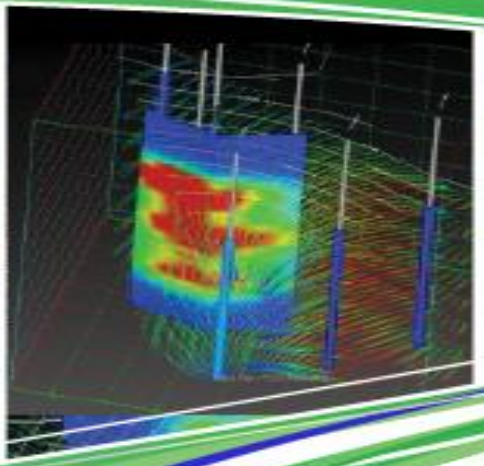




Adaptive Management Task Force: Implementation Plan and Pilot Criteria

October 2018

EPA United States Environmental Protection Agency

Presentation Outline

- Superfund Adaptive Management Overview
- Task Force Implementation Plan
- Superfund AM Pilot Criteria
- Next Steps

SUPERFUND ADAPTIVE MANAGEMENT OVERVIEW

Superfund Task Force (SFTF): Adaptive Management Recommendation

- **SFTF Goal 1**: Expediting cleanup and remediation

- **Strategy 2**: Promote the application of Adaptive Management at complex sites and expedite cleanup through the use of early/interim RODs and removal actions

- **Recommendation 3:** Broaden the use of Adaptive Management (AM) at Superfund sites

- Workgroup established in January 2018

Challenge: Managing Varied Project Risk Tolerance

= ↑ Uncertainty =

- ↓ Strength in Predicted Project Outcomes
- ↑ Time and Expense Needed to Reduce Uncertainty
- ↓ Site Progess

Issues Common to Complex Sites

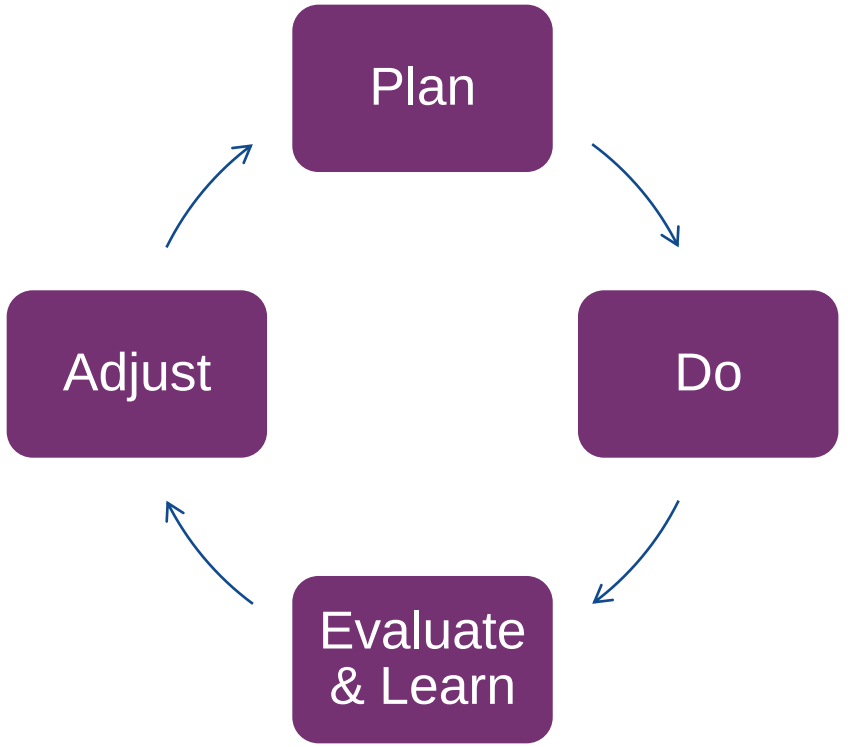
- ✓ Lack of consensus on site understanding and priorities
- ✓ No clear plan for managing uncertainty
- ✓ Lack of structured and documented decision-making
- ✓ Linear project management mentality
- ✓ Contracting and funding challenges to facilitate innovative and dynamic decision making

Adaptive Management (AM) Working Definition

*Adaptive management is a **formal** and **systematic** site or project management strategy 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 (OFAs), or responsible parties (PRPs) to target management and resource decisions with the goal of incrementally reducing site uncertainties while supporting continued site progress.*

Elements of AM

- Define Site/Project Objectives
- Model(s) the site being managed
- Identify potential actions
- Monitor and evaluate outcomes
- Incorporate learning into future decisions
- Stakeholder participation



AM Element	Superfund Equivalent
Define Site/Project Objectives	• Consistent with EPA guidance and policy • The goal of a “protective” remedy does not change, but the project management approach to get there does.
Model(s) of the site being managed	• Conceptual Site Model • Predictive Models (e.g., MNA or MNR timeframes)
Identify potential actions	• Site investigation activities (address significant data gaps) • Treatability or pilot studies • Evaluation and selection of response actions (early vs. interim vs. final; removals)
Monitor and evaluate outcomes	• Identify outcomes for potential actions (environmental recovery, uncertainty management) • Baseline monitoring • Performance monitoring and analysis
Incorporate learning into future decisions	• Update conceptual site model • Inform and/or modify scope of future actions • Revisit site/project objectives and evaluation status (challenge site assumptions)
Stakeholder participation	• Requirement under CERCLA • Project team (state, tribes, responsible parties, trustees, public/community, etc.)

Potential Advantages of AM at Superfund Sites

Streamline Decision Making

- Upfront planning and documentation to formalize and structure to the process
- Build stakeholder consensus and capture priorities
- Transparent documentation of management and resource decisions

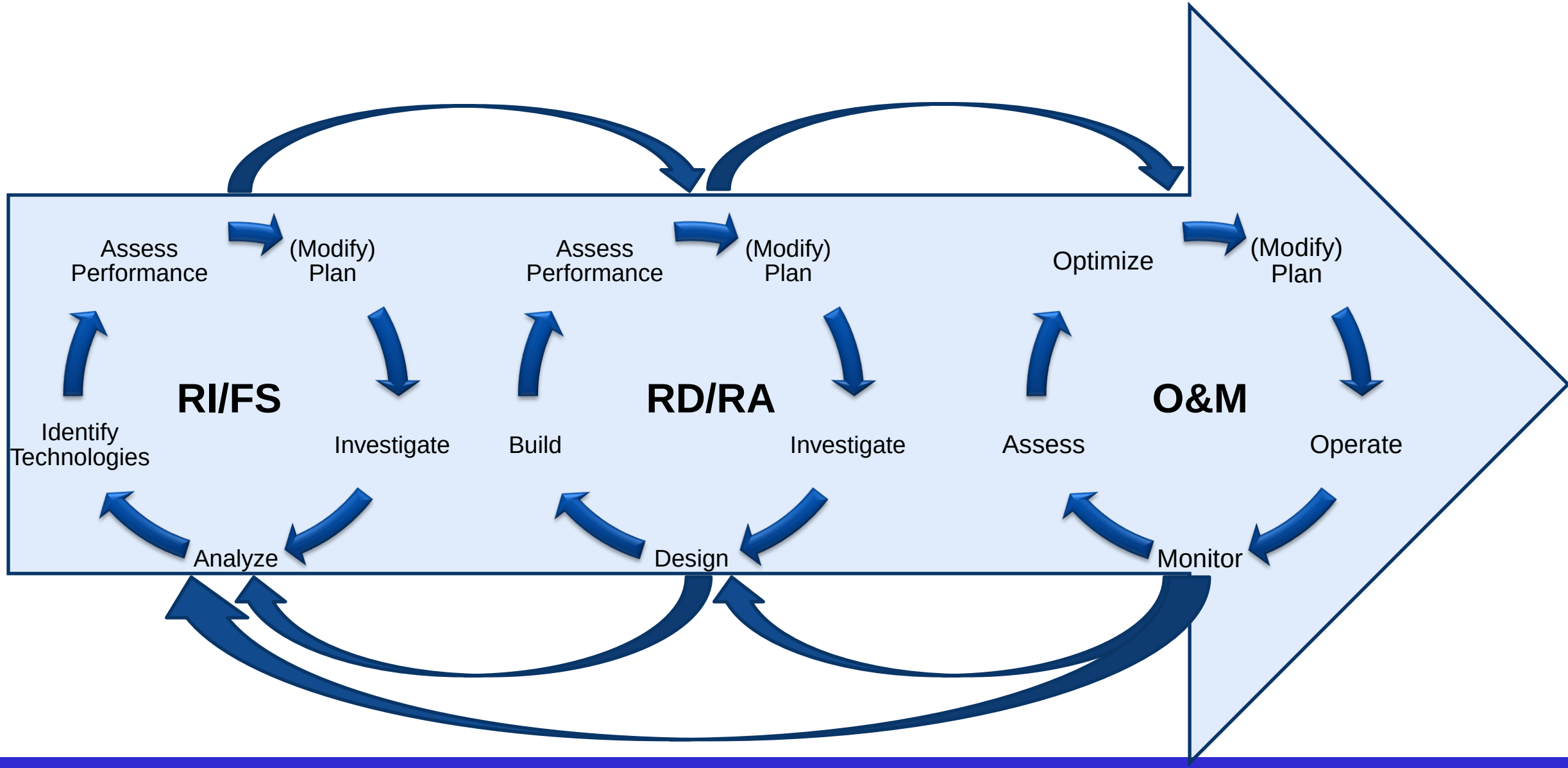
Facilitate Site Progress

- Potential for earlier human health and ecological risk reduction
- Early source control
- Putting parts of sites back into beneficial reuse

Cost Control

- Helps to prioritize limited resources on collecting critical information to facilitate site completion
- Updating remedial approaches, as needed, based on new information

Superfund Remedial Site Management Mentality Under AM



Superfund AM Site Level Applications

- Best applied early in the Superfund site characterization and remediation process
- Ensures early stakeholder input and consensus on a high-level site strategy or approach
  - Consider how early or interim response actions may be implemented throughout the site-wide RI/FS
- Captures stakeholder priorities to inform a transparent and structured decision-making process

Superfund AM Site Level Applications ctd.

Structured site-level decision making will:

- Align resources to collect information (e.g., characterization, treatability studies) critical to addressing key site uncertainties to support site strategy
- Identify how response action outcomes will be evaluated and inform future management decisions; and
- Ensure information is sufficient to support CERCLA and NCP-consistent remedy decisions for all early, interim, or final response actions.

Site AM Example

- Complex groundwater site with multiple, potential sources listed on the NPL in 2010

- Site Management Plan established early in process that established considering stakeholder input resulting in:
  - Site objectives and stakeholder priorities
  - Consensus on a site strategy
  - Process for identifying potential actions for decision-makers
  - Formal decision making process
  - Execution plan for monitoring, evaluating, and informing future actions

- Site Management Plan is continually revisited and updated as project changes

Superfund AM Project Level Applications

- Structured decision making also has applications at the project level

- Upfront project planning and decision-making may leverage existing EPA tools and initiatives such as:
  - Triad Approach
  - Dynamic Project Planning
  - RD/RA Planning and Project Delivery Strategies
  - Performance-based Acquisitions
  - Remedy Completion Strategies

Project AM Example: Bunker Hill Upper Basin

- Upper Basin Interim ROD Amendment – signed August 2012. The selected remedy provides:
  - An updated remedial plan for the OU 3 portion of the Upper Basin based on information and data collected over the last 10 years;
  - Remedial actions in the Bunker Hill Box to address contaminated surface water
  - A more effective approach for onsite treatment of contaminated adit discharges based on treatability testing conducted since 2002; and
  - A framework for planning, prioritizing, and implementing remedial actions.

- Framework established in the 2016 10-year Implementation Plan

QUESTIONS?

ADAPTIVE MANAGEMENT IMPLEMENTATION PLAN

Task Force Implementation Plan – Formal AM process

Ensures Site and Project Management efforts are:

- Clearly documented;
- Transparent; and
- Easily transferrable between sites through the use of standard format, processes, and procedures

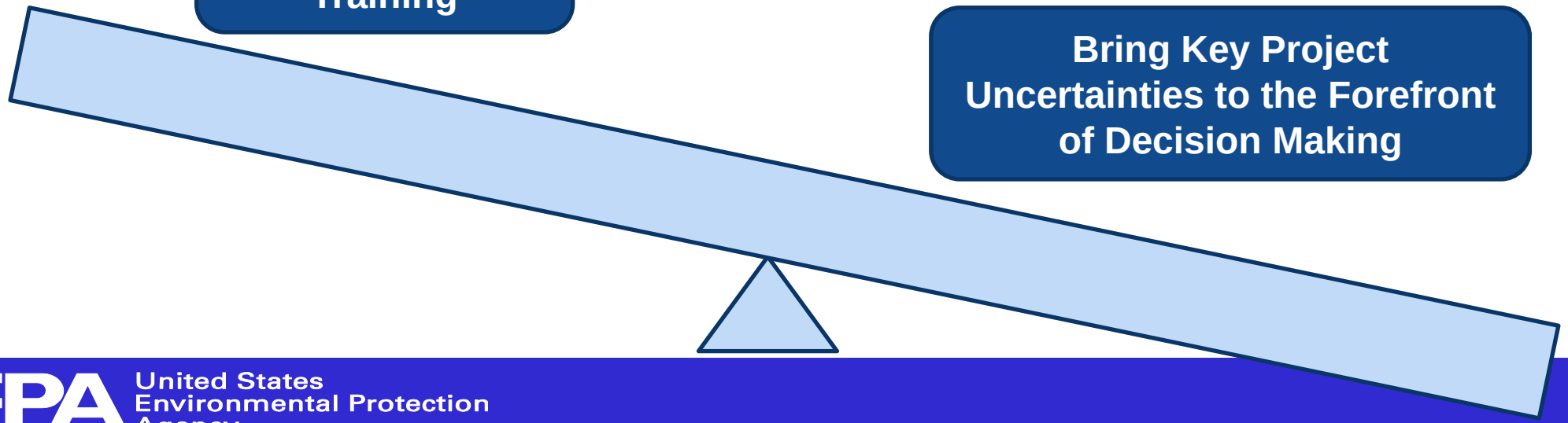
Formal AM process

EPA Investment

- Additional Site Documentation
- Superfund Staff and Stakeholder Training

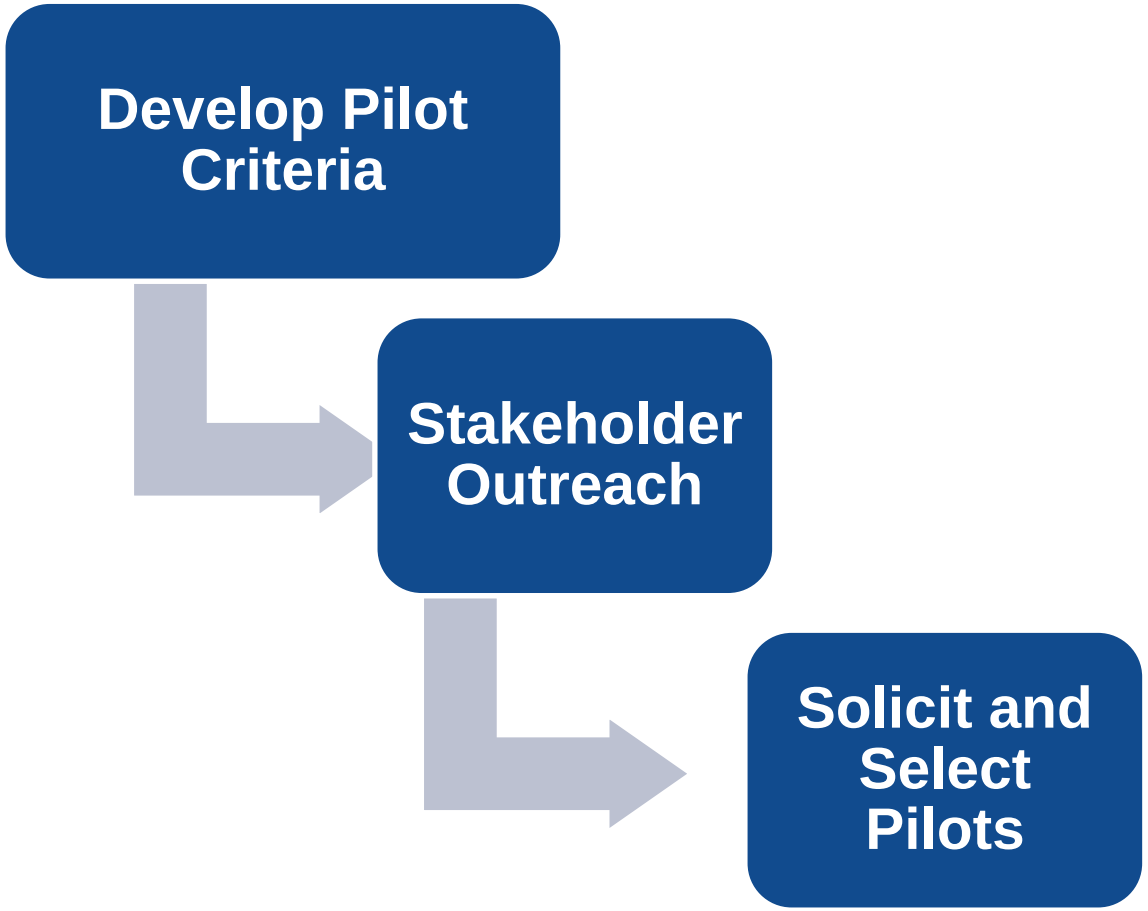
Benefit

- Structured Approach Makes it Easily Transferrable Between Sites or Projects
- Documented and Transparent Resource and Management Decisions
- Bring Key Project Uncertainties to the Forefront of Decision Making

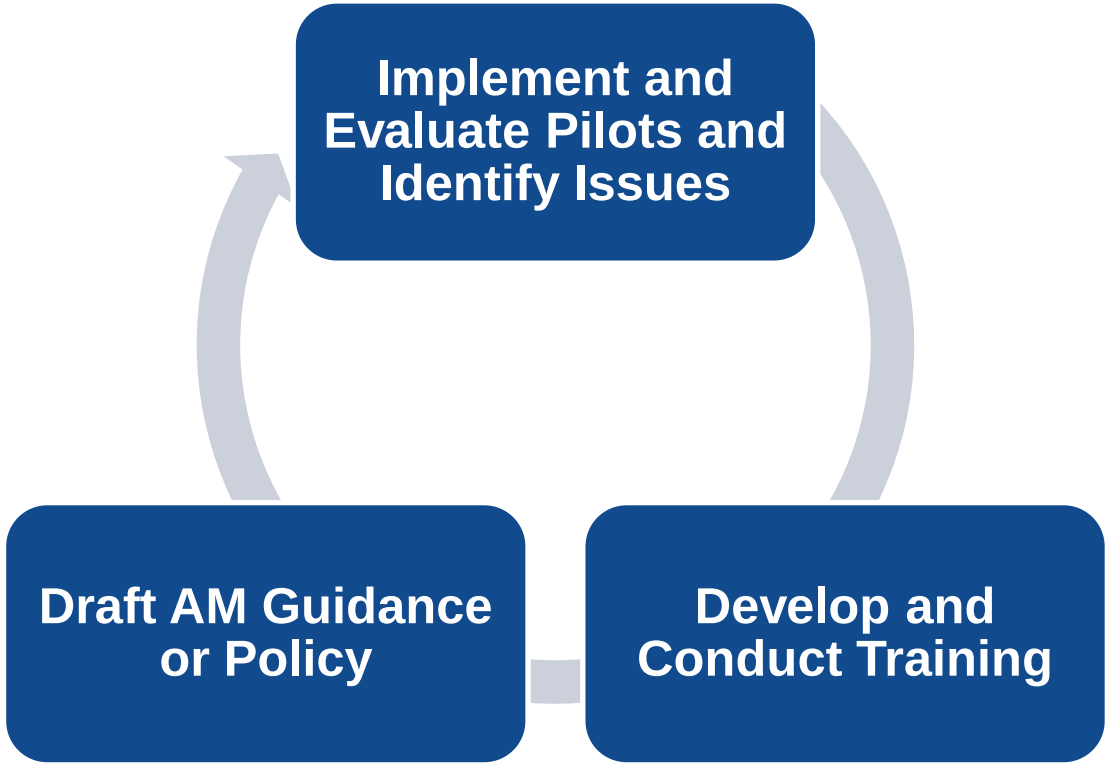


Two-Phase Implementation Process

PHASE 1: SUPERFUND SITE PILOTS



PHASE 2: IMPLEMENT APPROPRIATE POLICY



Implementation Plan

Timeframe	Action
End of July 2018	Create draft final pilot criteria; draft tools, evaluation metrics and measures of success. Disseminate draft products to regional programs for review and comment.
August 2018	Revise criteria and other draft products based on regional feedback.
September 2018	Coordinate/consult with states, tribes and other appropriate stakeholders.
October 2018	Solicit regions for pilot projects.
November 2018	Select pilots to apply formal AM at a variety of sites/projects.
April 2019	Review 6-month status and preliminary feedback from pilots. Determine preliminary scope of formal guidance and begin drafting. Identify any potential impacts to existing policy.
October 2019	Review 1-year status of pilots and incorporate lessons learned into draft guidance.
December 2019	Finalize guidance.

QUESTIONS?

SUPERFUND AM PILOT OVERVIEW

Introduction

- AM Pilot program focuses on bringing Superfund AM application from "*concept*" based to "*reality*" by developing and/or implementing an AM Framework

- AM Framework Application at the Site or Project Level (discussed on next slides)
  - Develop an AM plan; and
  - Execute the AM plan

- Pilot duration: 1 year (option to continue pilots longer than 1 year)

Establish an AM Site/Project Management Plan

- Develop and refine a structured adaptive decision-making process
- Will include stakeholder input to support high-level site or project strategies
- Plan will set up a transparent process and timing of adaptive management decision points (AMDPs) throughout the site or project execution phase.
- *Outcome*: AM Site/Project Management Plan
- *Pilot applications*: Site level and project level.

Draft Tool: AM Site Management or AM Project Management Plan

Containing, at a minimum:

- Site/project objectives and stakeholders' priorities;
- Preliminary site-level strategy and schedule, including anticipated AMDPs;
- Enforcement strategy for RI/FS, RD, and/or RA activities (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)

AM Plan Execution

- AM execution will highlight how the AM site/project plan is used, specifically how it promotes:
  - Adaptive Decision Making: Critical to AMDPs is documenting how and why management decisions are made; and
  - Continual learning: How selected actions will be monitored, assessed, and most importantly how outcomes of these actions will be incorporated into future AMDPs.

- *Outcome:* Project Execution Plan for FY 2019

- *Pilot applications*: Project level

Draft Tool: Project Execution Plan for Fiscal Year 2019

Documentation to memorialize management and resource decisions. Containing, 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 implementation plan.

Pilot Criteria

- **NPL Status**: Final on the NPL or Superfund Alternative (SA) sites.

- **Site or Project lead Considerations**: EPA will consider pilots at all sites or projects that meet #1 with the following limitation:

  Specific to PRP-lead site 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

- **Site level pilots considerations**: Preference for sites recently listed on the NPL or established as a SA site (in the last 3-5 years)

- Stakeholder document pilot agreement (e.g., “buy-in)

Request for Pilots

- Pilots requests are NOT being solicited at this time
- Formal pilot request will occur in the middle of October
- All pilot requests will be coordinated through the EPA Regions
- EPA Regions will submit formal requests

Pilot Considerations for Sites that do not meet the PRP pilot criteria

EPA acknowledges that the PRP pilot criteria is restrictive and may exclude stakeholders interested in the opportunity to explore the use of AM at a project or site.

- Rationale for restrictive PRP site criteria
  - Considerable work needs to be done in the areas of PRP enforcement and negotiations to support AM
  - Restrictive criteria maximizes success during 1-year duration

- **Decision**: EPA will review and consider informal pilots for PRP sites that do not meet the pilot criteria

Site level Pilots

- **Number of Pilots**: 1 to 2 site level pilots (at least one EPA-lead)

- **Measurement of Pilot Success**: Establishing an AM-SMP that involves coordination with numerous stakeholders and incorporation of their input to the Plan.

Project Level Pilots

- **Number of Pilots**: 4 to 6 project level pilots (at least three EPA-lead)

- **Pilots are being targeted for the following types of projects**:
  - Early in the feasibility study process and with plans to incorporate AM into a CERCLA and NCP-complaint remedy decision document;
  - Recently signed an early or interim-action ROD and are entering the RD/RA process; and
  - "Stuck" in the operation and maintenance phase with no clear path forward

Project Level Pilots

- **Measurement of Pilot Success**:
  - Establishing an AM-PMP that involves coordination with numerous stakeholders and incorporation of their input to the Plan; and
  - Use of structured decision-making focuses efforts on actions to reduce uncertainty, promoting site progress, and reducing process; and
  - Document decisions and achievements in the Project Execution Plan for FY 2019

Metrics for Evaluating Pilot Performance

- Pilots will be evaluated by:
  - The AM Task Force Workgroup
  - Stakeholders through quarterly information requests

- Information requests will explore and request feedback on the process and outcomes with a focus:
  - Capturing the benefits and challenges associated with AM planning and execution
  - Effectiveness of Tools/Templates

QUESTIONS?

Next Steps

- **October 9, 2018**: Comments are due
- **October 2018**:
  - Finalize criteria and solicit pilot nominations
  - Pilots will be nominated by EPA Regions
- **November 2018**: Select pilots

THANK YOU FOR PARTICIPATING

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