Transition and Transfer of Remediated FUSRAP Sites from USACE to US DOE for Long-Term Surveillance and Maintenance - 16209

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ABSTRACT

The US Department of Energy (DOE) expects to receive the transfer of 10 FUSRAP Sites from the US Army Corps of Engineers (USACE) over the next 10 years; however, the timing of the transfers is highly dependent upon federal funding of the ongoing remedial actions. When remediation for each site is complete and the 2-year operations and maintenance period has concluded, each site will transfer from USACE to DOE for long-term surveillance and maintenance (LTS&M). US DOE's Office of Legacy Management (LM) will accept program responsibility for these sites and conduct LTS&M activities required to maintain protectiveness, preserve site-specific knowledge, and retain the cleanup and stewardship records while keeping stakeholders informed. Since the last FUSRAP site transfer occurred in 2007, LM in coordination with USACE intends to establish a transition process to promote the seamless transfer of sites from the time when the first record of decision is signed to the completion of FUSRAP activities. The approach to transfer active FUSRAP sites to completed sites status has been historically outlined in foundational documents such as the 1999 Memorandum of Understanding and supporting letters of agreement between the two agencies. As more complex FUSRAP sites are completed, this transition process will provide a model between the two agencies to communicate future long-term care liabilities.

Ultimately, the FUSRAP transition process is structured to acquire and preserve site knowledge and information necessary for protecting the environment and public health. As of 2015, LM has transitioned and accepted programmatic responsibility for over 90 sites. From LM's perspective, successful transition of any site includes understanding the long-term environmental liabilities. LM uses site transition framework requirements from past transitions to develop site-specific transition plans. Site-specific transition plans are developed by LM in coordination with USACE and executed during the 2-year operations and maintenance period. An integrated project team of subject matter experts is assembled to address the conditions of the transitioning site; acquire a site records collection; evaluate site operations and final site conditions and associated risks; identify and contact stakeholders; and document the basis for site LTS&M requirements.

While the majority of the transition activities are completed by LM, close coordination between US DOE LM and USACE throughout this process is essential

for an effective and seamless transfer to assure that there is no lapse in site protectiveness.

INTRODUCTION

As public environmental awareness grew in the 1960s and early 1970s, acceptable radiological release standards became more stringent. Recognizing that some sites that had been used in the production of the first nuclear weapons did not meet these new standards, the Atomic Energy Commission (AEC) established FUSRAP in 1974. FUSRAP's mission was to remediate sites where radioactive contamination remained from the Manhattan Project and early AEC operations.

Initial FUSRAP efforts were spent on researching the locations where private sector work had been contracted. AEC then conducted radiological surveys at selected sites to determine if the levels of contamination were above current standards. In order to be eligible for remediation under FUSRAP, sites had to be vetted through a formal evaluation process. Ultimately, AEC investigated over 600 locations, of which 46 sites in 14 states were designated for remediation through FUSRAP. Several of the sites had processed radioactive materials commercially, rather than for AEC, but, nevertheless, were designated for remediation by US Department of Energy (DOE) at the request of Congress.

AEC remained solely responsible for FUSRAP activities until it was abolished by Congress in 1975. Two years later, the Department of Energy Organization Act of 1977 placed all FUSRAP responsibilities under the control of DOE. By the end of fiscal year 1997, DOE had remediated 25 of the original 46 FUSRAP sites. DOE completed certification dockets for 20 sites by 1997 and finalized the dockets for the remaining 5 remediated sites after 1997. (A certification docket is the package of information that describes remedial actions, the final site conditions, DOE's statement of completed remediation, and the notifications to affected parties that the cleanup is complete.)

Congress Transfers Cleanup to the U.S. Army Corps of Engineers in 1997

The Energy and Water Development Appropriations Act for fiscal year 1998 brought significant change to FUSRAP by splitting responsibility for the program between DOE and the US Army Corps of Engineers (USACE). The two organizations signed a Memorandum of Understanding (MOU) regarding their respective roles and responsibilities, and it still holds today [1]. In the memorandum, DOE retained responsibility for remediated sites and USACE assumed responsibility for cleaning up the remaining ones. The remedial actions at the USACE FUSRAP sites were conducted under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) process. The MOU also defined a two-year transition period after cleanup and each agencies respective roles and responsibilities to ensure the smooth transfer of sites from USACE back to DOE.

DOE Establishes the Office of Legacy Management in 2003

In December 2003, DOE established the Office of Legacy Management (LM) to fulfill the Department's responsibility for managing legacy activities such as long-term stewardship at sites that no longer had a mission need. A year after its inception, LM assumed responsibility for 27 remediated FUSRAP sites from EM.
Since 1997, 7 additional sites have been accepted into the program, bringing the total to 53 FUSRAP sites. Today, LM manages the long-term surveillance and maintenance (LTS&M) responsibilities for 29 remediated FUSRAP sites. USACE is remediating the remaining 21 sites plus 3 sites (added after 1997)—all of which are in various stages of the cleanup process.

PROCESS

For FUSRAP sites with active remediation, DOE and USACE continue to coordinate on site-related issues, such as records, real property, remediation options affecting stewardship activities, and stakeholder interests. This coordination between DOE and USACE is critical to maximize effectiveness for a seamless site transition and transfer.

For the majority of 29 completed FUSRAP sites under LM management, LTS&M requirements are limited to records-related activities and supporting stakeholders. However, over the next 10 years, LM is planning to receive up to 10 new FUSRAP sites from the USACE, 4 of which may require substantial long-term responsibilities that go well beyond LM's current resource allocations. For example, these sites may require inspections to verify the integrity of the engineered and institutional barriers as well as environmental monitoring and real-time maintenance activities.

Given the time period since the last transition and transfer, combined with the higher level of long-term responsibilities for the several active FUSRAP sites, LM and USACE have increased dialogue and discussion of the organizational agreements that govern the transfer of completed FUSRAP sites. These initial discussions were not meant to renegotiate the terms of the MOU but to, rather, clarify the transition of specific functional requirements (such as records and information technology) and align expectations by establishing a common transition and transfer model for FUSRAP sites.

In general, transition of a site occurs over a 2-year period and includes different milestones and events along its duration whereas the transfer of a complete site represents a single event that occurs at a particular point in time. More specifically, the transition of an active site to a completed site begins whenever the first Record of Decision is signed and ends 2 years after site closeout or completion of FUSRAP activities. Transfer of a completed site means that USACE had fulfilled its obligations to provide all necessary documentation and information to DOE and additional resources to support the site. This example demonstrates the need to develop a model that captures key events with accompanying required activities for both LM and USACE to ensure a smooth site transfer. Three foundational documents were used to create the phased transition process model described

herein; the MOU and two Agency letters [2,3]. The two Agency letters were sent a couple of years following the signing of the MOU. These letters were issued to clarify the terms of the MOU and summarize the position of DOE and USACE regarding certain procedures that were to be followed for the addition of new sites to FUSRAP as well as the transfer of completed sites for long-term stewardship. The letters do not address the transfer requirements for specific functional activities (e.g., real property, stakeholder, and records management); however, they provide additional guidance.

With this in mind, a key component to the phased transition process lies in the three-step process as outlined in these letters of agreement. These steps are as follows:

> **Step 1** of the formal transition process starts with the signing of the Record of Decision (ROD) by USACE.
>
> **Step 2** is the start of the 2-year transition period and begins once USACE (1) completes the site remedy as directed by the ROD,
>
> (2) completes a site closure report and a declaration of response action completion, and
>
> (3) transmits the information to LM.
>
> **Step 3** begins 90 days prior to the end of the 2-year transition period. In this step, USACE transmits the final site documents and notify LM of the effective date of transfer.

Each step of the transition process is tied directly to an initiating event followed by associated actions, which are summarized in Table I.

TABLE I. Three-Step Transfer Process

Step	Initiating Event	Actions
1	Record of Decision is signed.	LM will receive from USACE: • A copy of the signed Record of Decision • A general description of the site and remedial action goals • An estimated remedial action schedule • Anticipated land-use controls • Anticipated operations and maintenance requirements
2	Remedial activities are completed at the site. Site Closeout Report and declaration of response action are completed and signed.	LM will receive from USACE: • Declaration of response action completion • A copy of the Site Closeout Report • An estimate of annual out-year cost requirements • A general description of the remedial goals • A general description of any restrictions remaining on the property As required and available, USACE will provide LM with: • Letters from regulators acknowledging that remedial action goals have been met (for sites with regulator concurrence) • Operations and maintenance plans • Land-use controls implementation plan(s) USACE will also advise LM of the start and end dates for the 2-year short-term operations and maintenance activities that occur prior to final transfer
3	90 days before the end of the 2-year operations and maintenance period.	LM will receive from USACE: • A copy of the Administrative Record • Updated operations and maintenance plans • Actual costs of operations and maintenance for the first 2 years • A description of the long-term actions required by LM • The effective date of transfer to LM for long-term operations and maintenance

Early transition planning and joint collaboration between LM and USACE will occur in advance of the formal FUSRAP site transfer of responsibilities. Early transition planning may include but is not limited to early communication between the parties, sharing and review of decision documents, and attendance at public meetings.

An exception to this is made for the few sites where the government is the current owner of the property (in contrast to the majority of the sites, which are privately owned). At the government-owned sites, LM assumes responsibility for the property at the beginning of Step 2 while USACE continues operations and maintenance (O&M) responsibility for 2 years.

Now that the three-step process has been described above, the following sections explain how these steps align with phases of transition, specifically, transitioning a FUSRAP site from USACE active site remediation to LM long-term stewardship.

Phased Transition of Active to Completed Site Overview

Figure 1 illustrates USACE and LM's implementation approach towards a seamless transition and transfer of a FUSRAP site from active remediation toward long-term stewardship. The figure also portrays how the transition phases correspond to the three-step process described in the letters of agreement.

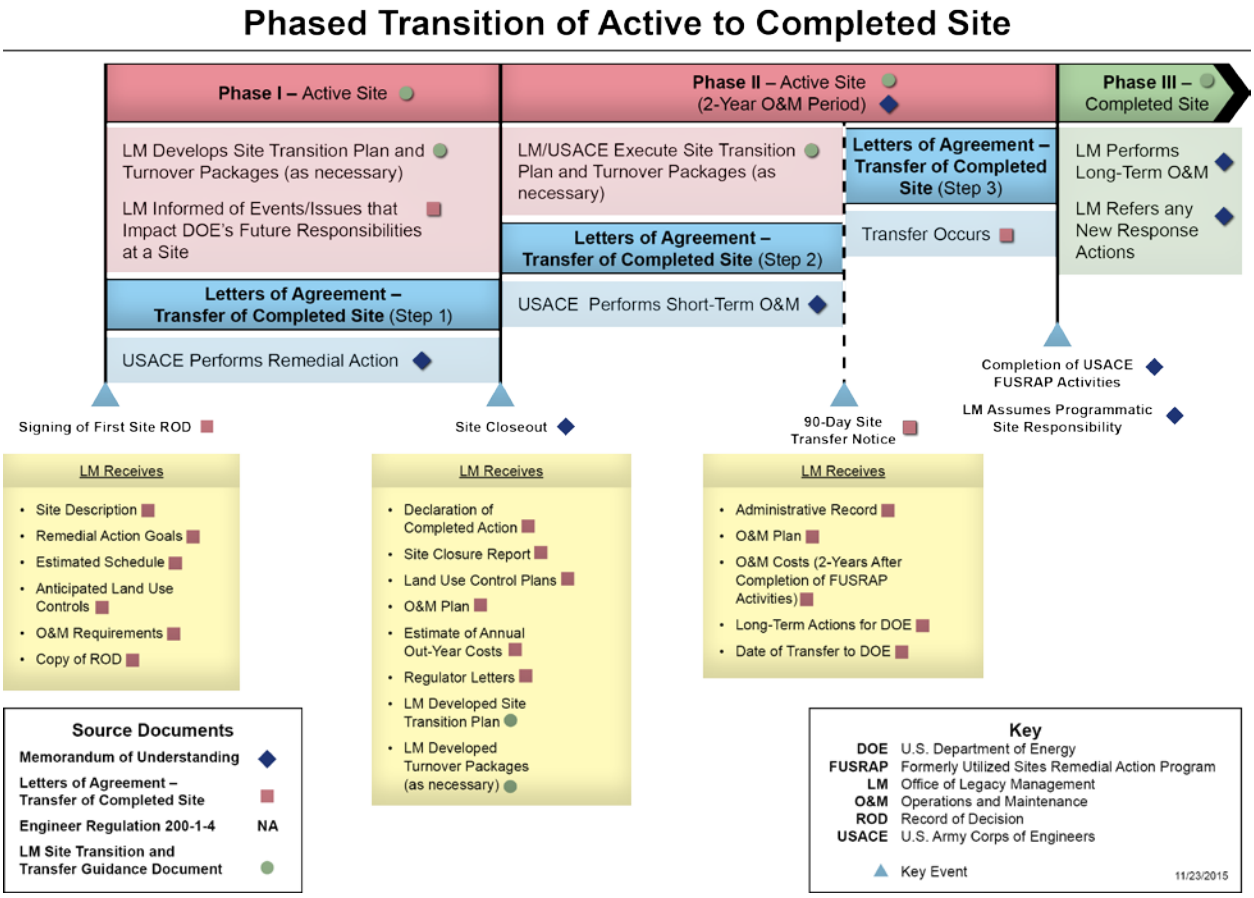

Figure 1. Phased Transition of Active to Completed Site

Phase I (which corresponds to Step 1) occurs as USACE performs remedial actions. In this phase, LM receives materials from USACE such as updated completion schedules and information concerning other events and issues that could impact LM's future responsibilities at the site.

This collaborative communication ensures a seamless transfer of responsibilities as presented in the 1999 MOU and supporting agencies letters. More specifically, USACE follows its own guidance, USACE Engineering Regulation (ER) 200-1-4 (USACE, 2014), to address their

responsibilities as outlined in the March 1999 MOU. Whereas, LM follows its requirements set forth in the Site Transition Framework (STF) as the primary tool to evaluate whether all relevant transition activities and end-point criteria have been identified. The STF is the framework for developing the Transition Plan and includes a set of requirements that must be met before programmatic transfer of a closure site can occur.

As illustrated on the matrix presented on the following page, nine of the ten requirements sections identified within STF apply to a FUSRAP transition (refer to left side) and seven of the nine functional areas within the Work Breakdown Structure (WBS) apply (refer to right side).
The corresponding matrix bullets identify the functional areas that have responsibility for the action, with the highlighted bullet indicating the lead.

Each site transition plan speaks to the elements within this matrix. Depending on the complexity of the site, a detailed stand-alone turnover package (TOP) may be developed by the WBS areas. A TOP contains a summary of key transition tasks, a description of their status, and a summary of future activities.

Prior to a site transfer, LM will conduct a readiness review. This review will assess site progress and completion of activities and milestones regarding STF requirements in accordance with the following documents:

- DOE Order 430.1B, Chg. 2, *Real Property and Asset Management.* This Order specifies the requirements for management of real property assets, including the disposition and transition of such assets.

- DOE Order 413.3B, *Program and Project Management for the Acquisition of Capital Assets.* This Order specifies a disciplined process for project management using a “Critical Decision” (CD) process throughout the project life cycle

- DOE Policy 454.1, *Use of Institutional Controls*. This Policy requires DOE to maintain LTS&M responsibility for protection of the public and the environment for as long as residual hazards are present.

	Site Transition Framework (STF) Requirements for a FUSRAP Site	Work Breakdown Structure (WBS) Elements								
		1	2	3	4	5	6	7	8	9
		Program Management	Environmental	Records Management	Information Management	Property Management	Stakeholder and Regulator Relations	Worker Relations and Benefits*	Procurement*	Project Closeout
I	**Authorities and Accountability**									
	A - Roles and responsibilities documented and approved	●	●	●	●	●	●			
	B - Entities responsible for long-term surveillance and maintenance (LTS&M) identified, funding sources identified	●	●				●			
	C- Requirements and procedures incorporated into LTS&M plan and agreements	●	●				●			
	D - Legal authority for LTS&M identified	●	●							
II	**Site Conditions**									
	A-Conditions have been identified	●	●			●				
	B - Conceptual site model for LTS&M has been completed	●	●							
	C - All remedial action and documentation has been completed	●	●							
	D - Natural Resources Damage Assessment claims and documents have been identified	Not applicable for FUSRAP site transitions								
III	**Engineering Controls, Operations and Maintenance Requirements, and Emergency/Contingency Planning**									
	A - Engineered controls have been identified and documented		●				●			
	B - Life-cycle estimates prepared	●	●	●	●	●	●			
	C - Master schedule of ongoing activities prepared	●	●	●	●	●	●			●
	D - Risk-based end state identified	●	●				●			
	E - Operations and maintenance (O&M) activities identified, and performing party selected	Not applicable for Example Site transition								
	F - Emergency/Contingency planning and authority identified	●	●				●			
IV	**Institutional Controls, Real and Personal Property, and Enforcement Authorities**									
	A - Land use institutional controls identified, approved, and implemented	●	●							
	B - Property records are complete	Not applicable for Example site transition								
	C - Personal property transfers are completed	Not applicable for Example site transition								
V	**Regulatory Requirements and Authorities**									
	A - Regulatory decision documents are identified and complete		●			●				
	B- NE+B9PA and EC compliance assessments are conducted/complete		●			●				
	C - CERCLA 5-year reviews or other review results are available		●			●				
	D - NPL status, RCRA permit status, or state requirements are known		●			●				
	E - NRC licenses status is established	Not applicable for Example site transition								
	F - Document location has been identified and documents are accessible		●	●	●		●			
VI	**Long-Term Surveillance and Maintenance Budget, Funding, and Personnel**									
	A - Technical baseline for LTS&M has been developed	●	●	●	●	●	●			
	B - Available funding is consistent with baseline and estimates	●								
	C - Personnel requirements are identified	●	●	●	●	●	●			
	D - A business closeout process has been developed	●	●	●	●	●	●			●
VII	**Information and Records Management**									
	A - Transfer of Information and Records		●	●	●	●				
	B - Information and records planning is acceptable to stakeholders		●	●	●	●	●			
VIII	**Public Education Outreach, Information, and Notice**									
	A- FACT Sheets developed/Website Updated						●			
	B - Updated administrative record is available to interested parties		●	●			●			
	C - Public involvement costs are estimated and funded	●	●				●			
IX	**Natural, Cultural, and Historical Resource Management Requirements**									
	A - System is in place to protect information that is sensitive	●	●	●						
	B - Biological resources, T&E species, archeological resources identified	●	●							
	C - Location and characterization of resources needing LTS&M identified	●	●							
X	**Business Closure Function, Pension and Health Benefits, Contract Closeout or Transfer, and Other Administrative Requirements**									
	A - Responsibilities for administration and funding of claims and benefits identified and planned	Not applicable for FUSRAP site transitions								
	B - Current contractor pensions and benefits are identified and planned	Not applicable for FUSRAP site transitions								
	C - Status of pending litigation and liabilities identified	Not applicable for FUSRAP site transitions								
	D - Contract termination action identified (usually completed by site owner)	Not applicable for FUSRAP site transitions								
	E - Requirements of DOE orders satisfied	●				●				

● Indicates primary responsibility for this action

● Indicates secondary responsibility for this function

* Not applicable for FUSRAP site transitions

Phase II (which correspond to Steps 2 and 3) is the full 2-year period during which USACE performs the short-term O&M activities at the site. During this phase, LM executes the site transition plan and any necessary turnover packages. Phase II includes the Step 3 90-day transfer notice from USACE along with physical transfer of records and completion of FUSRAP activities.

Phase III occurs when LM assumes programmatic site responsibility for performing long-term O&M at the site. The site is considered active during Phases I and II and completed during Phase III.

During Phase III, if LM identifies the potential need for further response or remedial actions at the site, then USACE will determine whether further response is necessary (in accordance with Article I, Section F.13, of the March 1999 MOU).

Phase I—Signing of First ROD to Site Closeout

Phase I of the transfer process begins when the first ROD is signed and ends when the Site Closeout Report is complete and a declaration of response action completion has been signed by USACE as displayed in Figure 2.

At the beginning of Phase I, LM starts the internal process of developing the site transition and transfer documents. A key transition document is the site transition plan. The site transition plan addresses how the requirements from the STF will be satisfied. The STF is an internal policy document that provides a framework for all DOE facilities and sites where DOE may have anticipated LTS&M responsibilities. It is a tool to help facilitate a smooth transition from remediation to LTS&M, providing a systematic process for affected parties to utilize in analyzing the baseline to manage the actions from site completion through a site's transition into LTS&M. The framework is not meant to provide an exhaustive list of the specific requirement and information that are needed. The objective of the tool is to facilitate better understanding of the conditions of the site and the actions required for transfer; the transition team is expected to consult with both USACE and LM management to verify that major concerns are addressed.

The site transition plan is developed by LM and executed by LM staff during the 2-year operating and maintenance period. Within this framework, the site transition plan is intended to achieve several specific objectives:

- Ensure efficient transfer of USACE activities to LM.
- Ensure that the requirements of the site transition framework are met.
- Establish requirements for LM post-closure responsibilities.
- Describe the approach to disposition real property, records, and data by USACE and LM where appropriate.

The site transition plan should include all LM's work scope that will transition upon completion of FUSRAP activities at a site.

Finally, functional area TOPs(e.g., records, real property, environmental data and systems, etc.) are developed by LM on an as-needed basis depending on the complexity of the site. This planning document provides an opportunity for all affected parties to define and agree upon all actions that each party must take before functional responsibility can be fully transferred from one organization to another. Ideally, the TOPs are developed and executed in parallel with the site transition plan. The majority if not all of the transition activities should be completed 90 days before the end of the 2-year operation and maintenance period.

To help facilitate the transition and transfer of the site, LM will request informational copies of draft site-specific land-use controls and implementation plans being coordinated with regulators and other stakeholders from USACE. Changes in completion schedules and other events and issues that might impact LM's future responsibilities at a site will also be shared by USACE. LM will attend public meetings, especially at sites that will require significant long-term operational and maintenance activities, and/or maintenance of land-use controls, as needed.

For sites with multiple RODs, the FUSRAP Program – Project Completion Schedule will identify whether transfer from active to completed status is planned on the site level or on an operable-unit level as outlined in that schedule.

At federal facilities, LM will accept the transfer of government-owned real property and interests previously acquired by USACE for FUSRAP execution in Phase 1. Real property at all other sites will transfer in Phase III. Unless specifically identified and excluded in the FUSRAP Program – Project Completion Schedule, any vicinity properties will be transferred with the prime property.

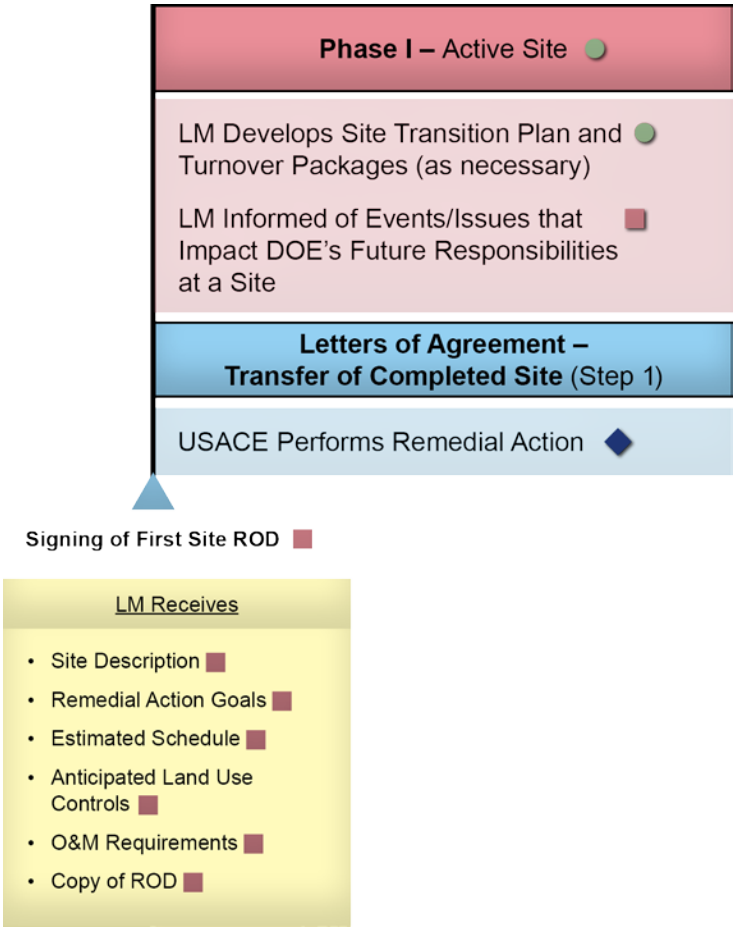

Figure 2: Phase I Illustration of the Transition of Active to Completed Site

Phase II—Site Closeout to Completion of FUSRAP Activities

Phase II begins at site closeout, specifically, when a declaration of response action completion letter has been signed by USACE and transmitted to LM. During Phase II, USACE is responsible for the site's operation and maintenance activities for 2 years after site closeout (refer to Figure 3). Near the end of Phase II, USACE provides a 90-day notification to LM of the official transfer of the programmatic responsibility for the site. All transition activities should be complete 90 days before the end of the 2-year period or completion of USACE FUSRAP activities.

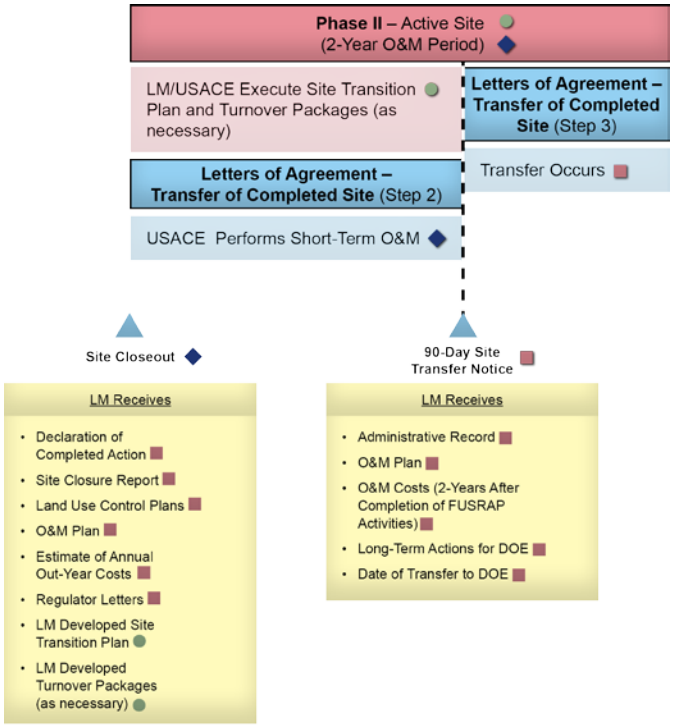

Figure 3: Phase II Illustration of the Transition of Active to Completed Site

Phase III—Programmatic Transfer to LM for Long-Term Operations and Maintenance

Phase III begins when the programmatic responsibility for the site is transferred to LM (refer to Figure 4). This event is the completion of USACE FUSRAP activities and marks the conclusion of USACE responsibilities at a site, in accordance with the March 1999 MOU. The status of the site changes from active to completed.

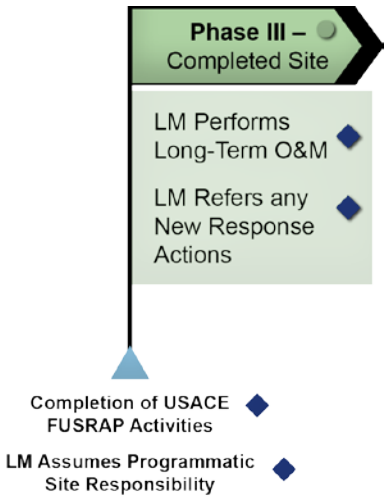

Figure 4: Phase III Illustration of the Transition of Active to Completed Site

Upon site transfer, LM has categorized the transitioning site on the basis of LTS&M requirements and their stewardship complexity (i.e., Category 1 for sites that require only records and stakeholder support; Category 2 for sites with surveillance and maintenance requirements such as environmental monitoring and management of institutional controls; and Category 3 for sites that require active onsite stewardship). LM will review sites to ensure that the site-specific LTS&M requirements will maintain protective.

Even after a site is officially in completed status, events could occur that would require LM to determine whether all or portions of the site should be referred back to USACE for additional response action. Examples of conditions that could lead to this situation include the following:

- Changes in land-use conditions
- Contamination that was previously inaccessible becoming accessible and requiring removal
- In the course of performing routine monitoring and/or Five-Year Reviews, a determination is made that an area of residual contamination must be addressed
- Regulators and/or other stakeholders intervening in the process

If a potential for a new response action is identified for a completed site, LM will refer the site back to USACE to conduct additional characterization of the issue and to determine whether further response is necessary (in compliance with Article I, Section F.13, of the March 1999 MOU).

CONCLUSION

Since the last FUSRAP site transfer occurred in 2007, LM and USACE have had opportunities to strengthen each of their respective processes for an effective transition and transfer of a FUSRAP site. Today, both agencies through collaborative dialogue intend to follow to the process illustrated in Figure 1 to promote the seamless transition and transfer of future remediated FUSRAP sites.

The phased transition process for FUSRAP sites adheres to the MOU and accompanying agency letters and is structured to acquire and preserve site knowledge and information necessary for protecting the environment and public health. When remediation for each site is complete and a 2-year operations and maintenance period has concluded, each site will smoothly transfer from USACE to LM for long-term surveillance and maintenance. Both agencies will continue to refine the process based on site-specific lessons-learned on all remaining active sites and any new sites to ensure success in all phases of FUSRAP.

REFERENCES

1. *Memorandum of Understanding Between the U.S. Department of Energy and the U.S. Army Corps of Engineers Regarding Program Administration and Execution of the Formerly Utilized Sites Remedial Action Program (FUSRAP),* March 17, 1999.
2. Letter from USACE to DOE, December 4, 2001.
3. Letter from DOE to USACE, April 8, 2002.
4. DOE Order 430.1B, Chg. 2, *Real Property and Asset Management.*
5. DOE Order 413.3B, *Program and Project Management for the Acquisition of Capital Assets.*
6. Site Transition Plan Guidance – http://energy.gov/lm/guidance-reports-and-documents.
7. Site Transition Framework – http://energy.gov/lm/guidance-reports-and-documents.