



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460


OFFICE OF
SOLID WASTE AND
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OCT 17 2018

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MEMORANDUM

SUBJECT: Request for Regional Superfund Task Force Adaptive Management Pilot Nominations

FROM: James E. Woolford, Director 
Office of Superfund Remediation and Technology Innovation

TO: Superfund National Program Managers, Regions 1-10

PURPOSE

This memorandum's purpose is to request an adaptive management (AM) pilot proposal from each region by November 2, 2018, using the pilot criteria below. Upon receipt of the proposals, the AM Superfund task force workgroup will select pilot finalists by evaluating submissions relative to the defined criteria using members' best professional judgment.

BACKGROUND

Overview

On July 3, 2018, the Office of Superfund Remediation and Technology Innovation (OSRTI) issued the Office of Land and Emergency Management (OLEM) 9200.3-120, *Superfund Task Force Recommendation #3: Broaden the Use of Adaptive Management*. This memorandum provided a working definition of AM and outlined an implementation plan to expand AM's application at Superfund remedial sites.

The working definition for AM proposed in OLEM 9200.3-120, and updated based on the outreach efforts conducted since July 3, 2018, is:

Adaptive management is a formal and systematic site or project management approach centered on rigorous site planning and a firm understanding of site conditions and uncertainties. This technique, rooted in the sound use of science and technology,

encourages continuous re-evaluation and management prioritization of site activities to account for new information and changing site conditions. A structured and continuous planning, implementation and assessment process allows EPA, States, Tribes and Alaskan Native Villages, other Federal Agencies, or potentially responsible parties (PRPs) to target management and resource decisions with the goal of incrementally reducing site uncertainties while supporting continued site progress towards achieving protection of human health and the environment in accordance with Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) and the National Contingency Plan (NCP).

OSRTI is applying a two-phase implementation process where AM tools and processes will be piloted before issuing a final Superfund AM directive. Under Phase 1 of this process, the AM task force workgroup consulted with stakeholders on the development of pilot criteria before requesting and selecting pilots. Under Phase 2, the AM task force workgroup will evaluate pilot implementation and use lessons learned from these pilots to inform the directive.

Adaptive Management Pilot Program and Stakeholder Outreach Efforts

The AM pilots are an opportunity to move the Superfund program's AM application from the *conceptual stage* to the *implementation stage*. The AM pilots will develop and/or implement an AM framework at selected Superfund sites being addressed under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA), as amended, 42 U.S.C. § 9601, et seq.

Stakeholder Outreach

From August 2018 through October 2018, OSRTI provided other EPA program offices, states, tribes, other Federal agencies and other external stakeholders the opportunity to review and comment on the draft AM pilot criteria document. The AM task force workgroup considered criteria comments and, as appropriate, used them to shape the final AM pilot document (see Attachment 1). In addition to providing an opportunity to comment on the draft AM document, OSRTI conducted four webinars to educate all interested stakeholders on the Superfund AM pilot program.

Pilot Program

To maximize lessons learned, the AM task force pilots will be pursued at both the site (e.g., entire Superfund site or installation) and project level (e.g., a single operable unit) in two key areas: establishing an AM site/project management plan; and in some instances, AM plan execution.

Per the implementation plan EPA outlined in OLEM 9200.3-120, the pilot program's duration is one year. EPA recognizes that this timeframe is aggressive; therefore, to help ensure selected pilots stay on track, the AM task force workgroup will track pilot progress during FY 2019. Depending on pilot-specific progress, pilot evaluation activities may need to extend beyond the Superfund Task Force activities completion by July 2019.

As part of the formal Superfund Task Force AM pilot program, OSRTI intends to pilot **1 to 2 site-level pilots and 4 to 6 project level pilots**, although the final number of pilots may change based on the number of nominations submitted. For more information on site-level and project-level pilots, AM tools to be piloted and pilot performance metrics, please refer to Attachment 1.

PILOT CRITERIA

Adaptive Management Task Force Pilot Criteria

1. All pilots should be conducted at sites on the National Priorities List (NPL) or at sites with Superfund Alternative Approach (SAA) agreements.
2. EPA will consider pilots at EPA-, state-, tribal-, potentially responsible party (PRP)-, and Federal Facility-lead sites or projects. Specific to PRP-lead sites or projects, to maximize success potential within the one-year pilot duration, only single PRP-lead sites or multi-PRP sites for which an allocation of responsibility has been completed and accepted among the PRP group may be considered.
3. Site-level pilots should be selected from sites recently added to the NPL or for which an SAA agreement has been finalized (in both cases, the last 3-5 years) to maximize AM planning benefits and applications.
4. There must be a documented **agreement** amongst EPA, states, tribes, PRP, other federal agencies and other key stakeholders, as applicable, to pursue a pilot at each specific site or project. Stakeholders must be familiar with EPA's AM definition and the pilot's purpose.

Other Considerations

Although not specifically a pilot criterion, the most appropriate pilots may be sites or projects that have complex attributes (e.g., large mining or surface water sites, sites or projects with contamination located in challenging geologic settings, or challenging stakeholder dynamics).

Additionally, the following project types at complex sites may best lend themselves to AM *project-level* pilots:

- Projects that are in the early phase of the feasibility study process, where EPA (or another federal-lead agency) plans to incorporate AM into a CERCLA and National Oil and Hazardous Substances Pollution Contingency Plan (NCP)-compliant remedy decision document;
- Projects for which EPA (or another federal-lead agency) has recently signed an early or interim-action record of decision (ROD) and that are entering or have recently entered the remedial design/remedial action (RD/RA) process; or
- Projects “stuck” in the operation and maintenance phase with no clear path forward.

Informal Pilots - Sites or Projects that Do Not Meet the Potentially Responsible Party Adaptive Management Task Force Pilot Criteria

EPA acknowledges that the criteria for selecting PRP-lead candidate sites may exclude stakeholders interested in the opportunity to explore the use of AM at a project or site.

Specifically, EPA acknowledges that considerable work needs to be done with respect to PRP enforcement and negotiations to better guide regions and responsible parties as to how to incorporate AM approaches into agreements for sites with large and/or complex work. In addition to these challenges, the use of interim and early response actions, a common theme in AM site approaches, poses unique site-specific enforcement challenges for sites with multiple PRPs or PRP groups. Considering these challenges, EPA limited AM task force pilots to sites or projects with single PRPs or to multi-PRP sites where an allocation of responsibility has been completed and accepted among the PRP group. Although enforcement and negotiations are still complicated for these projects, EPA has concluded that more meaningful progress during the one-year pilot duration can be expected at sites with a single PRP and that lessons learned from such pilots will support EPA efforts to develop future guidance for using AM at enforcement lead sites.

While EPA has focused the pilot study on single PRP sites or multi-PRP sites with an accepted allocation, the Agency, in consultation with state, tribal and other federal counterparts, will evaluate pilot requests for sites that do not meet the formal criteria and determine if an informal pilot is timely or appropriate.

PILOT NOMINATION PROCESS

All pilot nominations must be coordinated and presented through EPA regional offices. EPA Headquarters will not be part of the pilot vetting process. OSRTI encourages regional Superfund division directors to reach out to all remedial project managers (RPMs) and their managers to ensure all staff are aware of the pilot nomination process.

Pilot Nomination Process

Discussions on potential regional pilot nominations may be initiated by EPA regions or by stakeholders. If stakeholders are interested in pursuing pilots at their site or project, they should initiate discussions with the regional site or project RPM.

The RPM must consider all potential pilot nominations against the pilot criteria outlined in this document. If the potential pilot is a viable nomination candidate, consistent with pilot criteria #4, the RPM must document agreement with all key stakeholders (e.g., states, tribes, other federal agencies or PRPs). This documentation, to be reflected in Attachment #2, may include an email or record of a phone conversation.

After the RPM completes his/her evaluation of the potential pilot nomination, he/she will provide a recommendation to the regional Superfund division director.

Documentation of Regional Pilot Nominations

1. **Pilot Nominations.** Each pilot will be nominated by regional management using the attached Adaptive Management Pilot Nomination(s) Form (see Attachment #2). All nomination forms must document key stakeholder (e.g., states, tribes, other federal agencies, and responsible parties) agreement with the nomination.
2. **Sites Not Nominated for Pilots.** Pilots that were submitted by stakeholders, considered and not nominated, including decision rationale, will be documented in the Sites/Projects Not Nominated for Adaptive Management Pilots (see Attachment #3).

REQUEST

The Superfund remedial offices must provide regional pilot nominations to me (woolford.james@epa.gov) and the AM Task Force Chair, Kate Garufi (garufi.katherine@epa.gov) by Friday, November 2, 2018. Final pilot selections will be determined by the end of November 2018.

Attachments

cc: Barry Breen/OLEM
Steven Cook/OLEM
Peter Wright/OLEM
Veronica Darwin/AO
Reggie Cheatham/OEM
Greg Gervais/FFRRO
Cyndy Mackey/OSRE
John Michaud/OGC
Karin Leff/FFEO
Regional Counsels, Regions 1-10
Regional Remedial Branch Chiefs, Regions 1-10
NARPM Co-Chairs
Brigid Lowery/OSRTI
Pam Barr/OSRTI
Bob Jennings/OSRTI

Adaptive Management (AM) Pilot Document

Outline

- I. Introduction
- II. Site Level Pilots – Establishing an AM Site Management Plan
- III. Project (or Remedy) Level Pilots– Establishing and Executing an AM Project Management Plan
- IV. Pilot Criteria
- V. Draft Tools to Pilot
- VI. Metrics for Evaluating Pilot Performance
- VII. AM Application and Considerations at Sites or Projects that Do Not Meet the PRP Pilot Criteria

I. Introduction

Building on the working definition of AM provided in OLEM 9200.3-120, Superfund Task Force Recommendation #3: Broaden the Use of Adaptive Management, the AM pilots are an opportunity to move the Superfund’s use of AM largely from the *conceptual stage* to the *implementation stage*. The AM pilots will develop and/or implement an AM framework at selected Superfund sites being addressed under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), as amended, 42 U.S.C. § 9601, et seq.

AM task force pilots will be pursued at both the site (e.g., entire Superfund site or installation) and project level (e.g., a single operable unit) in two key areas:

establishing an AM site/project management plan; and in some instances, AM plan execution.

Establish an AM Site/Project Management Plan: Focus on developing and refining a structured adaptive decision-making process and include the key elements of adaptive management, specifically:

- Identify Site/Project Objectives
- Model(s) the site being managed
- Identify potential actions (e.g., investigation, treatability study, response actions)
- Monitor and evaluate outcomes
- Incorporate learning into future decisions

Critical to AM planning is stakeholder input to support site or project strategies as well as setting up a transparent process and timing of adaptive management decision points (AMDPs) (e.g., regional work planning efforts) conducted throughout the site or project execution phase. A failure to adequately plan any of these could adversely affect successful AM execution.

Outcome: AM Site/Project Management Plan

Pilot applications: All pilots (Site level and project level)

AM Plan Execution: AM execution, or implementation, describes how the AM site/project management plan is used, specifically how it promotes:

- **Adaptive Decision Making:** Critical to AMDPs is documenting how and why management decisions are made (including rationale for both selected actions and actions not selected for implementation); and

Attachment 1: AM Pilot Document

- **Continual learning:** How selected actions at a particular site/project will be monitored, assessed, and most importantly how outcomes of these actions will be incorporated into future AMDPs.

Outcomes: Project Execution Plan for FY 2019

Pilot applications: Limited to some project level pilots (if schedule/time permits)

Pilot Duration: Per the implementation plan outlined in OLEM 9200.3-120, the pilots are intended for a duration of one year, formally starting after pilots have been selected. EPA recognizes that this timeline is aggressive; therefore, to help ensure selected pilots stay on track, the AM task force workgroup will track pilot progress during FY 2019. Depending on pilot-specific progress, pilot evaluation activities may need to extend beyond the Superfund Task Force activities completion by July 2019.

Pilot Resource Support: Headquarters (Office of Superfund Remedial and Technology Innovation (OSRTI) or Office of Land and Emergency Management (OLEM)) will offer extramural AM contractor support at selected pilots to assist EPA-led site/project teams in development of site and project specific documents, facilitate meetings, etc. In addition, based on the pilots that are selected, OSRTI may explore prioritizing pipeline or remedial action funds to support project execution efforts. (See sections II and III for more details on pilot execution.)

II. Site Level Pilots – Establishing an AM Site Management Plan

Due to the anticipated size and complexity of the targeted sites, pilots will be selected with the purpose of developing an AM Site Management Plan (AM-SMP) for each pilot.

Proposed Number of Pilots: *1 to 2 site-level pilots.* EPA, as the lead agency for this effort, is committed to piloting at least one EPA-lead site. A Potentially Responsible Party (PRP) or Federal Facility (FF)-lead site, assuming all pilot criteria identified in Section IV have been met, may also be included.

Piloting and evaluating the development of an AM-SMP will:

- Explore the benefits of early, systematic planning and documentation after sites have been listed on the National Priorities List (NPL);
- For sites at which EPA (or another federal lead agency) is considering selecting an early or interim response action decision(s) in the site strategy (*e.g.*, provide prompt human health or ecological risk reduction or source control), ensure clear expectations for data and feasibility study needs to support these decisions;
- Clearly state how AMDP management decisions (*i.e.*, proposed actions) will be documented to ensure that appropriate data quality objectives are developed to inform such decisions;
- Identify challenges with AM implementation including those unique to EPA-lead, PRP-lead, or other Federal Agency-lead sites;
- Define key site characteristics that would help identify good candidates for applying AM; and
- Be used as an example for guidance and training development

Attachment 1: AM Pilot Document

Measurement of Pilot Success: An AM-SMP that reflects coordination with numerous stakeholders and incorporation of their input to the Plan. After a year, there may be decisions to continue pilot evaluation.

III. Project (or Remedy) Level Pilots– Establishing and Executing an AM Project Management Plan

Pilots will be selected with the purpose of developing and executing a AM Project Management Plan (AM-PMP).

Projects that are candidates for piloting an AMP-PMP are:

- early in the feasibility study process, where EPA (or another federal lead agency) plans to incorporate AM into a CERCLA and National Contingency Plan (NCP)-compliant remedy decision document;
- projects for which EPA (or another federal lead agency) has recently signed an early or interim-action Record of Decision (ROD) and that are entering or have recently entered the Remedial Design/Remedial Action (RD/RA) process; or
- “stuck” in the operation and maintenance phase with no clear path forward

Proposed Number of Pilots: *4 to 6 project-level pilots.* EPA, as the lead agency, is committed to piloting at least three EPA-lead projects. A PRP or FF-lead site, assuming all pilot criteria identified in Section IV have been met, may also be included.

Developing and executing AM-PMPs will:

- Explore the benefits of early, systematic project planning and documentation;
- Ensure clear expectations for project outcomes and AMDPs, including necessary monitoring, evaluation, and analysis activities;
- Document how proposed actions are evaluated and decisions are made;
- Determine how the enforcement process documents can effectively incorporate AM;
- Identify how AM-PMPs may require updates or modifications during implementation;
- Identify challenges with AM implementation including those specific to EPA-lead, PRP-lead, or other federal Agency-lead sites; and
- Use project examples to better inform the development of site-level plans and enforcement strategies

Measurements of Pilot Success:

- Establishing a AM-PMP that included coordination with numerous stakeholders and incorporation of their input to the Plan; and
- Use of structured decision-making focused efforts on actions to reduce uncertainty, promoting site progress, and reducing process (*i.e.*, transactions, meetings, review time); and
- Documented decisions and achievements in a Project Execution Plan for FY 2019

Attachment 1: AM Pilot Document

IV. Pilot Criteria

1. All pilots should be conducted at sites on the National Priorities List (NPL) or at sites with Superfund Alternative Approach (SAA) agreements.
2. EPA will consider pilots at EPA-, state-, tribal-, potentially responsible party (PRP)-, and Federal Facility-lead sites or projects. Specific to PRP-lead sites or projects, to maximize success potential within the one-year pilot duration, only single PRP-lead sites or multi-PRP sites for which an allocation of responsibility has been completed and accepted among the PRP group may be considered.
3. Site-level pilots should be selected from sites recently added to the NPL or for which an SAA agreement has been finalized (in both cases, the last 3-5 years) to maximize AM planning benefits and applications.
4. There must be a documented **agreement** amongst EPA, states, tribes, PRP, other federal agencies and other key stakeholders, as applicable, to pursue a pilot at each specific site or project. Stakeholders must be familiar with EPA's AM definition and the pilot's purpose.

Although not specifically a pilot criterion, nominated pilots should be sites or projects that have attributes that make them complex (e.g., large mining or surface water sites, sites or projects with contamination located in challenging geologic settings, or challenging stakeholder dynamics).

V. Draft Tools to Pilot

Draft AM Site Management Plan or AM Project Management Plan. These plans should contain at a minimum:

- Site/project objectives and stakeholders' priorities;
- Preliminary site-level or project-level strategy and schedule, including anticipated AMDPs;
- Enforcement strategy for RI/FS, RD, and/or RA activities including early and interim actions (if applicable);
- Requirements for developing actions including:
 - Measurable objectives; and
 - Monitoring and evaluation of selected actions
- Structured and iterative decision-making process for prioritization of actions (e.g., early and interim actions) based on management objectives; and
- Process for incorporating lessons learned (e.g., results of performance monitoring) into future AMDPs

Project Execution Plan for Fiscal Year 2019.

Documentation to memorialize management and resource decisions should contain, at a minimum:

- Proposed actions and objectives;
- Prioritization of proposed actions based on management objectives;
- Selected actions, rationale and expected outcomes/goals;
- Execution, monitoring, and analysis plan and schedule for selected actions; and
- Schedule and process for analyzing results and informing next FY Project Execution Plan.

Attachment 1: AM Pilot Document

VI. Metrics for Evaluating Pilot Performance

Pilot success is articulated in Section II and III. AM planning and execution is challenging and complicated and incremental progress may be difficult to quantify. Pilot performance will be evaluated by the Adaptive Management Task Force Workgroup and participating pilot stakeholders using quarterly information requests. Requests will strive to capture the following information:

Site or Project Level Pilots – Planning

- Does the AM planning process seek to capture and consider stakeholders priorities, values, and objectives? Does it reflect stakeholder input?
- Does the site or project strategy effectively consider stakeholder input?
- Have steps been taken to identify and propose solutions for identified AM impediments?
- Are roles, responsibilities, timing and methods for decision-making clearly articulated in the AM plan?
- Has the AM planning process made you more or less inclined to use this approach at other large and/or complex sites?
- Do you think the AM planning process activities support streamlined decision-making for the site or project?
- How can this process be improved?

Site Level Pilots

- Does the high-level site strategy (AM-SMP) describe clear technical expectations and methods for documenting early and interim actions to support risk reduction, source control, and/or site development?
- Does the AM-SMP explain how information is presented during AMDPs (i.e. potential actions, anticipated outcomes, and monitoring needs) and how decisions are documented?
- If applicable, does AM complicate enforcement and/or enhance opportunities for enforcement?

Project Level Pilots – Execution

- Did the AM-PMP streamline management and resource decisions? If so, how?
- Were AMDP potential actions presented consistent with the AM plan? If not, why?
- How has an increased focus on risk management supported decision-making?

Tools/Templates

- Does the AM site or project plan template include all necessary elements of AM?
- Does the AM execution, monitoring and analysis plan clearly document management decisions?
- Does the AM execution, monitoring and analysis plan include objectives and monitoring needs for selected action(s)?
- Does the AM Execution Plan adequately capture the process for incorporating lessons learned into future AMDP?
- How can the tools be improved?

Attachment 1: AM Pilot Document

VII. AM Applications and Considerations at Sites or Projects that Do Not Meet the PRP Pilot Criteria

EPA acknowledges that the criteria for selecting PRP-lead candidate sites may exclude stakeholders interested in the opportunity to explore the use of AM at a project or site.

Specifically, EPA acknowledges that considerable work needs to be done with respect to PRP enforcement and negotiations to better guide regions and responsible parties as to how to incorporate AM approaches into agreements for sites with large and/or complex work. In addition to these challenges, the use of interim and early response actions, a common theme in AM site approaches, poses unique site-specific enforcement challenges for sites with multiple PRPs or PRP groups. Considering these challenges, EPA limited AM task force pilots to sites or projects with single PRPs or to multi-PRP sites where an allocation of responsibility has been completed and accepted among the PRP group. Although enforcement and negotiations are still complicated for these projects, EPA has concluded that more meaningful progress during the one-year pilot duration can be expected at sites with a single PRP and that lessons learned from such pilots will support EPA efforts to develop future guidance for using AM at enforcement lead sites.

While EPA has focused the pilot study on single PRP sites or multi-PRP sites with an accepted allocation, the Agency, in consultation with state, tribal and other federal counterparts, will evaluate pilot requests for sites that do not meet the formal criteria and determine if an informal pilot is timely or appropriate. EPA, in consultation with state, tribal and other federal counterparts, will evaluate pilot requests for sites that do not meet the formal criteria and determine if an informal pilot is timely or appropriate.

Tracking and Evaluation:

The AM task force workgroup will work with the Regions and Headquarters to:

- Maintain a list of non-pilot sites and projects with elements of AM;
- As requested, provide guidance and planning tools developed for the pilots to these projects;
- Check on the site/project status periodically, particularly to understand what is successful and what could be major pitfalls; and
- As appropriate, incorporate lessons learned in guidance and training.

Attachment 2: AM Pilot Nomination Form

Adaptive Management Pilot Nomination Form(s)

Directions: Please copy and paste this form for each regional pilot nomination.

Region: [Enter Region]

Site name: [Enter Site Name]

National Priorities List Status *Select one below:*

- Final on the NPL
Listing date: [Enter listing date]
- Superfund Alternative Approach (SAA) Site
SAA agreement date: [Enter SAA date]

Site- or Project-Level Pilot *Select one below and include a project description:*

- Site-level; or
- Project-level

Pilot description: [Enter brief description of proposed pilot]

Site or Project Lead *Select one below:*

- EPA;
- State;
- Tribe;
- Other Federal Agency; or
Federal Agency: [Enter Federal Agency]
- Potentially Responsible Party (PRP)

If this is a PRP-lead site, select PRP scenario that best applies *Select one below:*

- Single PRP-lead sites;
- Multi-PRP sites for which an allocation of responsibility has been completed and accepted among the PRP group; or
- Multi-PRP sites that do not meet the PRP pilot criteria (consider for informal pilot)
Describe: [If applicable, describe PRP scenario]

Attachment 2: AM Pilot Nomination Form

Key stakeholder agreement

Key Stakeholder (e.g., state, tribe, other federal agency, PRP)	Method of Agreement (attach if necessary)
1. <i>[enter stakeholder]</i>	<i>[summarize agreement]</i>
2. <i>[enter stakeholder]</i>	<i>[summarize agreement]</i>
3. <i>[enter stakeholder]</i>	<i>[summarize agreement]</i>
4. <i>[enter stakeholder]</i>	<i>[summarize agreement]</i>

By signing this form, the region's Superfund program agrees with this pilot nomination:

[Enter Name, Enter Title]

Attachment 3: Sites/Projects Not Nominated for AM Pilots

Sites/Projects Not Nominated for Adaptive Management Pilots

Directions: Please include all stakeholder-proposed site/projects that the region chose not to nominate.

Region: *[enter Region]*

Site/Project Name	Proposing Stakeholder		Proposed Pilot Description	Regional Non-Selection Rationale
1. <i>[enter site/project name]</i>	<i>[enter stakeholder]</i>		<i>[summarize site/project]</i>	<i>[summarize rationale]</i>
2. <i>[enter site/project name]</i>	<i>[enter stakeholder]</i>		<i>[summarize site/project]</i>	<i>[summarize rationale]</i>
3. <i>[enter site/project name]</i>	<i>[enter stakeholder]</i>		<i>[summarize site/project]</i>	<i>[summarize rationale]</i>
4. <i>[enter site/project name]</i>	<i>[enter stakeholder]</i>		<i>[summarize site/project]</i>	<i>[summarize rationale]</i>

[Enter Superfund Division Director Name, Enter Title]