



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
REGION 8

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August 3, 2012

Ref: 8 EPR-FF

Jalena Dayvault  
Monticello Site Manager  
US Department of Energy, Office of Legacy Management  
2597 Legacy Way  
Grand Junction, Colorado 81503

Re: Site Management Plan Section 5 Update  
(FY 2013-2015)

Dear Ms. Dayvault:

Thank you for submitting the Site Management Plan Section 5 Update (FY 2013-2015) for the Monticello projects. The US Environmental Protection Agency (EPA) in consultation with the State of Utah agrees with the work outline and schedule dates for milestones and targets stated in this submittal.

We look forward to participating in the next FFA meeting and the annual inspection of the Monticello projects. At your earliest convenience, please let us know the schedule for these two activities. Should you have questions, please contact me at 303/312-6981 or at [moritz.vera@epa.gov](mailto:moritz.vera@epa.gov).

Sincerely,

A handwritten signature in black ink, appearing to read "Vera Moritz".

Vera Moritz  
Remedial Project Manager, Federal Facilities

cc: Michael Storck, UDEQ

## **5.0 Project Schedules and Milestones (FY 2013–2015)**

### **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 (October 1, 2003, through September 30, 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 2013–2015. The stipulated penalty milestones listed in this section are enforceable milestones unless superseded by revised schedules agreed to by DOE, EPA, and UDEQ, or by amendments to the Federal Facilities Agreement (FFA).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 (RDWP). The RDWP was identified as a primary document and was submitted as a final document in January 1992. The RDWP 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 RDWP 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 + 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 + 2 years) for which greater fiscal and technical certainty exists. Target dates are nonenforceable deadlines for longer-term activities (greater than FY + 2 years) and may be converted to milestones on an annual basis. Target dates may also be established in the FY + 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 and nonenforceable target dates for the Monticello Projects are described in Table 5-1 and Table 5-2, respectively. Enforceable milestones are identified for those activities in FY 2013-2015 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 draft final form. As work on the projects progresses, additional documents may be submitted. Additional documents will be identified in FFA quarterly reports as soon 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 2013-2015 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 (Section XIV, “Resolution of Disputes,” Monticello FFA, 1988) 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 MMTS, OUs I and II: *Monticello Mill Tailings Site Declaration for the Record of Decision and Record of Decision Summary*, August 1990 (MMTS ROD)
- 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)

The remedy selected in the MMTS OU III ROD was modified 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*, March 2009 (ESD)

- ROD for MVP, all OUs: *Monticello Vicinity Properties Project Declaration for the Record of Decision and Record of Decision Summary*, November 1989 (MVP ROD)

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 MMTS and MVP properties where supplemental standards were applied and 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 2012, 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 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. Biomonitoring activities associated with MMTS OU III are also discussed in Section 5.3.4. The next CERCLA five-year reviews for the Monticello NPL sites are due in June 2017.

### **5.3 Long-Term Surveillance and Maintenance (LTSM)**

In addition to five-year reviews required under CERCLA, DOE conducts routine inspections and surveillance (weekly, monthly, and quarterly) and annual site inspections as an ongoing evaluation of remedy effectiveness. These activities are directed under the DOE LTSM program initiated in October 2001. DOE's LTSM program is implemented by the DOE Office of Legacy Management. LTSM activities at the Monticello NPL sites comprise 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 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*, June 20, 2007, Rev. 0.

### **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 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 institutional controls 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 underlain by contaminated groundwater and has not been deleted from the NPL.

### **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 for data management. Visual observations and telemetry-system data are reported quarterly in status reports mandated by the FFA. Leachate production in the repository continues to remain well below established action levels. The integrity of the repository cover remains intact.

### **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 continues to perform long-term surveillance of the OU II properties for compliance with institutional controls that restrict land and groundwater use and to ensure that the implemented remedies remain protective. There are currently no violations of land or groundwater use restrictions.

The majority of DOE-owned OU II peripheral property MP-01081-VL, located east of the repository site, was sold to a private party in August 2011; DOE retained ownership of a small section at the southern end of MP-01081-VL. As part of the sale, DOE granted the new property owner a 30-foot-wide easement inside the southern boundary of DOE-owned repository property MP-01080-VL to enable easier access to the sold property.

### **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 conceptual and numerical model of groundwater flow and contaminant transport from the 1998 CERCLA remedial investigation. The groundwater model predicted that groundwater restoration would be complete by natural processes by 2045.

The selected remedy presented in the OU III ROD consists of monitored natural attenuation (MNA), institutional controls, and biomonitoring to evaluate the potential impacts of selenium concentrations on ecological receptors at specific locations. The OU III ROD also specifies the criteria for removing the permeable reactive barrier (PRB), installed in 1999 as a full-scale treatability study of in situ groundwater treatment using zero-valent iron (ZVI) as the reactive media. Water quality monitoring to assess the performance of the OU III remedy is conducted in accordance with 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).

MMTS OU III has not been deleted from the NPL because water quality RAOs have not been achieved. Analysis of groundwater monitoring data, presented in annual groundwater reports, indicates that, at present cleanup rates, water quality restoration is not attainable within the allowed 42-year restoration period. This was first recognized in the 2006 annual groundwater report by using the initial method of statistical analysis specified in the OU III ROD. An additional specification of the OU III ROD was to use an approved alternate statistical analysis to evaluate concentration trends if restoration progress evaluated by the initial statistical method was less than expected. The alternate statistical analysis, completed in August 2007, provided results and conclusions similar to those of the initial method (see *Monticello Mill Tailings Site Operable Unit III Analysis of Uranium Trends in Ground Water*, August 2007).

The projected nonattainment of water quality goals within the allowable restoration period led DOE, with concurrence from EPA and UDEQ, to implement a contingency remedy for OU III. The decision to implement a contingency remedy and the scope of the contingency remedy were documented in an Explanation of Significant Difference (ESD). The ESD was provided for public review in December 2008 and became effective in March 2009. In accordance with the ESD, DOE will operate a groundwater pump-and-treat enhancement upgradient of the PRB until RAOs are met or another remedy is selected. Further studies will be continued during the current CERCLA five-year review period (2012-2017) to determine whether the contingency remedy of pump-and-treat enhancement, with MNA, is a viable remedy for OU III and if it can achieve current RAOs (water quality restoration goals and a reasonable remediation time) as described in Section 8 of the OU III ROD. The ESD also adopted the protection standard for uranium in surface water enacted by the State of Utah (30 µg/L).

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 (WQCS)*, December 2009, which describes the work elements, schedule, and data-use objectives of the contingency remedy tasks. The strategy presents a conceptual, phased approach to attain compliance goals. Results and discussion of the completed activities will be documented in the annual groundwater reports. Per the ESD, EPA and UDEQ concurred on DOE's conceptual approach for replacing PRB with a replacement facility for continued treatment of ground water, proposed in April 2010. However, with EPA and UDEQ concurrence, DOE postponed implementing the work plan in April 2011 to investigate other options for replacing the PRB and evaluating the contingency remedy.

The *Fourth Five-Year Review Report for Monticello Mill Tailings (USDOE) Site, San Juan County, Monticello, Utah*, June 2012, determined that operation and evaluation of the contingency remedy will continue during the current CERCLA five-year review period (2012–2017). Evaluating the contingency remedy will be conducted in accordance with procedures set forth in the March 2009 ESD.

### **Biomonitoring**

The biomonitoring component of the OU III ROD (addressed in Appendix C of the OU III ROD) requires data collection and analysis to be initiated and continued until OU III ROD criteria have been met to allow a protectiveness determination to be made regarding potential risk to ecological receptors from selenium in benthic macroinvertebrates at specific wetland areas of OU III. The DOE, EPA, and UDEQ provide input on the necessity, scope, and schedule of biomonitoring, and reviews biomonitoring results.

Between 2004 and 2010, biomonitoring data were gathered for selenium in surface water, sediment, and macroinvertebrates in affected wetlands. As reported in the *Fourth Five-Year Review Report for Monticello Mill Tailings (USDOE) Site, San Juan County, Monticello, Utah*, June 2012, biomonitoring criteria specified in the OU III ROD have been met, indicating that ecological receptors are not adversely affected by site-related contamination. A confirmatory biomonitoring effort is being conducted in accordance with the approved March 2012 Sampling and Analysis Plan for Biomonitoring (Program Directive MNT-2012-01).

### **5.3.5 MVP OUs A Through H**

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 LTSM activities for certain vicinity properties through annual inspections, enforcement of institutional controls, and monitoring. The affected MVP properties are the city streets and utility corridors in Monticello and private property MS-00176, where contamination was left in place and supplemental standards were applied.

During spring 2008, the City of Monticello started an extensive upgrade of streets and utilities beneath streets within city limits, including Highway 191, Highway 491, and numerous others. Utility upgrades include the repair, replacement, or installation of the storm water system, natural gas pipeline system, and fiber optics cable. These activities continue in FY 2012 and are expected to continue in FY 2013.

As part of the utility upgrades, all radioactively contaminated soil encountered in excavations is removed and transported to the TSF at the Monticello repository. DOE provides the required monitoring and radiological controls during these activities. Radioactive material stored in the TSF is transferred to the DOE Grand Junction, Colorado, Disposal Site (GJDS) for permanent disposal. Contaminated material was last transferred from the TSF to the GJDS in June 2010.

### **5.3.6 Long-Term Decommissioning Activities and Site Deletions**

Components of the MMTS infrastructure that require eventual decommissioning are the (1) PRB, (2) Pond 4 (repository leachate evaporation pond), (3) OU III monitoring wells, (4) the OU

III pump-and-treat groundwater enhancement system, and (5) the water diversion flap of the embedded lysimeter.

Plans to decommission the PRB are not yet necessary because it is functioning as a groundwater containment device. Upon a decision to remove or replace the PRB, a decommissioning plan will be documented in a Remedial Action/Remedial Design work plan that will be subject to EPA and UDEQ concurrence.

Decommissioning Pond 4 is contingent on the rate of leachate production from the disposal cell and, if implemented, the duration of evaporative treatment of OU III contaminated groundwater. The rate of leachate production has decreased significantly since final waste encapsulation in 1999. The current rate of leachate production is 6,000–8,000 gallons per month. Pond 4's capacity (16 million gallons) and the evaporation rate greatly exceed the rate of leachate production. Pond 4 is eligible for decommissioning only if the repository leachate is managed by other means and, if implemented, 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 (>5 years) date has not been determined.

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.

Operation of the OU III groundwater pump-and-treat enhancement is part of the contingency remedy and will continue until current RAOs are achieved or until another remedy is selected. The OU III groundwater pump-and-treat enhancement is not currently in consideration for near-term (within 5 years) decommissioning, and an out-year (>5 years) date has not been determined.

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 designed to capture water that infiltrates the vegetated cover and reaches the underlying synthetic liner. The lysimeter construction includes a synthetic flap that is glue-welded to the liner. The flap diverts any water that percolates through the vegetated cover to gauging instruments so that the percolation rate can be measured. If the piping or gauging equipment malfunctions, a response action will be implemented to prevent possible saturation of the soil layers that compose the vegetated portion of the cover. Saturation of the soil layers could compromise the integrity of the repository cover. The eventual strategy to decommission the lysimeter will include a provision to breach the flap to prevent saturation of the soil cover. Routine monitoring of the lysimeter confirms that it is functioning properly and continues to provide water-balance data. MMTS OU II properties (peripheral 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. Similarly, MMTS OU III is not eligible for deletion until that time.

## 5.4 Milestones and Targets

Enforceable milestones applicable to the MVP and MMTS for the current milestone period of FY 2013–2015 are listed in Table 5–1. Table 5–2 lists significant target dates and activities within the 2012–2017 CERCLA five-year review period (through June 2017). Table 5–3 and Table 5–4 lists 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 LTSM plan and the Post-ROD Monitoring Plan (see Section B1.1.3 in *Long-Term Surveillance and Maintenance Plan for the Monticello NPL Sites*, June 20, 2007, Rev. 0).

Detailed listings of milestone and target date activities and documents related to the selection, implementation, and documentation of the remedies for the MVP and MMTS were included as Table 5–2 and Table 5–3 in SMP revisions prior to the FY 2007 submittal. With the completion and documentation of remedial actions for the affected properties, many of which have been deleted from the NPL, and with the transition of the MVP and MMTS to the DOE Office of Legacy Management for LTSM, the respective tables of historical activities and documentation, excepting OU III, are now omitted from the annual revisions of the SMP. A continued listing of pertinent OU III activities and documents is provided because investigation of certain components of the OU III remedy (biomonitoring, groundwater compliance) is ongoing, and the RAOs for water quality have yet to be achieved.

Table 5–1. Penalty Milestones in FY 2013–2015

Milestones	Stipulated Penalty Dates
FY 2013 revision of Section 5.0 of Site Management Plan (draft)	August 1, 2013
FY 2014 revision of Section 5.0 of Site Management Plan (draft)	August 1, 2014
FY 2015 revision of Section 5.0 of Site Management Plan (draft)	August 1, 2015
FY 2013 Annual Site Inspection Report (draft-final)	December 31, 2013
FY 2014 Annual Site Inspection Report (draft-final)	December 31, 2014
FY 2015 Annual Site Inspection Report (draft-final)	December 31, 2015
CERCLA five-year review reports for MVP and MMTS (draft-final)	June 30, 2017

Table 5–2. MMTS and MVP Targets

Activity/Document	Purpose	Target Date/Scope
Annual groundwater report	Evaluate water quality restoration progress. Document evaluation of contingency remedy through 2013.	September of each year.
Biomonitoring	Determine if selenium levels are present in environmental media at concentrations that could cause adverse effects on environmental receptors	An expanded sampling effort is being conducted in 2012 to confirm earlier findings with greater statistical power.
Semiannual FFA meeting	Review project status, goals, and schedule.	Spring and fall of each year.
FFA quarterly report	Summarize project scope, status, and schedule.	10th of January, April, July, and October.

Table 5-3. OU III Guiding Documents

Document	Milestone
<b>RI Addendum/Focused FS</b>	
Final Remedial Investigation Addendum/Focused Feasibility Study	January 2004
<b>Surface Water/Groundwater Decision Documents</b>	
MMTS OU III ROD	June 2, 2004
ESD	March 2009
MMTS OU III WQCS	December 2009
<b>LTSM and Monitoring</b>	
Draft Final MMTS OU III Post-ROD Monitoring Plan	August 27, 2004
LTSM Plan for the Monticello NPL Sites	Revision 0 issued June 25, 2007
MMTS OU III Analysis of Uranium Trends in Ground Water	August 16, 2007
<b>CERCLA Reviews</b>	
Fourth Five-Year Review Reports for MMTS and MVP	June 30, 2012

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

MNT-2012-01	Biomonitoring field and laboratory activities; FY2012.
MNT-2010-02	Revised ex situ treatment-system operating, monitoring, and reporting plan (supersedes MNT-2009-03).

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