Management of Superfund Remedies in Post Construction

Tracy Hopkins, EPA HQ
Amanda Van Epps, EPA HQ
Welcome!

◆ Introduce instructors
  ▪ Tracy Hopkins
  ▪ Amanda Van Epps

◆ Polls!

◆ Think of the remedy you spend the most time on…
Course Objectives

◆ Describe transition process for remedies transferring from remedial action to O&M, with an emphasis on Fund-lead remedies
◆ Emphasize the need for early planning for post construction activities
◆ Review process for site closeout
PCC Guidance Documents

Close Out Procedures for National Priorities List Sites

Close Out Procedures (May 2011)

PCC Guidance

Guidance for Management of Superfund Remedies in Post Construction

PCC Guidance (February 2017)
Course Outline

◆ Module 1: Introduction
◆ Module 2: Post Construction Completion (PCC) Activities
◆ Module 3: Planning for PCC
◆ Module 4: Sitewide Close Out Activities
MODULE 1: INTRODUCTION
Knowing Terminology is Important

◆ Site
  ▪ The whole site, including all operable units

◆ Operable Unit (OU)
  ▪ A portion of the site

◆ Remedial Action (RA) Project
  ▪ A discrete scope of work supporting a site cleanup

◆ Post Construction Completion (PCC) Activities
  ▪ Activities that occur after the remedy has been constructed to maintain and evaluate the effectiveness of the remedial action
RA versus PCC – Why do we care?

◆ Containment versus Restoration Remedy Considerations

◆ Fund-lead Considerations
  ▪ Different funding mechanisms and requirements affect the remedy terminology
  ▪ Timing of transfer to states

◆ Based on technology and remedy objectives, PCC activities may be classified as RA, LTRA or O&M
Types of RAs

- Source Remediation Actions
- Source and Groundwater Containment Actions
- Groundwater and Surface Water Restoration Actions

Actions taken to reduce or eliminate the toxicity, mobility or volume of contaminated source material

- Typically occurs through on-site treatment or by physically removing waste from site

Examples are

- Excavation
- Soil vapor extraction
- Dredging of contaminated sediments
- Stabilization/solidification
The remedy does not reduce or eliminate the source; rather it contains the source

Containment remedies may include

- Source control
- Landfill cap
- Physical measures to control migration of contaminated groundwater
Refers to remedies with the objective of returning all or part of a surface water body or groundwater aquifer to the beneficial use specified in the ROD.

For current or potential drinking water aquifers, this most commonly refers to restoring the plume to drinking water quality (MCLs).
MODULE 2: POST CONSTRUCTION COMPLETION (PCC) ACTIVITIES
Module Overview

◆ Review key definitions and concepts related to PCC activities.
  ▪ Operational and Functional (O&F) Determination
  ▪ Long-Term Response Action (LTRA)
  ▪ Operation and Maintenance (O&M)
  ▪ Sitewide PCC measures will be discussed in a later module

◆ Plan for post construction
What is the “Operational and Functional” Period?

- The O&F period normally is considered to be the time when minor adjustments are made, as necessary, to ensure that a remedy is functioning properly and performing as designed.
- Starts with a joint EPA/state inspection.
When is a Remedy “Operational and Functional?”

A remedy is O&F when EPA and the State determine the remedy is functioning properly and is performing as designed

OR

A remedy is O&F one year after construction is complete

WHICHEVER IS SOONER
Why is the O&F Determination Important?

- **Technical significance**
  - Indicates the remedy is operating as designed

- **Funding significance**
  - Funding responsibility changes in transfer
  - Source/groundwater containment (RA transfers to O&M)
  - Groundwater/surface water restoration (RA continues as LTRA)
How is the Start of the O&F Period Documented?

Sample O&F Start Letter from EPA to State for Containment Remedy
EPA regional letterhead

[Name of State Agency Official]
[State Agency]
[Address]
[City, State Zip Code]

Re: Operational and Functional Start for [remedy or remedies or OU], [Site Name], [Site Location]

Dear [Name of State Agency Official]:

This letter serves to advise you that the remedy for OU [#] at [site name] started the operational and functional (O&F) period on [date]. EPA Region [#] has completed construction activities including [insert constructed elements of remedy] at OU [#]. An inspection was conducted jointly with your office on [date] and included [insert participants]. During the inspection, we determined that construction of the remedy was complete, the remedy was constructed in accordance with the remedial design plans and specifications, and [no] [only minor] construction items remain.

[Include any additional findings from the inspection]
How is the O&F Determination Documented?

Sample O&F Determination Letter from EPA to State for Containment Remedy

[Name of State Agency Official]
[State Agency]
[Address]
[City, State Zip Code]

Re: Operational and Functional Determination

Dear [Name of State Agency Official],

This letter serves to advise you that the operational and functional (O&F) on [date]. There is an sigh, [state's name], [State Agency]

The NCP, 40 CFR §300.435(f)(2), contain a section to be completed on the year after construction is complete, to be functioning properly and is performing as designed.

An inspection was conducted jointly with your office on [date], and the participants determined that construction of the remedy was complete, which began the O&F period. EPA’s contractor has continued to operate and make minor adjustments to the remedy. EPA has shared performance and monitoring data

Sample O&F Determination Letter from EPA to State for LTRA Remedy (Groundwater or Surface Water Restoration)

[Name of State Agency Official]
[State Agency]
[Address]
[City, State Zip Code]

Re: Operational and Functional Determination for [remedy and/or OU], [Site Name], [Site Location]

Dear [Name of State Agency Official]:

This letter serves to advise you that the remedy for OU [#] at [site name] was declared operational and functional (O&F) on [date].

The National Contingency Plan (NCP), 40 CFR §300.435(f)(2), states, “A remedy becomes ‘operational and functional’ either one year after construction is complete, or when the remedy is determined concurrently by EPA and the state to be functioning properly and is performing as designed, whichever is earlier.”

An inspection was conducted jointly with your office on [date], and the participants determined that construction of the remedy was complete, which began the O&F period. EPA’s contractor has continued to operate and make minor adjustments to the remedy. EPA has shared performance and monitoring data.
What is LTRA?

For fund-financed remedial actions involving treatment or other measures to restore groundwater or surface water quality to a level that assures protection of human health and the environment, the operation of such treatment or other measures for a period of up to 10 years after the remedy becomes operational and functional will be considered part of the remedial action.
How is the End of LTRA (and Transition to O&M) Documented?

Sample LTRA Transfer Letter from EPA to State
(Groundwater or Surface Water Restoration)
EPA Letterhead

[Date]

[Name of State Agency Official]
[State Agency]
[Address]
[City, State Zip Code]

Re: Transfer of Operation and Maintenance (O&M) responsibilities for [remedy or OU], [site name], [site location] to [state agency]

Dear [Name of State Agency Official]:

This letter serves to document the transfer of responsibility for the CERCLA [groundwater or surface water] restoration remedy at OU [#] at [site name] site in [site location] from the U.S. Environmental Protection Agency (EPA) to [state agency]. The long-term response action (LTRA) period is now complete; therefore, as required by CERCLA §104(c)(3) and [insert the section of the SSC, CA, or other written contract that includes the CERCLA §104(c)(3) state assurance], the state must assume O&M activities at this site. [State agency] is now responsible for implementing the O&M until the cleanup levels have been achieved.

The National Contingency Plan, 40 CFR §300.435(f)(3), states, “for fund-financed remedial actions involving treatment or other measures to restore groundwater or surface water quality to a level that assures protection of human health and the environment, the operation of such treatment or other measures for a period of up to ten years after the remedy becomes operational and functional will be
What is O&M?

- “O&M measures are designed to maintain the remedy at a site to ensure that the remedy remains protective of human health and the environment.”
- As a general rule, any time that wastes are left on site above levels that allow for unlimited use and unrestricted exposure (UU/UE), there will be an O&M component.
- Engineering definition often differs from the Superfund definition.
When Does O&M Begin?

O&M measures are initiated after the remedy has achieved the remedial action objectives and remediation goals in the ROD, and is determined to be operational and functional, except for groundwater and surface water restoration actions.
Who Conducts O&M Activities?

- Fund-lead
  - States
  - EPA using a Special Account
  - Tribes
- PRP-lead
  - PRPs
- Federal facility-lead
  - Other federal agency
### Exhibit 5 – Recommended O&M Plan Elements

- Transfer of O&M responsibilities (for Fund-financed RAs when the state assumes O&M)
  - Designation of the organizational unit of the state government responsible for O&M
  - Identification of the availability of state funding mechanisms for O&M activities (if

### Exhibit 6 – Recommended O&M Manual Elements

- **De**
  - System description, including facility operation and control
    - Description of how the designer intends the system to operate
    - Description of normal operation, including startup procedures
    - Description of routine maintenance activities
- **Sa**
  - Description of routine remedy inspection requirements
- **Es**
  - Description of potential operating problems with suggested solutions
  - Description of corrective action to be taken in the event of a release
- **De**
  - Description of installed equipment
    - Equipment inventory and identification numbers
    - Vendor data and warranties
    - Maintenance requirements and schedule
    - Spare parts list
    - Replacement schedule
    - Suggested monitoring requirements
- **Records and reporting**
  - Format and delivery requirements
  - Operating and inspection logs
  - Laboratory records
Let’s tie it all together!

- How does the RA type affect the sequence of:
  - O&F Determination
  - LTRA
  - O&M
Source Remediation Actions

**Off-site disposal:** Wastes removed, cleanup levels achieved, site restored

**Source remediation:** Cleanup levels achieved, site restored

**NAPL recovery:** Necessary mass recovered/volume reduced
Source and Groundwater Containment Actions

- RA Start
- Joint Inspection
- O&F Start
- O&F Determination
- RA Report
- ≤ 1 year
- O&M
- Remedial Action

Construct containment remedy.
Groundwater and Surface Water Restoration Actions

Ex situ: Construct treatment system. In situ: Construct injection network. MNA: Construct monitoring network.

RA Start

O&F Start

Joint Inspection

O&F Determination

RA Report

≤ 1 year

≤ 10 years

O&M Period

Fund-Lead LTRA

Transition to O&M

O&M (if necessary)

Remedial Action

PRP or Federal Facility O&M
MODULE 3: PLANNING FOR PCC
### PCC Considerations During the Remedial Process

#### Exhibit 1 – Recommended Post Construction Completion Considerations

#### Exhibit 4 – Recommended Long-Term Response Action Considerations for Fund-Financed Groundwater Restoration Remedies

<table>
<thead>
<tr>
<th>Project Phase</th>
<th>LTRA Considerations: Depending on site-specific circumstances, it may be appropriate for regions and states to evaluate a number of considerations, including the ones described below.</th>
</tr>
</thead>
<tbody>
<tr>
<td>RD</td>
<td>- Meet with state counterparts before the RD starts to discuss the roles and responsibilities of both parties. This meeting serves as a kick-off to and ongoing exchanges that will continue to take place between EPA and the state (EPA, 1995b, p. 27).</td>
</tr>
<tr>
<td></td>
<td>- Ensure that the RD Statement of Work includes development of an O&amp;M plan, O&amp;M manual, ICIAP, and remedy completion strategy, as appropriate.</td>
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<tr>
<td></td>
<td>- Perform a review of the RA’s biddability, constructability, and operability (with assistance, if needed, from USACE or contractors) (EPA, 1995b, p. 61).</td>
</tr>
<tr>
<td></td>
<td>- Complete and obtain state signature for the SSC (EPA, 1995b, p. 63).</td>
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<tr>
<td></td>
<td>- Regularly communicate project progress to state counterparts and identify any state concerns related to its CERCLA obligations as well as any constraints that may affect the RA implementation (EPA, 1995b, p. 27).</td>
</tr>
<tr>
<td></td>
<td>- Consult with the state to develop a draft O&amp;M plan for the selected remedy (40 CFR §300.510(c)(1)).</td>
</tr>
</tbody>
</table>
PCC Considerations During the Remedial Process

◆ PCC guidance provides recommended PCC considerations through:
  - RI/FS and ROD
  - RD
  - RA
  - O&F
  - LTRA
  - O&M

◆ Always depends on site-specific circumstances

◆ In general the considerations encourage:
  - Thinking about and planning for PCC activities well before the remedy is in the PCC phase
  - Communicating consistently with state counterparts
PCC Considerations for O&F Determination
(primarily Fund-financed)

- Conduct **joint EPA/state inspection** at completion of remedy construction and document in a letter to the state
  - This marks the start of O&F
- **Notify state** of upcoming O&F determination. Conduct joint EPA/state inspection if O&F duration is less than one year
- Make an **O&F determination** and document in a letter to the state
- Ensure **RA Report** is prepared and includes a section on required LTRA and O&M activities
- Prepare **PCOR** for site, if appropriate
LTRA Years 0 - 6

- Operate system and make *adjustments, repairs and replacements* as appropriate
- Regularly *share cost, performance and monitoring data*, results of performance reviews, and other technical site data with state counterparts
- Conduct *FYRs*, consistent with the site schedule
- Provide the state the opportunity to *participate in the FYR process* and review and comment on the draft report
- Consider an *optimization review* to ensure effective and efficient operation
- Develop or update the *remedy completion strategy*
LTRA Year 7

- **Notify the state** by letter of the planned LTRA transfer date
- **Recommend that the state initiate funding requests** for continued O&M after LTRA is complete
LTRA Year 8: Planning and Performance Reviews

◆ Revise **O&M plan** as appropriate
◆ Continue to **share cost, performance and monitoring data**, results of performance reviews, and other technical site data with state counterpart
◆ Consider an **optimization review** if not previously performed
◆ Review **property transfer** and **site access** requirements
◆ Recommend that the state begin **planning to assume O&M** (e.g., hiring initiatives, procurement strategy and a timeline for contract support)
◆ Identify any necessary equipment **repair/replacement**
LTRA Year 9: Implement System Changes

- Notify the state again, by letter, of **date of anticipated transfer** from LTRA to O&M so state has ample time to budget O&M costs and plan for the upcoming schedule and milestones
- Design/construct **revisions to system**, as required
- Revise **O&M manual, O&M plan**, sampling plan, monitoring plan and remedy completion strategy
- Conduct second **FYR**, consistent with the schedule
- Prepare to **transfer** permits, warranties, certificates of occupancy, deeds and other agreements
LTRA Year 10: Complete Transfer

- **State completes arrangements** for conducting O&M
- State or contractor personnel observe operations and **receive training** on the treatment system
- Complete all **transfer documents/arrangements**
- EPA sends a final letter **confirming transfer date** and schedule for any remaining actions
PCC Considerations During O&M

- Ensure remedy is **inspected** periodically and **monitored** as needed
- Implement **ICs**, if applicable (timing will vary and could be earlier)
- Review **O&M reports**
- Conduct an **optimization study**, if appropriate
- Develop or update the **remedy completion strategy**
PCC Considerations During O&M

- State assumes responsibility for conducting O&M
- State provides progress reports to EPA as agreed in O&M plan
- Conduct FYRs, consistent with the schedule for the site
- Provide the state the opportunity to participate in the FYR process and review and comment on the draft report
PCC Considerations During O&M

- Determine when **cleanup levels have been achieved** for groundwater or surface water restoration
- Prepare **final close out report**, which documents compliance with statutory requirements and provides a consolidated record of all removal and remedial activities for the entire site
MODULE 4: SITEWIDE CLOSE OUT ACTIVITIES
Module Overview

- Construction Completion
- Site Completion
- Deletion/Partial Deletion
SITE
CONSTRUCTION COMPLETION
Site Construction Completion Definition

Definition and Criteria

- Physical construction of all cleanup actions for the Site is complete, including actions to address all immediate threats and to bring long-term threats under control
- Formerly only final NPL and deleted NPL sites qualified
- Beginning in FY2014, non-NPL Superfund Alternative Approach (SAA) sites with a SAA agreement under Office of Enforcement and Compliance Assurance (OECA) policy also qualify*

*For more on SAA sites, see: http://www.epa.gov/enforcement/superfund-alternative-approach
Construction Completion Documentation and Achievement

◆ This is a key Superfund Remedial Performance measure

◆ Typically documented with Preliminary Close Out Report (PCOR)
  ▪ Review process
    • RPM drafts the PCOR and sends to the HQ OSRTI Regional Coordinator and completions coordinator for comment.
    • Regional Division Director typically signs

◆ CC Milestone Achievement
  ▪ When PCOR is signed and signature date entered in SEMS by Region, scan of signed PCOR sent to HQ, HQ concurs, and HQ enters CC milestone in SEMS
Construction Completion Remedy-Specific Technical Considerations

◆ Groundwater Treatment Restoration Remedies
  ▪ Physical construction of system complete, pre-final inspection done, system is operating and expected adjustments are minimal in nature

◆ Soil Vapor Extraction (SVE)
  ▪ System operating as designed, pre-final inspection is done and expected adjustments are minimal in nature
Construction Completion Remedy-Specific Technical Considerations

- In-situ soil or groundwater remedies
  - Chemical oxidation and surfactant/co-solvent flushing – at least one round of treatment agent addition has been initiated
  - Electrical resistive heating or thermal conductive heating – power supplied/initiated for electrodes or heating elements
  - Steam enhanced extraction – Commencement of steam generation
  - Permeable reactive barrier – physical construction complete for both reactive and non-reactive segments of barrier

(continued)
Construction Completion Remedy-Specific Technical Considerations

◆ Contingency remedies
  ▪ Demonstration that use of the contingency is not anticipated
  ▪ Region must provide adequate justification to support this claim

◆ Groundwater Monitoring
  ▪ MNA – the initial monitoring well network is in place

◆ Institutional Controls
  ▪ Implementation status does not affect construction completion designation

(continued)
SITE COMPLETION
Site Completion Definition

Definition and criteria

- All remedial decision documents have been completed and the selected remedy is consistent with CERCLA, the NCP, and EPA policy and guidance

- All response actions have been completed and appropriately documented in the site file

- All ICs are in place
Site Completion Documentation and Achievement

◆ Documented with Final Close Out Report (FCOR)

◆ FCOR review process
  ▪ RPM drafts the FCOR and sends to HQ Regional Coordinator for comment
  ▪ Regional Division Director typically signs

◆ Milestone achievement – Date FCOR is signed
SITE DELETION
Site Deletion – NCP Criteria

◆ No further response is appropriate;
◆ Documentation of clean-up actions and decision-making at site is complete
◆ The EPA must determine, in consultation with State, that one of following criteria has been met:
  ▪ Responsible or other parties have implemented all response actions required;
  ▪ All appropriate Fund-financed response under CERCLA has been implemented, and no further response action by responsible parties is appropriate; or
  ▪ The RI has shown that the release poses no significant threat to public health or the environment, and, therefore, taking of remedial measures is not appropriate.
Partial Deletion

◆ Rationale: assists with redevelopment/reuse

◆ Partial deletion rule

  ▪ The EPA may delete portions of NPL sites provided that deletion criteria are met for those portions
    • media of portions being deleted must be clearly delineated
    • deletion action does not interrupt ongoing removal and remedial activities at other portions of the site

◆ Partial deletion petition

◆ 65 FR 66466 (11/1/1995)
Deletion and Partial Deletion Steps

- Obtain concurrence letter from State
- Compile deletion dockets
  - NOID
  - Community involvement requirements
  - NOD
- Obtain HQ review and concurrence
- Region publishes the deletion notice
Deletion Process

◆ Regular deletion process
  ▪ Notice of intent → public comment → responsiveness summary → notice of deletion

◆ Direct final deletion process
  ▪ Direct Final Notice of intent and Direct Final Notice of deletion → public comment
    • No adverse comments → notice of deletion becomes effective
    • Adverse comments → withdraw notice of deletion → responsiveness summary → notice of deletion if appropriate
Rulemaking

◆ Federal Docket Management System (FDMS) is the electronic repository for rule making
  - Deletion Docket (paper copies) are also at Site Repository and Regional Records Center

◆ For deletions, FDMS includes:
  - Federal Register (FR) notices
  - Deletion docket (AR Index, FCOR, State concurrence letter, most recent FYR, recently revised Decision Documents, if any.)
  - Public comments, if any
  - Responsiveness summary, if required
  - Partial deletions require site map indicating area of partial deletion
Let’s look at the numbers. . .

<table>
<thead>
<tr>
<th></th>
<th>FY17</th>
<th>Cumulative as of 9/30/2017</th>
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<tr>
<td>Construction completions</td>
<td>10</td>
<td>1,195*</td>
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<tr>
<td>Site deletions</td>
<td>2</td>
<td>394</td>
</tr>
<tr>
<td>Partial deletions</td>
<td>4</td>
<td>86^</td>
</tr>
</tbody>
</table>

* NPL only
^ at 65 sites
Key Links

Superfund: Post Construction Completion
https://www.epa.gov/superfund/superfund-post-construction-completion

Guidance for Management of Superfund Remedies in Post Construction (February 2017)

Close Out Procedures for NPL Sites (May 2011)
http://www.epa.gov/superfund/close-out-procedures-national-priorities-list-superfund-sites
Any Questions?