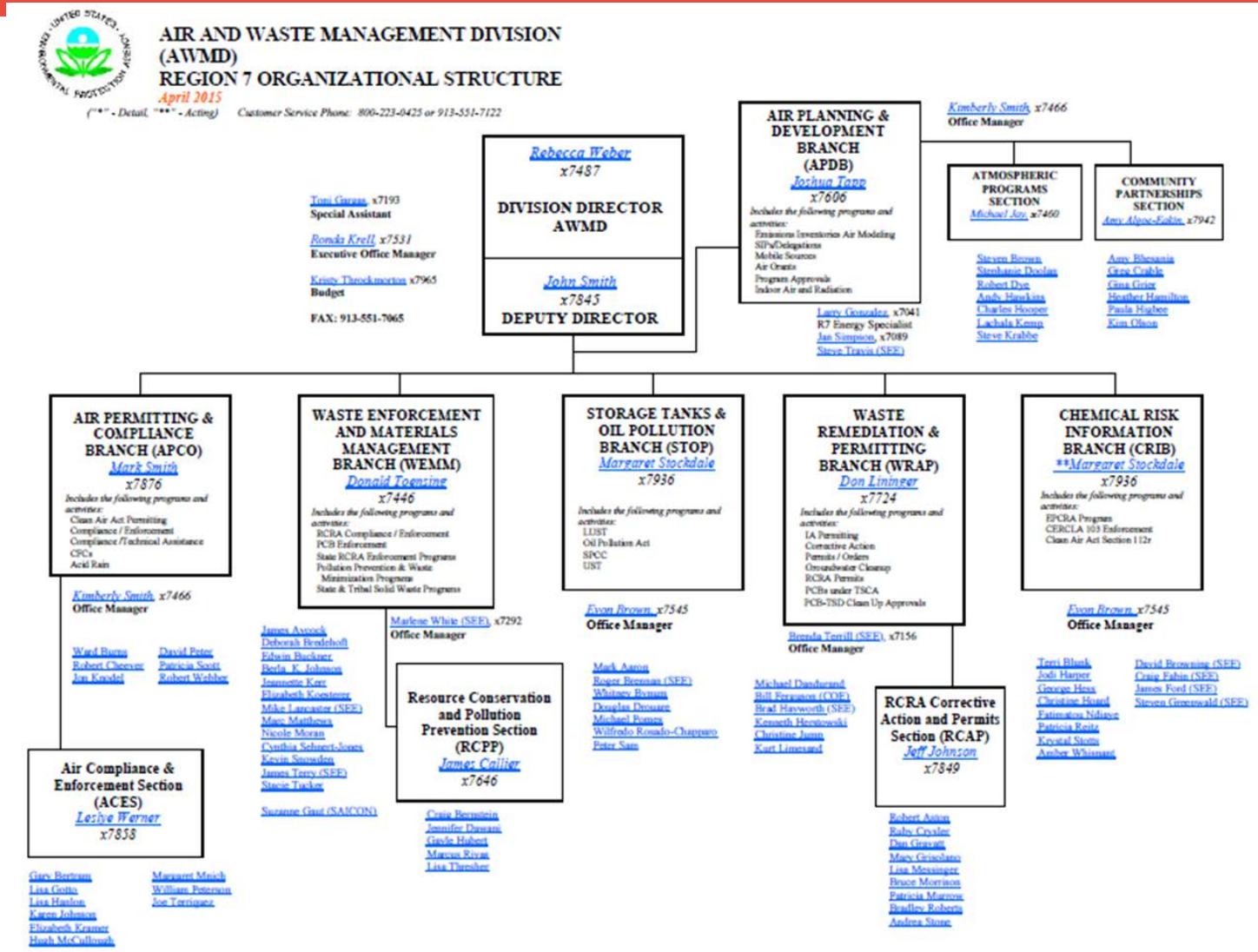
Region 7 Corrective Action Program Update

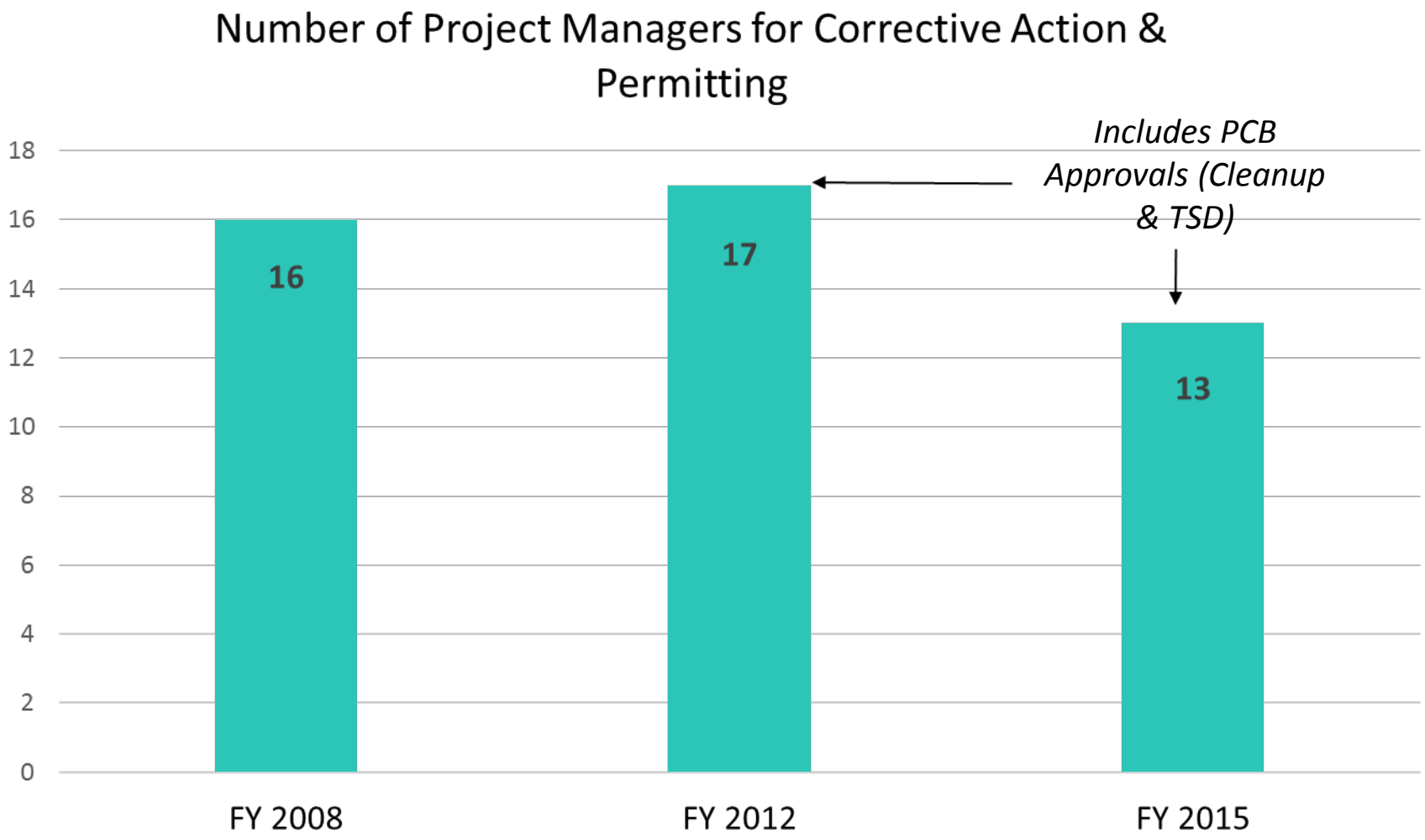
September 10, 2015
AWMA/CHMM Monthly Meeting

RCRA FIRST

Region 7 Organization



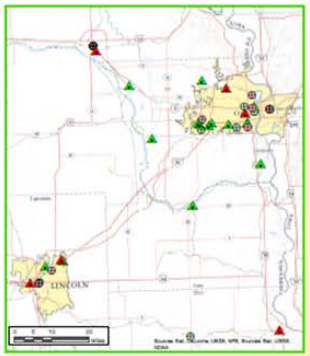
R7 RCRA Project Managers



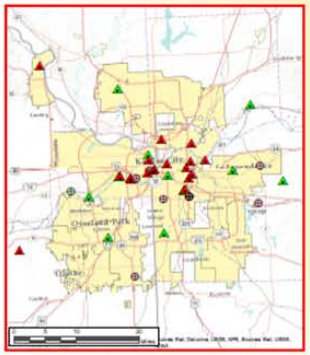
October 7, 1999 Federal Register

- **p. 54607:** “However, the 1996 ANPRM* updates our position on many of the issues discussed in the 1990 proposal, and should be considered the primary corrective action implementation guidance”

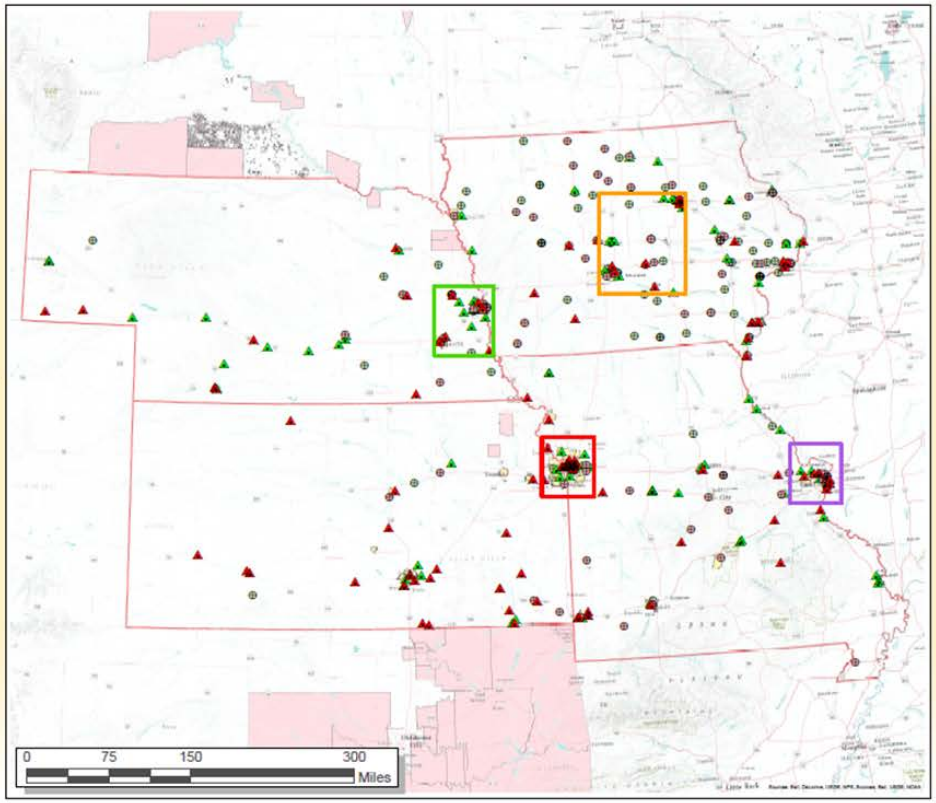
Region 7 RCRA Corrective Action Universe

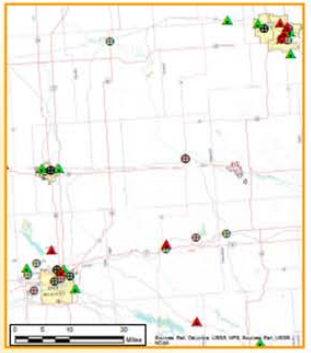


Omaha/Lincoln Metro Areas

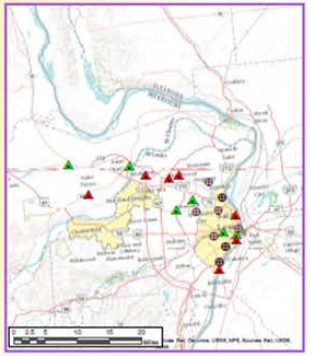


Kansas City Metro Area





Des Moines/Waterloo Metro Areas



St. Louis Metro Area

EPA Region 7

2020 Universe (204)

- Remedy Constructed (CA550 Achieved) (105)
- Remedy Construction Not Achieved (99)

Non-2020 Universe (204)

- Remedy Constructed (CA550 Achieved) (111)
- Remedy Construction Not Achieved (93)

- City Boundary
- Region 7 State Boundaries
- Tribal Nations

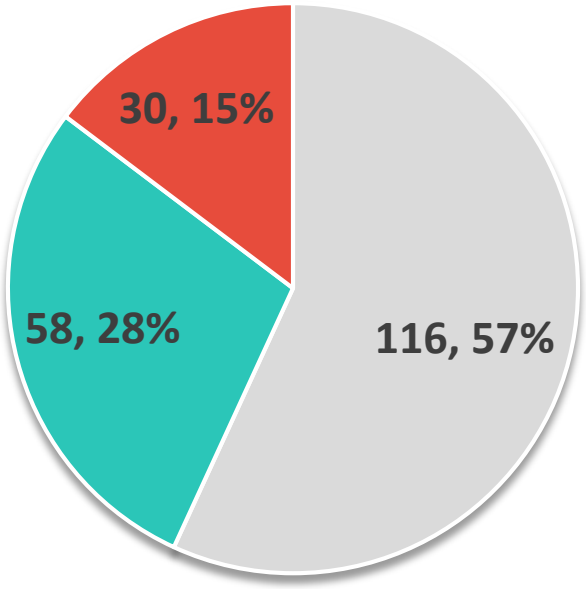
Notes: Data updated in April 2015.

N

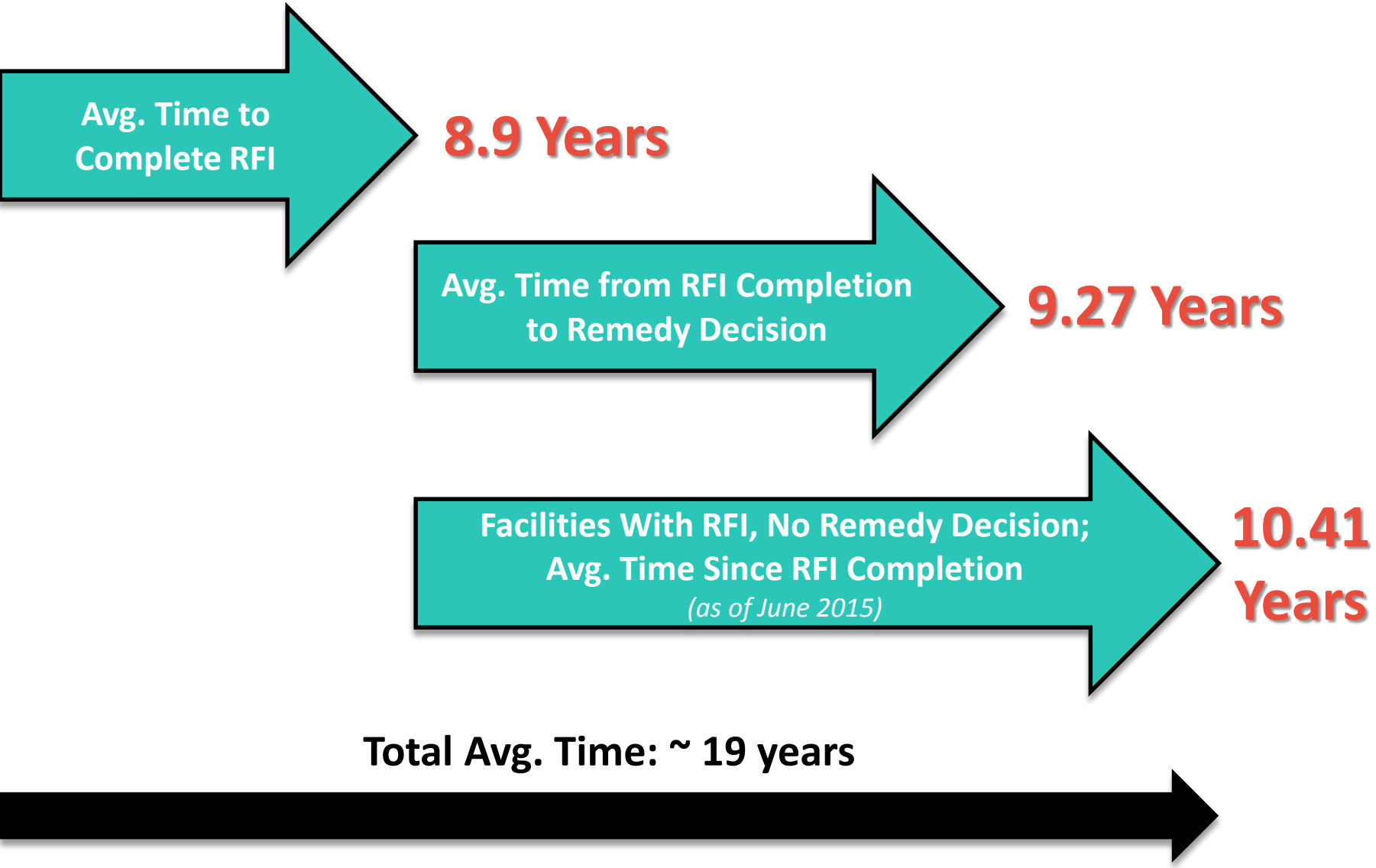
EPA United States Environmental Protection Agency

Region 7 2020 Corrective Action Universe: RFI and Remedy Decision

Region 7 2020 CA Universe = 204 Facilities



Region 7 Historical Timeframes: RFI and Remedy Decision



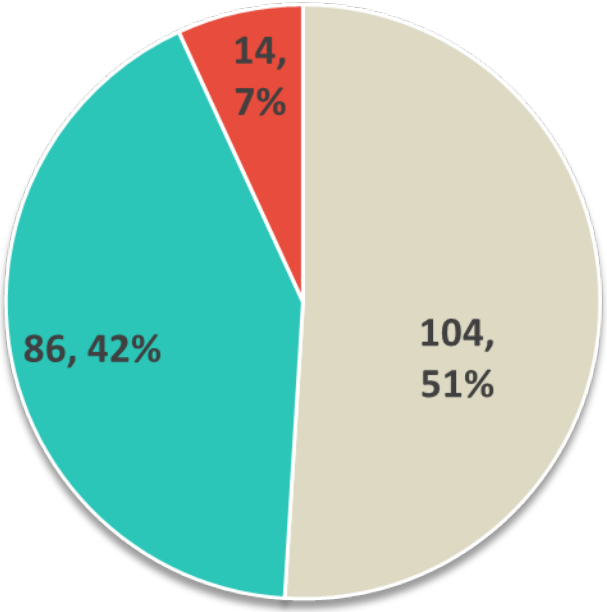
Historical Timeframes: Remedy Construction

Avg. Time from Remedy Decision to Remedy Construction

3.73 Years

Facilities With Remedy Decision, No Remedy Construction;
Avg. Time Since Remedy Decision
(as of June 2015)

6.53 Years



Environmental Indicators (Region 7)

- **Human Exposures Controlled** is attained when there are no unacceptable risks to humans due to releases of contaminants at or from the facility
  - **725YE – 82%**
- **Groundwater Releases Controlled** is attained when the migration of GW contamination at or from the facility across designated boundaries is controlled
  - **750YE – 76%**

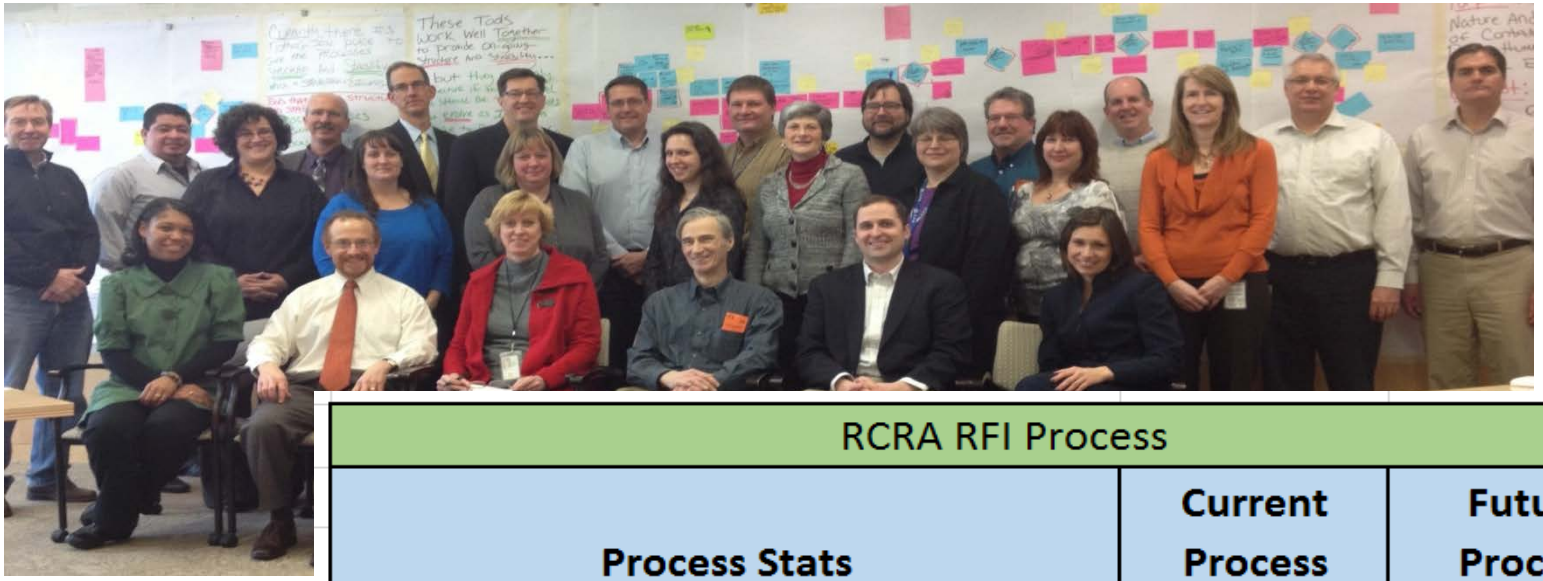
46 facilities (23%)

in Region 7 have achieved both EI's and have not yet achieved a remedy decision

9.1 years

average # of years from the most recent EI to June 1, 20115

RFI Process Lean Event Results



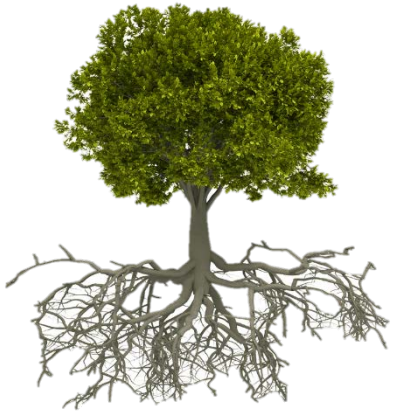
RCRA RFI Process		
Process Stats	**Current Process**	**Future Process**
# of Hand-offs - Internal to Agency	44	11
# of Review / Approvals	33	7
# of Loopbacks /Re-sos	25	2
# of Documents generated	94	15
Total Avg. wait time in process	4.6 years	0.4 years
Total Avg. work time per process steps	14.8 years	4.7 years
TOTAL Avg. Cycle Time in Process	19.4 years	5.1 years
% Value Add activity in Process	10%	51%

Remedy Selection Process Lean Event Results

Remedy Selection Process		
	Current Process	TO BE Process
*# of Hand-offs**	23	17
# of Reviews / Approvals	26	5
# of Loopbacks / Re-dos / Re-submissions	30	0
# of Documents Generated	75	8
# of Decision Points	9	4
Total avg. work time per step		
Total avg. wait time within steps and between steps	2,464 days	352 - 717 days**
Total avg. cycle time in process	6.75 years	1 -2 years
*% Improvement in time**	75 - 85% **	
% of Value Add activity in end to end process	20%	97%
* "Types" of Hand-offs have been added together (internal to agency, external to agency and internal to industry		
** Range has been calculated and provided for the "3" potential paths within the process		

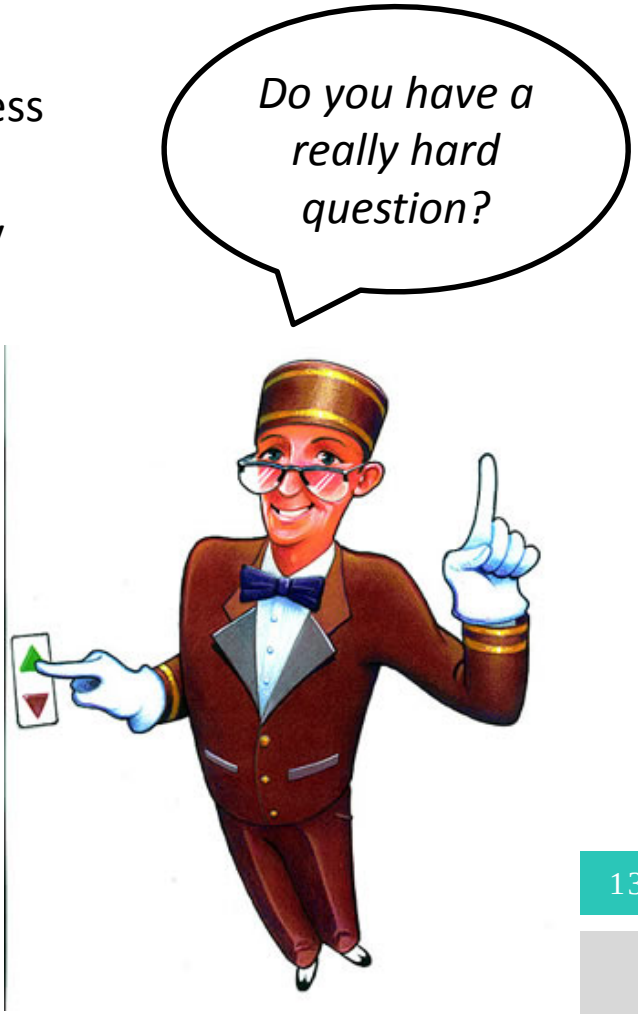
Root Causes Identified in Both Lean Events

1. **No common, upfront understanding on investigation or remedy selection objectives**
2. **No simple way to elevate issues for resolution**
3. Projects require too many approval steps
4. Overall strategies are not discussed early in the process
5. Project manager changeover (all parties) requires revisiting decision
6. No one person is responsible for project quality
7. Poor documentation and record-keeping
8. Poorly defined data quality objectives
9. Site conceptual model misunderstood by either party
10. Competing objectives among parties
11. Tolerance for uncertainty is not discussed
12. Lack of defined product standards



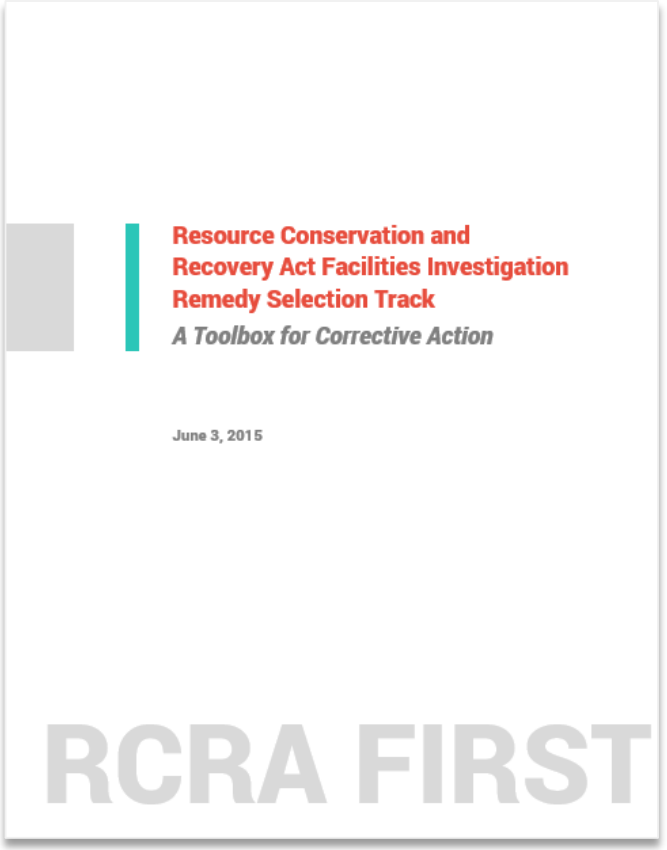
Same Root Causes Grouped

- **No common, upfront understanding on investigation or remedy selection objectives**
  - Overall strategies are not discussed early in the process
  - Poorly defined data quality objectives
  - Site conceptual model misunderstood by either party
  - Competing objectives among parties
- **No simple way to elevate issues for resolution**
  - Projects require too many approval steps
  - Project manager changeover (all parties) requires revisiting decision
  - No one person is responsible for project quality
  - Tolerance for uncertainty is not discussed



RCRA FIRST Toolbox **Purpose**

- Assist EPA Regions and partners to take advantage of efficiency and quality gains from RCRA FIRST
- RCRA FIRST is an approach to *managing* RCRA corrective action projects. **The legal and technical foundation of the program remains the same.**



Four Key Improvements with RCRA FIRST

- Early understanding of goals and expectations
- Understanding of Corrective Action Objectives prior to remedy selection
- Elevation of issues when needed and engagement of stakeholders
- Three paths to remedy selection:
  1. No Corrective Measures Study (CMS)
  2. Limited CMS
  3. Full CMS

Three Phases of RCRA FIRST

Investigation Planning

- Develop Framework for the Corrective Action
- Approve RCRA Facility Investigation (RFI) Workplan

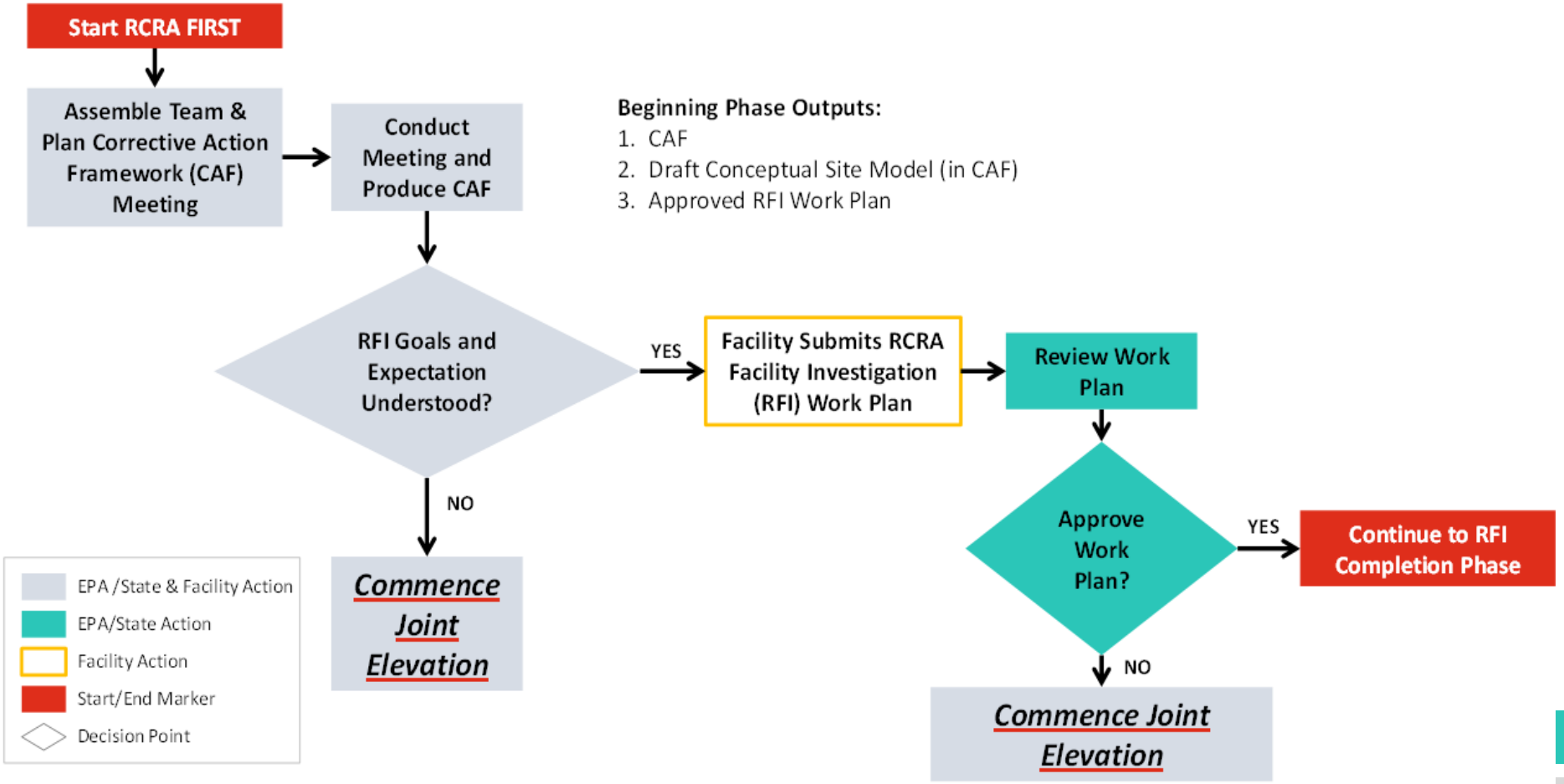
Investigation Completion

- Implement RFI Workplan
- Develop and Approve RFI Report

Remedy Selection

- Confirm Corrective Action Objectives
- Conduct a Corrective Measures Study (CMS), a Limited CMS, or No CMS, As Needed
- Select and Finalize Remedy

Investigation Planning Phase: Overview



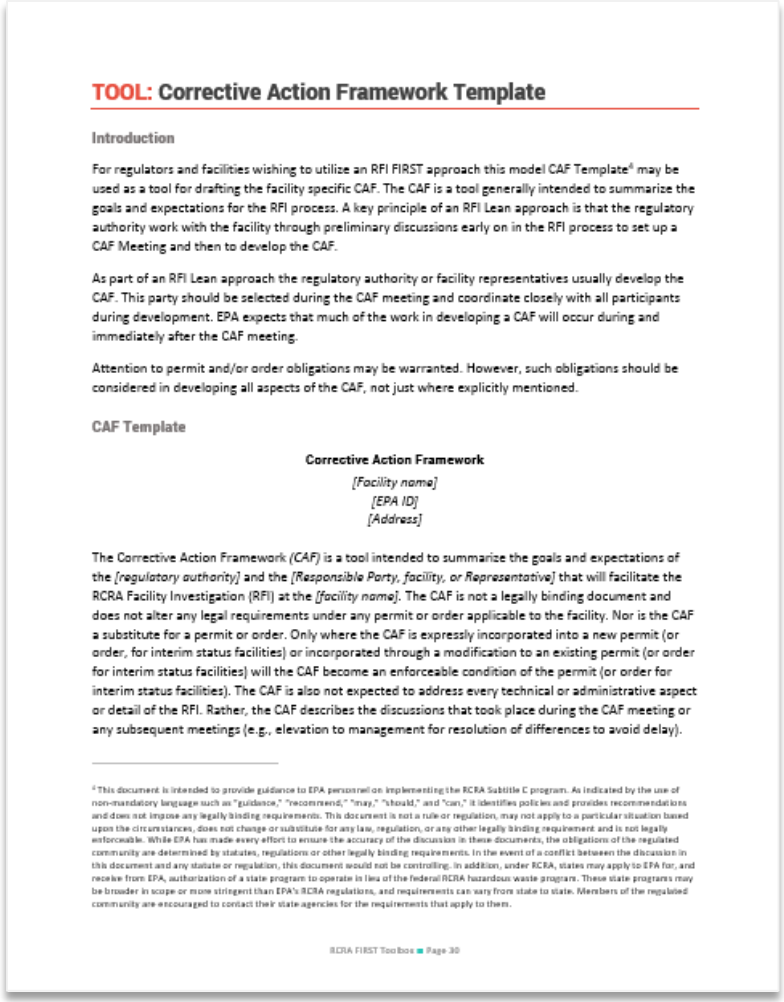
Benefits of the CAF Meeting

- Critical decisions are shifted to the front of the process to reach early mutual understanding of goals and expectations
- Stakeholder engagement occurs early in the process
- Parties reach a common understanding of the physical setting, constraints, current conditions, and site conceptual model (including data gaps)
- Regulatory agency and the facility develop a **Corrective Action Framework**

CAF Tools

- **Model Corrective Action Framework Meeting Agenda**
- **Corrective Action Framework Template**
  - *Example Corrective Action Framework for a New RFI*

Each template is adaptable to adjust for conditions or concerns specific to a facility



TOOL: Corrective Action Framework Template

Introduction

For regulators and facilities wishing to utilize an RFI FIRST approach this model CAF Template[4] may be used as a tool for drafting the facility specific CAF. The CAF is a tool generally intended to summarize the goals and expectations for the RFI process. A key principle of an RFI Lean approach is that the regulatory authority work with the facility through preliminary discussions early on in the RFI process to set up a CAF Meeting and then to develop the CAF.

As part of an RFI Lean approach the regulatory authority or facility representatives usually develop the CAF. This party should be selected during the CAF meeting and coordinate closely with all participants during development. EPA expects that much of the work in developing a CAF will occur during and immediately after the CAF meeting.

Attention to permit and/or order obligations may be warranted. However, such obligations should be considered in developing all aspects of the CAF, not just where explicitly mentioned.

CAF Template

Corrective Action Framework

[Facility name]
[EPA ID]
[Address]

The Corrective Action Framework *(CAF)* is a tool intended to summarize the goals and expectations of the *[regulatory authority]* and the *[Responsible Party, facility, or Representative]* that will facilitate the RCRA Facility Investigation (RFI) at the *[facility name]*. The CAF is not a legally binding document and does not alter any legal requirements under any permit or order applicable to the facility. Nor is the CAF a substitute for a permit or order. Only where the CAF is expressly incorporated into a new permit (or order, for interim status facilities) or incorporated through a modification to an existing permit (or order for interim status facilities) will the CAF become an enforceable condition of the permit (or order for interim status facilities). The CAF is also not expected to address every technical or administrative aspect or detail of the RFI. Rather, the CAF describes the discussions that took place during the CAF meeting or any subsequent meetings (e.g., elevation to management for resolution of differences to avoid delay).

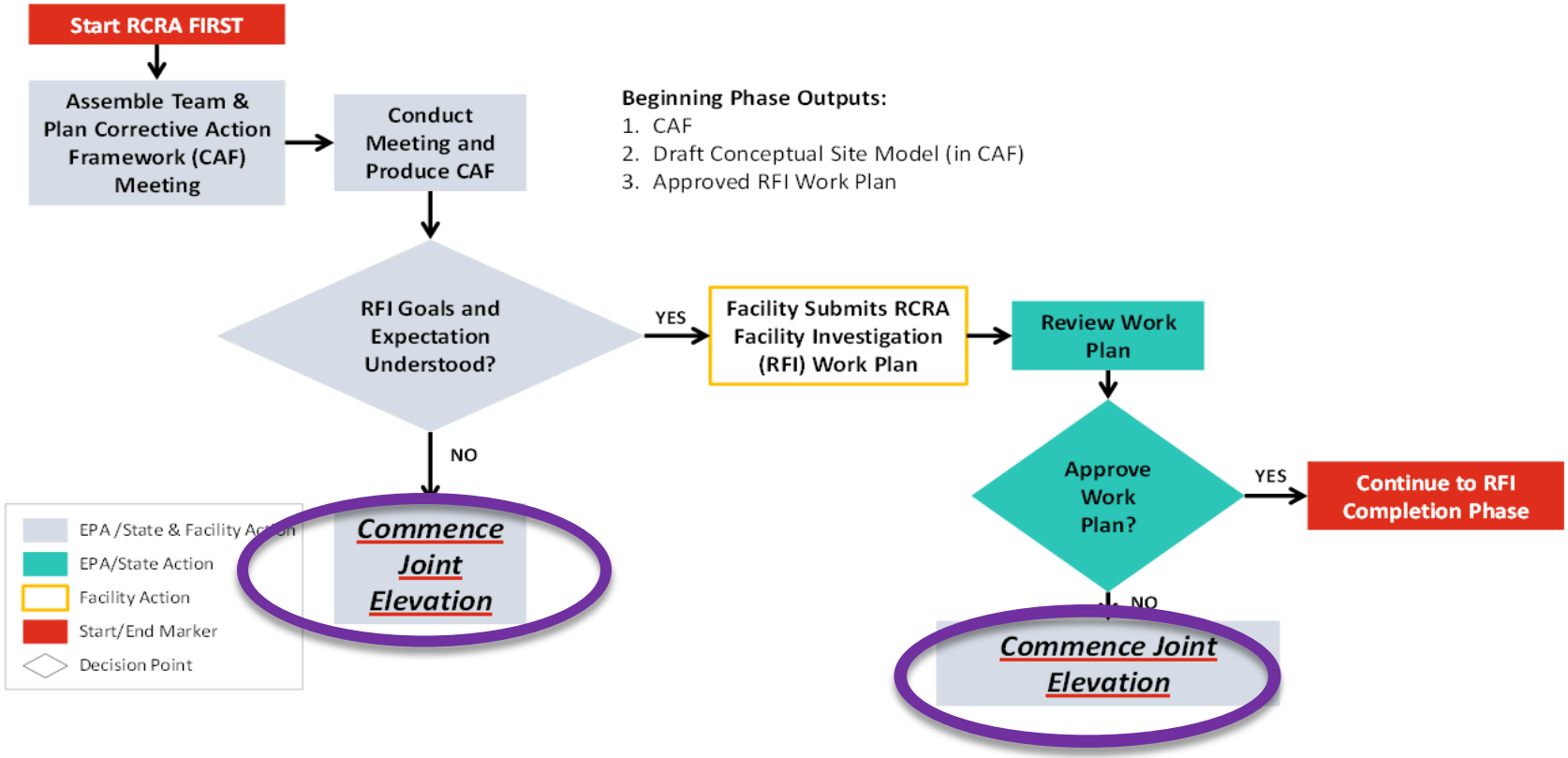
[4] This document is intended to provide guidance to EPA personnel on implementing the RCRA Subtitle C program. As indicated by the use of non-mandatory language such as "guidance," "recommend," "may," "should," and "can," it identifies policies and provides recommendations and does not impose any legally binding requirements. This document is not a rule or regulation, may not apply to a particular situation based upon the circumstances, does not change or substitute for any law, regulation, or any other legally binding requirement and is not legally enforceable. While EPA has made every effort to ensure the accuracy of the discussion in these documents, the obligations of the regulated community are determined by statutes, regulations or other legally binding requirements. In the event of a conflict between the discussion in this document and any statute or regulation, this document would not be controlling. In addition, under RCRA, states may apply to EPA for, and receive from EPA, authorization of a state program to operate in lieu of the federal RCRA hazardous waste program. These state programs may be broader in scope or more stringent than EPA's RCRA regulations, and requirements can vary from state to state. Members of the regulated community are encouraged to contact their state agencies for the requirements that apply to them.

RCRA FIRST Toolbox ■ Page 30

Screenshot from the CAF Template (Toolbox Appendix A; pp. 30-37)

Joint Elevation

RCRA FIRST identifies points in which participants are encouraged to jointly elevate issues quickly to resolve them if they are not able to reach resolution themselves. **Elevation is not failure; elevation moves projects forward!**



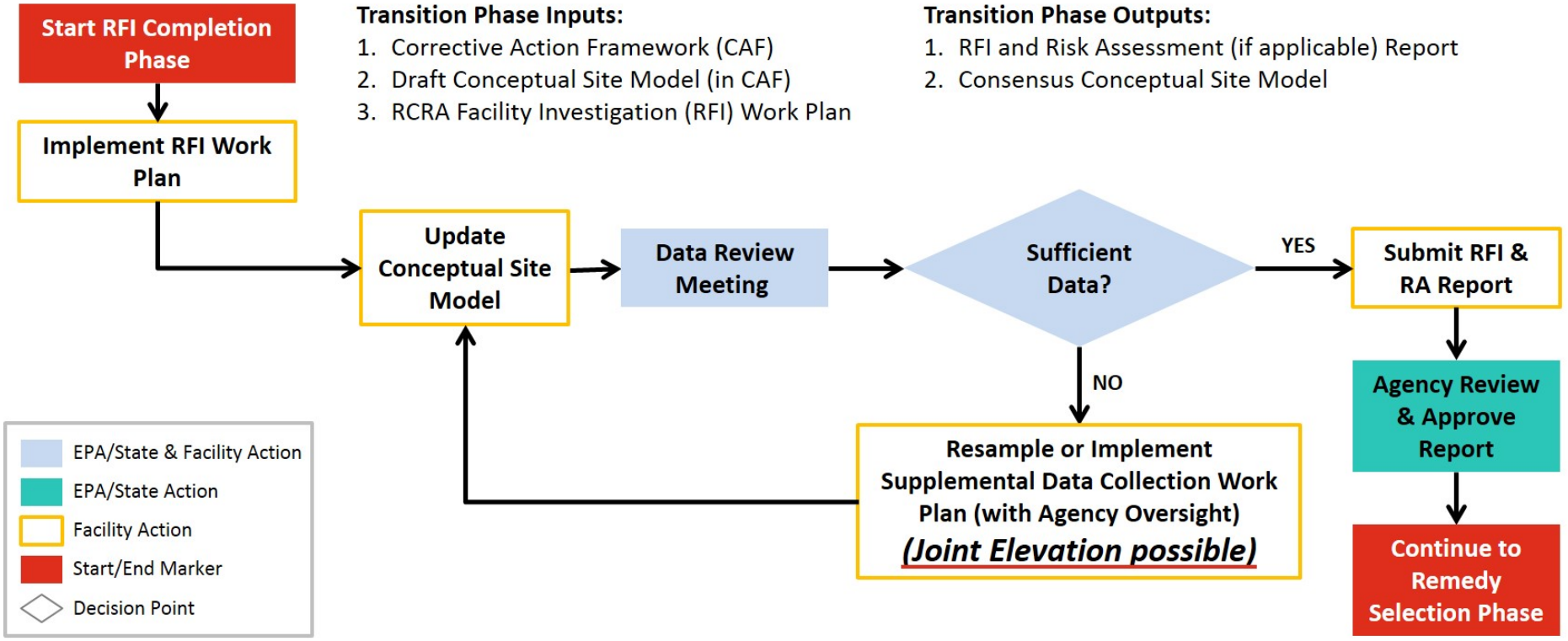
Investigation Completion Phase: Overview

Transition Phase Inputs:

1. Corrective Action Framework (CAF)
2. Draft Conceptual Site Model (in CAF)
3. RCRA Facility Investigation (RFI) Work Plan

Transition Phase Outputs:

1. RFI and Risk Assessment (if applicable) Report
2. Consensus Conceptual Site Model



The Conceptual Site Model (CSM)

- Insufficient knowledge of the CSM is a root cause of delay in RFI process
- **CAF Template** includes the following form to guide completion of a CSM:

Contaminant Source/ Contaminated Media	Transport/ Migration Pathway (e.g., leaching to GW, volatilization, plant uptake, fugitive dust emissions, runoff)	Scenario Timeframe (current or future)	Exposure Medium (contaminated media)	Exposure Point (the point of contact with exposure medium)	Within or Beyond the Facility Boundary	Receptor Population (e.g., resident, commercial, industrial)	Receptor Age (child/adult)	Exposure Route (ingestion, inhalation, dermal contact)

[1] The contaminant source/contaminated media can include the sources of releases (e.g., tanks, spills, landfills, lagoons, etc.), as well as the media directly impacted by those releases.
[2] The exposure medium may be the primary contaminated source/contaminated media or media impacted from contaminants that have been transported or migrated from the primary source.

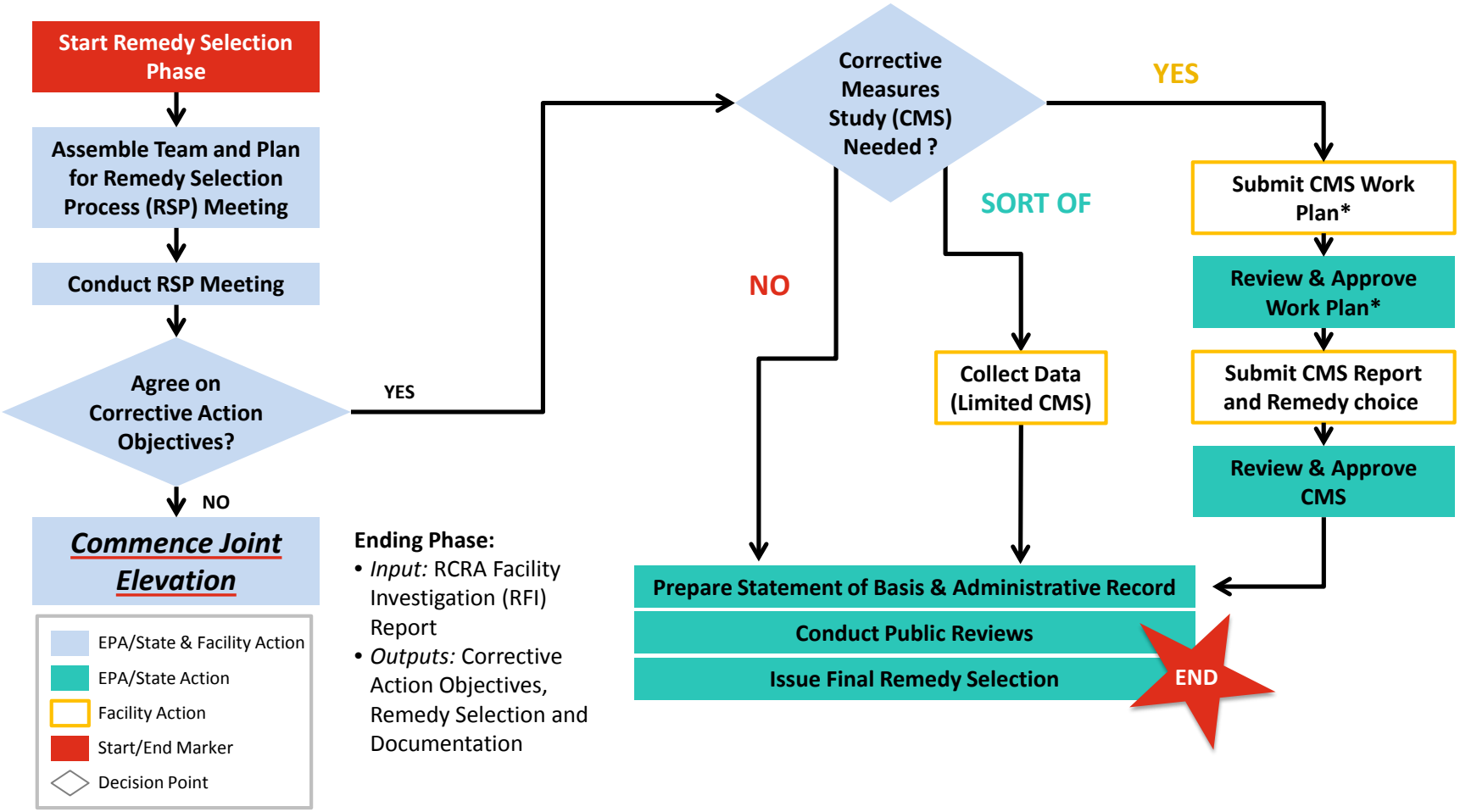
CSM Form available within the CAF Template (Toolbox Appendix A; p. 37)

The Solution: Reset

Reset a Project with a Supplemental CAF Meeting

- Return to CAF tools to uncover issues delaying the RFI process after approval of the RFI workplan
- The Toolbox includes an example of a **CAF Meeting Agenda for a Stalled RFI**
- Meeting objectives include:
  - Agree on the scope of remaining sampling to support a final remedy decision
  - Agree on Constituents of Concern
  - Agree on approach to complete facility investigation
  - Agree on schedule to complete facility investigation

Remedy Selection Phase: Overview



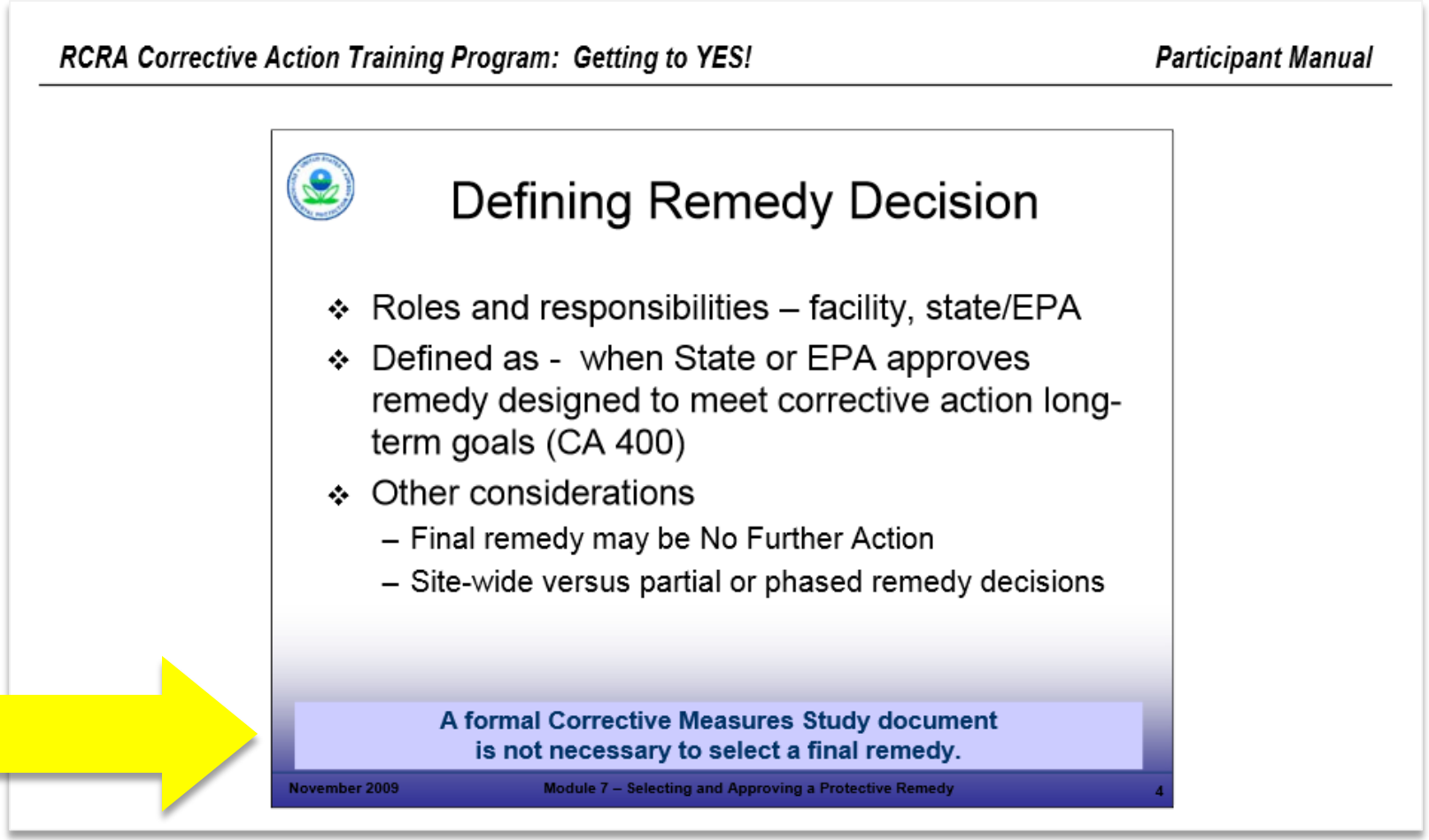
Ending Phase:

- *Input:* RCRA Facility Investigation (RFI) Report
- *Outputs:* Corrective Action Objectives, Remedy Selection and Documentation

RSP Meeting Expected Outcomes

- **Common understanding of:**
  - Roles and responsibilities
  - Current conditions and site conceptual model
  - Remedy selection process, including need for CMS Report, CMS Work Plan, or need for additional data collection, and identification of site-specific remedial alternatives
  - Scope of reports and workplans if necessary
- Identification and concurrence of corrective action objectives, including point of compliance and risk-based management strategy
- Summary of the RSP meeting and a finalized **RSP document** with a schedule of deliverables

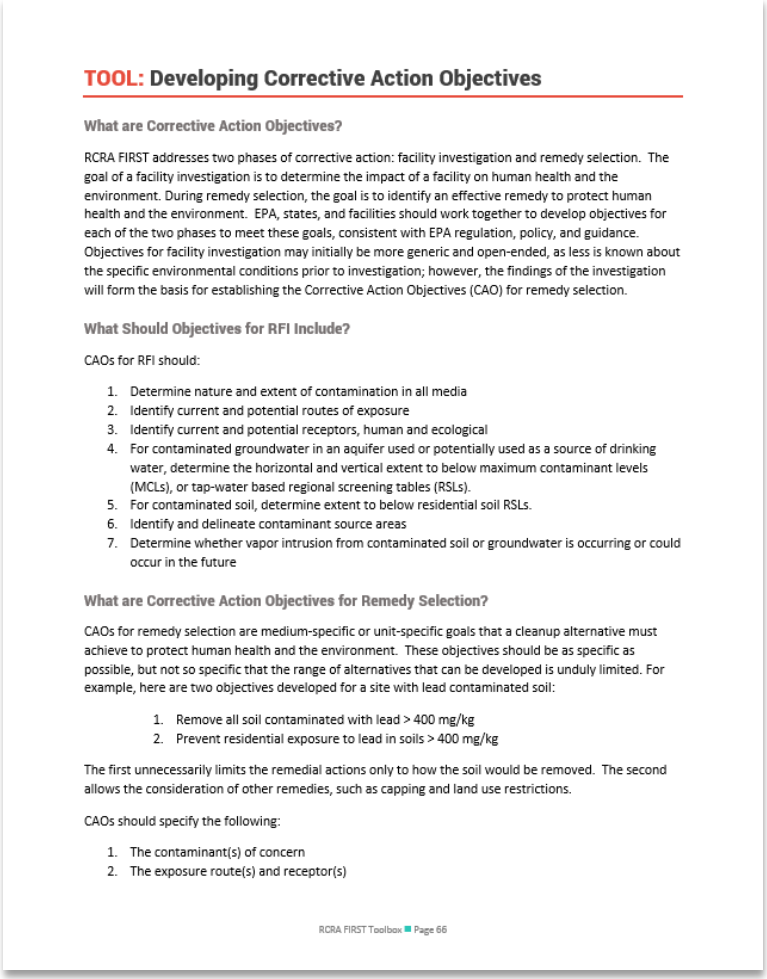
Is a Corrective Measures Study Always Needed?



Module 7, Slide 4 of EPA's RCRA Corrective Action Training, "Getting to Yes! Strategies for Meeting the 2020 Vision" (November 2009)

TOOL: Developing Corrective Action Objectives

- Available in Appendix A of the Toolbox
- Includes references to RCRA and CERCLA guidance



TOOL: Developing Corrective Action Objectives

What are Corrective Action Objectives?

RCRA FIRST addresses two phases of corrective action: facility investigation and remedy selection. The goal of a facility investigation is to determine the impact of a facility on human health and the environment. During remedy selection, the goal is to identify an effective remedy to protect human health and the environment. EPA, states, and facilities should work together to develop objectives for each of the two phases to meet these goals, consistent with EPA regulation, policy, and guidance. Objectives for facility investigation may initially be more generic and open-ended, as less is known about the specific environmental conditions prior to investigation; however, the findings of the investigation will form the basis for establishing the Corrective Action Objectives (CAO) for remedy selection.

What Should Objectives for RFI Include?

CAOs for RFI should:

1. Determine nature and extent of contamination in all media
2. Identify current and potential routes of exposure
3. Identify current and potential receptors, human and ecological
4. For contaminated groundwater in an aquifer used or potentially used as a source of drinking water, determine the horizontal and vertical extent to below maximum contaminant levels (MCLs), or tap-water based regional screening tables (RSLs).
5. For contaminated soil, determine extent to below residential soil RSLs.
6. Identify and delineate contaminant source areas
7. Determine whether vapor intrusion from contaminated soil or groundwater is occurring or could occur in the future

What are Corrective Action Objectives for Remedy Selection?

CAOs for remedy selection are medium-specific or unit-specific goals that a cleanup alternative must achieve to protect human health and the environment. These objectives should be as specific as possible, but not so specific that the range of alternatives that can be developed is unduly limited. For example, here are two objectives developed for a site with lead contaminated soil:

1. Remove all soil contaminated with lead > 400 mg/kg
2. Prevent residential exposure to lead in soils > 400 mg/kg

The first unnecessarily limits the remedial actions only to how the soil would be removed. The second allows the consideration of other remedies, such as capping and land use restrictions.

CAOs should specify the following:

1. The contaminant(s) of concern
2. The exposure route(s) and receptor(s)

RCRA FIRST Toolbox ■ Page 66

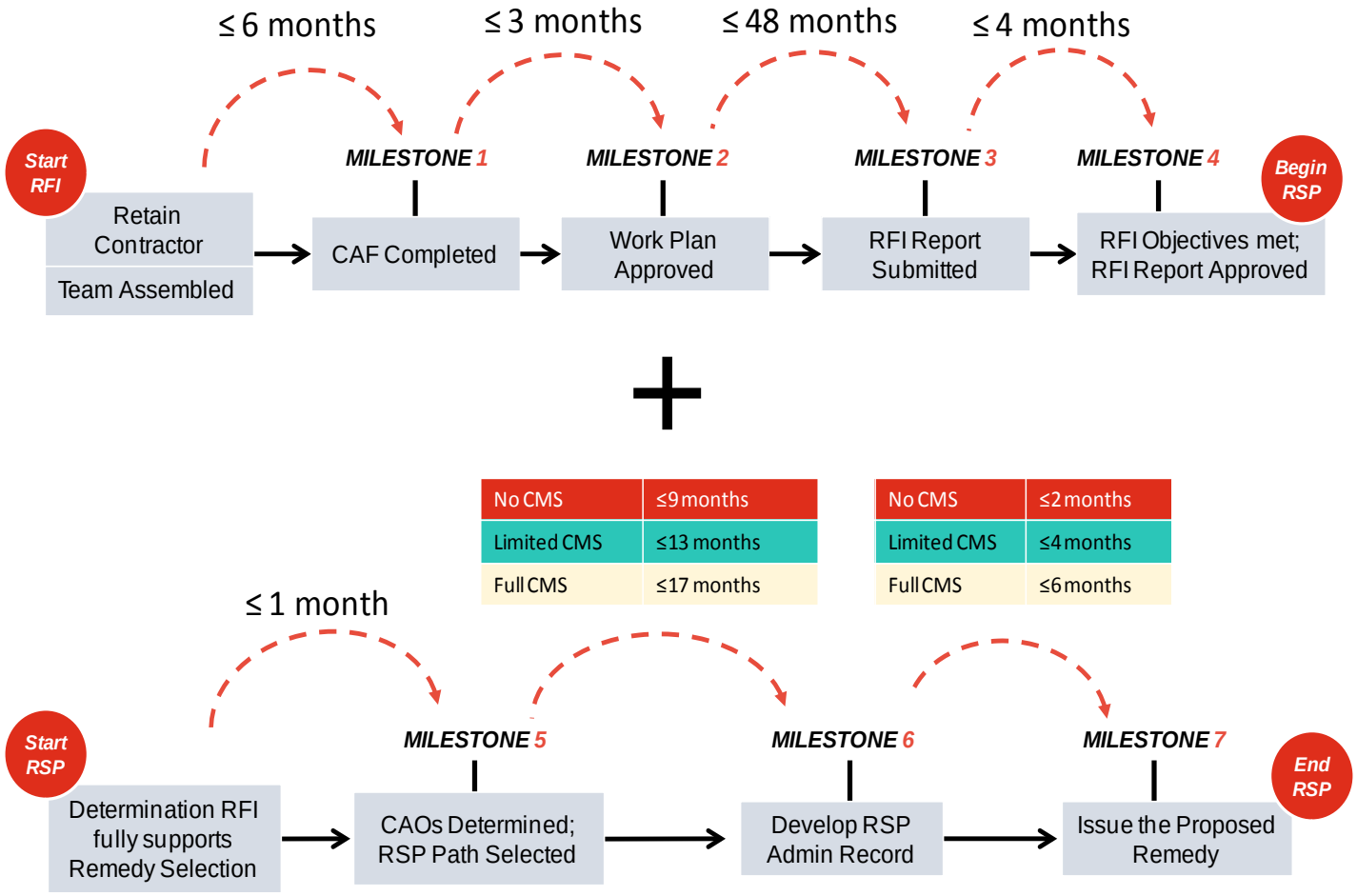
Example Corrective Action Objectives Tool available in Appendix A, pp. 67-69

TOOL: RCRA Post-Remedial Care

- Post-remedial care considerations will impact remedy selection
  - Many remedies will require engineering and/or institutional controls to prevent continued exposures (e.g., ongoing remediation of groundwater contamination)
- The **RCRA Post-Remedial Care Tool** is designed to help project managers discuss with facilities how post-remedial care contributes to achieving the Corrective Action Objectives. It includes:
  - Background on RCRA Post-Remedial Care
  - Discussion Points for the RSP Meeting
  - References for Stakeholder Awareness and Long-Term Stewardship

RCRA Post-Remedial Care Tool available in Toolbox Appendix A, pp. 64-66

RCRA FIRST Toolbox Timeline



= RCRA FIRST

Key Principles of the RCRA FIRST Approach

- **Shift critical discussions to the front** of the corrective action process for early mutual understanding of goals and expectations during a Corrective Action Framework meeting
- **Confirm Corrective Action Objectives** prior to remedy selection at the remedy selection process meeting
- **Maintain open communication** with the facility and engage decision-makers and stakeholders at key points
- **Elevate issues** quickly to resolve disputes
- **Use three paths for the Remedy selection** process to only complete a full CMS when necessary

Tips for Success: CAF & RSP Meeting Prep

- Tailor meeting agendas and CAF/RSPD templates to the needs of each facility and share agendas with the facility beforehand
- Conduct a pre-meeting with internal agency staff before the CAF and RSP meetings with the facility
  - Think about your position on critical agenda and template items in advance
  - Go over the agenda with your technical team before the meeting (This takes longer than you think!)
- Plan to reach out to stakeholders, and provide the facility with your thoughts ahead of meetings

Other Tips for Success

- Involve known stakeholders from the beginning – avoid waiting until public comment periods
- Everyone should inform and involve their management – elevation of obstacles is encouraged
- Invite the facility to use the RCRA FIRST approach even if they have already started the RFI process
- Do not avoid difficult issues: unaddressed issues are a root cause of inefficiency in corrective action
- Multiple meetings may be necessary
- Both the regulator and the facility should have the remedy in mind during the RFI – think about setting up an RSP meeting as soon as it makes sense

Toolbox Roll-Out: What We've Done

- June 11, 2015: Orientation for RCRA Branch Chiefs in Philadelphia, PA
- July 22, 2015: Region 7 All States Meeting Toolbox Training
- On-going outreach to senior leadership and managers
- August 12, 2015: ASTSWMO Session
- August 14, 2015: CADTSC Toolbox Training

"The similar, but slightly different, experiences of the regions in implementing this approach helped reinforce the added value of the approach to the CA process, but also illustrated there is no 'one size fits all' aspect of this."

– Feedback from June 11 RCRA FIRST Orientation Participant

Next Steps

- **Future Workshops and Trainings:**
  - Region 8 State Directors' meeting – September 22, 2015
  - Region 5 RCRA FIRST Workshop w/ Ohio and Illinois – Fall 2015
  - Region 4 RCRA FIRST Toolbox Training – January 2016
  - Planning Stages
    - Texas
    - California
    - Washington/Oregon

Open invitation for RPMs from other regions to attend meetings with R7 and R3 companies

Questions?

Thank You!

For more information or to share examples or success stories, contact:

Paul Gotthold

Office of Pennsylvania Remediation
U.S. EPA Region 3
1650 Arch Street
Philadelphia, PA 19103
215-814-3410
800-352-1973
gotthold.paul@epa.gov

Steve Kohm

Office of Solid Waste and Emergency Response
U.S. EPA
1200 Pennsylvania Avenue, NW
Washington, DC 20460
703-308-0035
Kohm.Steve@epa.gov

Don Lininger

Waste Remediation and Permits Branch
U.S. EPA Region 7
11201 Renner Boulevard
Lenexa, KS 66219
913-551-7724
800-223-0425
lininger.don@epa.gov