwater

The remedy for MMTS OU III was selected and documented in the OU III ROD, signed on June 2, 2004. The OU III ROD was prepared following the submittal of *Monticello Mill Tailings Site Operable Unit III Remedial Investigation Addendum/Focused Feasibility Study*, January 2004, as a basis for OU III remedy selection. That document updated human health and ecological risk assessments and the groundwater model from the 1998 CERCLA remedial investigation. MMTS OU III has not been deleted from the NPL because water quality RAOs have not been achieved.

The selected remedy consists of monitored natural attenuation, ICs, and biomonitoring to evaluate the potential impacts of selenium concentrations on ecological receptors at specific locations. Biomonitoring was completed in 2012, in concurrence with EPA and UDEQ, and as documented in the MMTS 2012 CERCLA Five-Year Review.

Analysis of groundwater monitoring data indicates that water quality restoration is not achievable under the performance metrics established in the ROD. This was first reported in the 2006 annual groundwater report and later confirmed in *Monticello Mill Tailings Site Operable Unit III Analysis of Uranium Trends in Ground Water* (August 2007). DOE, with concurrence from EPA and UDEQ, therefore implemented a contingency remedy for OU III as a requirement of the ROD. The decision to implement a contingency remedy and the scope of the contingency remedy were documented in the March 2009 ESD.

The ESD was provided for public review in December 2008 and became effective in March 2009. In accordance with the ESD, DOE committed to implement groundwater pump-and-treat remediation as a component of the contingency remedy until RAOs were met or another remedy was selected. The initial phase of the contingency remedy consisted of continued operation of an existing ex situ treatment system that was constructed in 2005 as a technology demonstration project. The ESD also adopted the protection standard for uranium in domestic-use surface water enacted by the State of Utah (30 picocuries per liter).

To evaluate the effectiveness of the contingency remedy, DOE, in accordance with the March 2009 ESD, prepared the *Monticello Mill Tailings Site Operable Unit III Water Quality Compliance Strategy*, December 2009. That strategy describes the work elements, schedule, and data-use objectives of the contingency remedy tasks and presents a conceptual, phased approach to attain compliance goals. Results and discussion of the completed activities were documented in the *Monticello Mill Tailings Site Operable Unit III Annual Groundwater Report May 2011 Through April 2012*.

During July and August 2013, DOE decided to optimize the contingency remedy by implementing a more aggressive groundwater extraction and treatment approach. In FY 2014, DOE prepared a Remedial Design/Remedial Action (RD/RA) work plan for the OU III contingency remedy optimization, which was finalized and approved by EPA and UDEQ in June 2014. The remedy optimization system consists of 8 vertical extraction wells that pump groundwater from a focused area of the aquifer (AOA) to a control/transfer building from where

it is batch pumped to an engineered solar evaporation pond. Sixteen new monitoring wells were installed to monitor restoration progress in the AOA. An additional six new monitoring wells were installed on the north side of Montezuma Creek in June 2017.

Construction of the optimization system occurred during spring 2014 through December 2014. Full system startup began in January 2015. The *Remedial Action Completion Report for OU III Groundwater Contingency Remedy Optimization System* was submitted to the regulatory agencies in May 2016 to document the as-built configuration and operating parameters of the system. Consumptive use of the aquifer water is allowable under an existing State of Utah Department of Natural Resources Fixed-Time Water Appropriation (Water Right Number 09-2347).

As of April 2018, water quality monitoring to assess the performance of the OU III remedy is conducted in accordance with the *LM Sampling and Analysis Plan*. This document supersedes the OU III ROD and the *Monticello Mill Tailings Site Operable Unit III Post-Record of Decision Monitoring Plan, Draft Final,* August 2004 (Post-ROD Monitoring Plan).

Operation of the OU III groundwater contingency remedy will continue until current RAOs are achieved or until it is determined that meeting RAOs under the contingency remedy is not feasible in a reasonable time.

5.3.5 MMTS Long-Term Decommissioning Activities

Components of the MMTS infrastructure that require eventual decommissioning are the (1) OU III groundwater remediation systems, including the permeable reactive barrier (PRB); (2) OU III monitoring wells; (3) Pond 4 (repository leachate evaporation pond); and (4) the water diversion flap of the lysimeter embedded in the repository. This section further describes decommissioning of these components.

Plans to decommission the PRB are not yet necessary because it is functioning as a groundwater containment device under the RD/RA work plan and the ESD. Upon a decision to remove or replace the PRB, a decommissioning plan will be documented in an RD/RA work plan that will be subject to EPA and UDEQ concurrence. The PRB is not currently in consideration for near-term (within 5 years) decommissioning, and an out-year (more than 5 years) date has not been determined.

Decommissioning Pond 4 is contingent on the rate of leachate production from the disposal cell and the duration of evaporative treatment of OU III contaminated groundwater from the contingency remedy optimization system. Pond 4 is eligible for decommissioning only if the repository leachate is managed by other means and when evaporative treatment of OU III contaminated groundwater ceases. Pond 4 is not currently in consideration for near-term (within 5 years) decommissioning, and an out-year (more than 5 years) date has not been determined.

The ex situ groundwater treatment system was taken out of service in December 2014. The decision on whether to remove the ex situ treatment system has not been made, but it is possible that this system could be decommissioned within the near-term (within 5 years). Upon a decision to remove the ex situ groundwater treatment system, a decommissioning plan will be documented in an RD/RA work plan that will be subject to EPA and UDEQ concurrence.

Groundwater monitoring for OU III will be conducted until water quality restoration has attained acceptable levels established by DOE, EPA, and UDEQ. Monitoring wells will be decommissioned when RAOs are achieved. Monitoring well decommissioning may occur in phases as regions of the aquifer achieve RAOs. Well decommissioning will be conducted in agreement between DOE, EPA, and UDEQ. Well abandonment will conform to the substantive requirements of the Utah Well Drilling Standards, consistent with the OU III Record of Decision.

DOE continues to monitor the drainage lysimeter embedded in the 7.5-acre facet comprising the northeast corner of the repository cover. The repository is capped by a vegetated water balance cover that is underlain by a cell meeting the EPA minimum technology requirements for a Resource Conservation and Recovery Act Subtitle C cell. The lysimeter is monitored and maintained through the LM Applied Studies and Technology program. The two existing lysimeter instrumentation basins were removed and two new upgraded basins were installed in May 2017.

5.3.6 MVP

Remediation of the MVP was completed on September 30, 1999. The final rule to delete the MVP from the NPL became effective on February 28, 2000. DOE continues to perform LTS&M activities for certain vicinity properties through annual inspections, enforcement of ICs, and monitoring. The affected MVPs are the city streets and utility corridors and Highways 191 and 491 in Monticello and private property MS-00176, where contamination was left in place and supplemental standards were applied.

As part of planned utility upgrades and unplanned repairs, radioactively contaminated soils that are removed from excavations are transported to the TSF at the Monticello repository, with the exception of the Utah Department of Transportation, which has the option to return radioactively contaminated soils to their excavations in Highways 191 and 491 within the city limits. DOE provides the required monitoring and radiological controls during these activities. Radioactive material stored in the TSF is transported to the DOE Grand Junction, Colorado, Disposal Site for permanent disposal.

5.4 Milestones and Targets

Enforceable milestones applicable to the MVP and MMTS for the current milestone period of FY 2019–FY 2021 are listed in Table 5-1. Table 5-2 lists pending activities and documents with associated target dates within the 2017–2022 CERCLA five-year review period (through June 2022). Table 5-3 and Table 5-4 list current guiding documents in effect. DOE can prepare program directives (Table 5-4) to guide field and procedural activities that are beyond the routine work scope for OU III, as defined in the LTS&M Plan.

Table 5-1. Penalty Milestones in FY 2018–FY 2020

Milestones	Stipulated Penalty Dates[a]
FY 2019 revision of Section 5.0 of Site Management Plan (draft)[b]	August 1, 2019
FY 2020 revision of Section 5.0 of Site Management Plan (draft)[b]	August 1, 2020
FY 2021 revision of Section 5.0 of Site Management Plan (draft)[b]	August 1, 2021
2018 Annual Site Inspection Report[c]	December 31, 2018
2019 Annual Site Inspection Report[c]	December 31, 2019
2020 Annual Site Inspection Report[c]	December 31, 2020

[a] Date EPA and UDEQ must receive the document for review and comment.
[b] Report progression will be as follows:

- The draft report will be reviewed by EPA/UDEQ.
- Any comments from the draft will be addressed in a final report. If no comments are received on the draft, DOE will reissue the report as final.
- EPA/UDEQ will issue an acceptance letter of the final report.

[c] This report does not go through the EPA/UDEQ review and concurrence process. The dates shown are for completion of the final report.

Table 5-2. MMTS and MVP Targets

Activity/Document	Purpose	Target Date/Scope
Annual groundwater report[a]	Evaluate water quality restoration progress	October of each year
Semiannual FFA meeting	Review project status, goals, and schedule	Spring and fall of each year
FFA quarterly reports[a]	Summarize project scope, status, and schedule	15th of February, May, August, and November

[a] This report does not go through the EPA/UDEQ review and approval process.

Table 5-3. OU III Guiding Documents

Document	Completed
Remedial Investigation (RI) Addendum/Focused Feasibility Study (FS)	
RI Addendum/Focused FS	January 2004
Surface Water/Groundwater Decision Documents	
MMTS OU III ROD	June 2, 2004
ESD[a]	March 2009
MMTS OU III Water Quality Compliance Strategy	December 2009
LTS&M and Monitoring	
MMTS OU III Analysis of Uranium Trends in Ground Water	August 16, 2007
Sampling and Analysis Plan for U.S. Department of Energy Office of Legacy Management Sites	Revision to Include Monticello January 2016
LTS&M Plan for the Monticello NPL Sites	Revision 1 issued June 2018
CERCLA Reviews	
Fifth Five-Year Review Reports for MMTS and MVP	June 2017

[a] *Explanation of Significant Difference for the Monticello Mill Tailings (USDOE) Site Operable Unit III, Surface Water and Ground Water, Monticello Utah.*

Table 5-4. MMTS OU III Program Directives in Effect

MNT-2016-01	Sampling of Permeable Reactive Barrier (PRB) Wells, LM Monticello, Utah, Disposal and Processing Sites
MNT-2016-02	Surface-Water Discharge-Measurement Protocol, LM Monticello, Utah, Disposal and Processing Sites

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