# Records of Decisions and More at Federal Facilities

Federal Facilities Academy Webinar

March 25,2026

Office of Superfund & Emergency Management- Federal Facility Program

# Meet the Webinar Presenters

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RPM

# Group Poll:

What types of cleanup decisions have you been involved with as part of the CERCLA process? Could be ROD, ROD Amendment, ESD, Removal Actions…

# Course Overview

- CERCLA process at Federal Facility National Priority List (NPL) Sites
- EPA HQ Support at Federal Facility Sites
- Removal Actions
- Records of Decision (RODs)
- Post-ROD Decisions
  - Explanation of Significant Difference (ESD)
  - ROD Amendments
  - Memo to Files
- Five-Year Review impacts on decision documents

# CERCLA Process at Federal Facility NPL Sites

# Introduction to CERCLA

- Passed in 1980 - also known as “Superfund”
- CERCLA as amended by Superfund Amendments and Reauthorization Act (SARA) in 1986 authorizes the President to respond to releases or threatened releases of hazardous substances into the environment
- Based on CERCLA, the NCP and E.O. No. 12580, Federal agencies, including Department of War (DoW) or Department of Energy (DOE), are the lead agency at their sites while EPA provides oversight in accordance with Federal Facility Agreements (FFAs).

# “Lead Agency” Definition

- The National Contingency Plan (40 CFR 300.5) states that:
  - The Lead Agency is the agency that provides the On-Scene Coordinators (OSCs)/Remedial Project Mangers (RPMs) for the response.
  - For Department of War (DoW) or Department of Energy (DoE) sites, the DoW or DoE will be the lead agency for remedial and removal actions at their sites, and EPA will provide oversight.

# CERCLA Section 120 and Federal Facilities

- Federal Facility superfund sites subject to CERCLA to the same extent as private superfund sites
- Federal agencies shall comply with all guidelines, rules, regulations, and criteria related and shall not adopt guidelines inconsistent with those established by the EPA Administrator
- Individuals and States can bring “citizen suits” if an agency is not following CERCLA at federal facilities
- EPA and the Federal agency jointly select remedies, but EPA is the ultimate selector in the event of a dispute

# Regulatory Framework – NCP

Acts as the regulatory blueprint for CERCLA

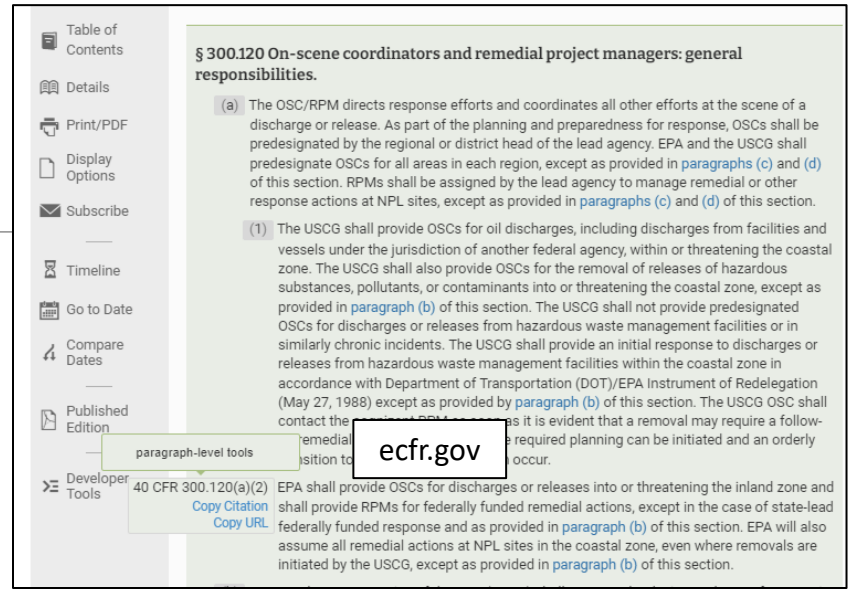
Gives step-by-step processes for conducting removal and remedial actions

Full text of the NCP at:

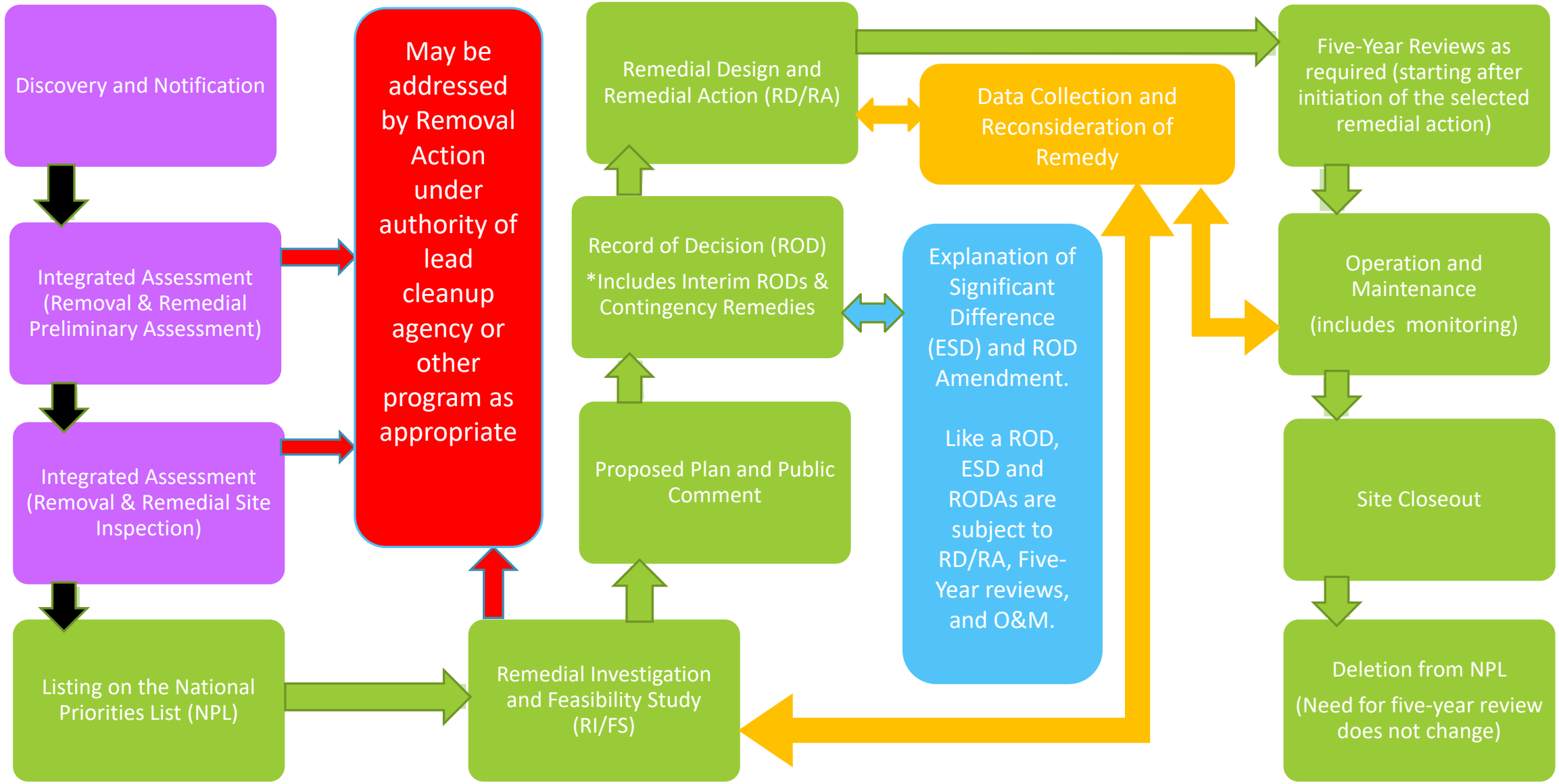
- https://www.govinfo.gov/app/details/CFR-2022-title40-vol30/CFR-2022-title40-vol30-part300 Updated annually - Current with the published print version of the CFR
- https://www.ecfr.gov/current/title-40/chapter-I/subchapter-J/part-300 (updated daily)

NCP preambles

- Proposed rule (53 FR 51394 (1988)) https://semspub.epa.gov/work/HQ/175676.pdf
- Final rule (55 FR 8666 (1990)) https://semspub.epa.gov/work/11/174999.pdf



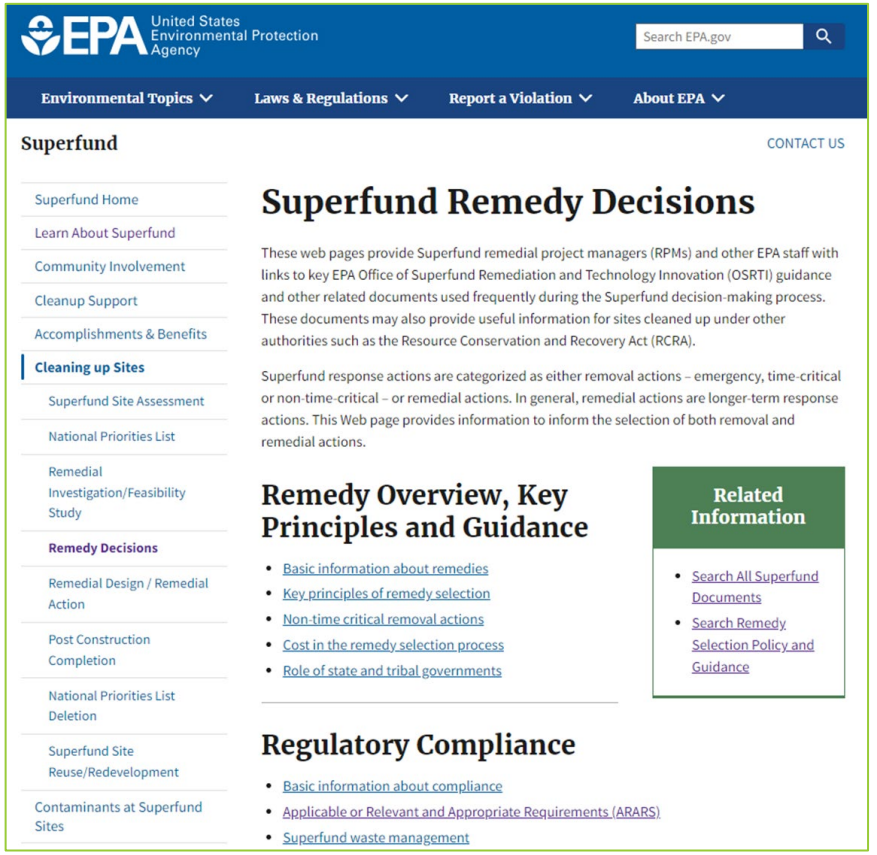
# CERCLA Remedial Process



# HQ Support at Federal Facility NPL Sites

# What Resources are Available?

- NCP: https://www.ecfr.gov/current/title-40/chapter-I/subchapter-J/part-300 (updated daily)
- 1999 ROD Guidance
- Checklists
- Templates
- ROD and Proposed Plan "Builders"
- Superfund Implementation Manual (SPIM)
- Superfund Remedy Decisions webpage: https://www.epa.gov/superfund/superfund-remedy-decisions
- HQ Federal Facility Regional Coordinators
- NARPM- **Writing RODs** & ***RAO Training***



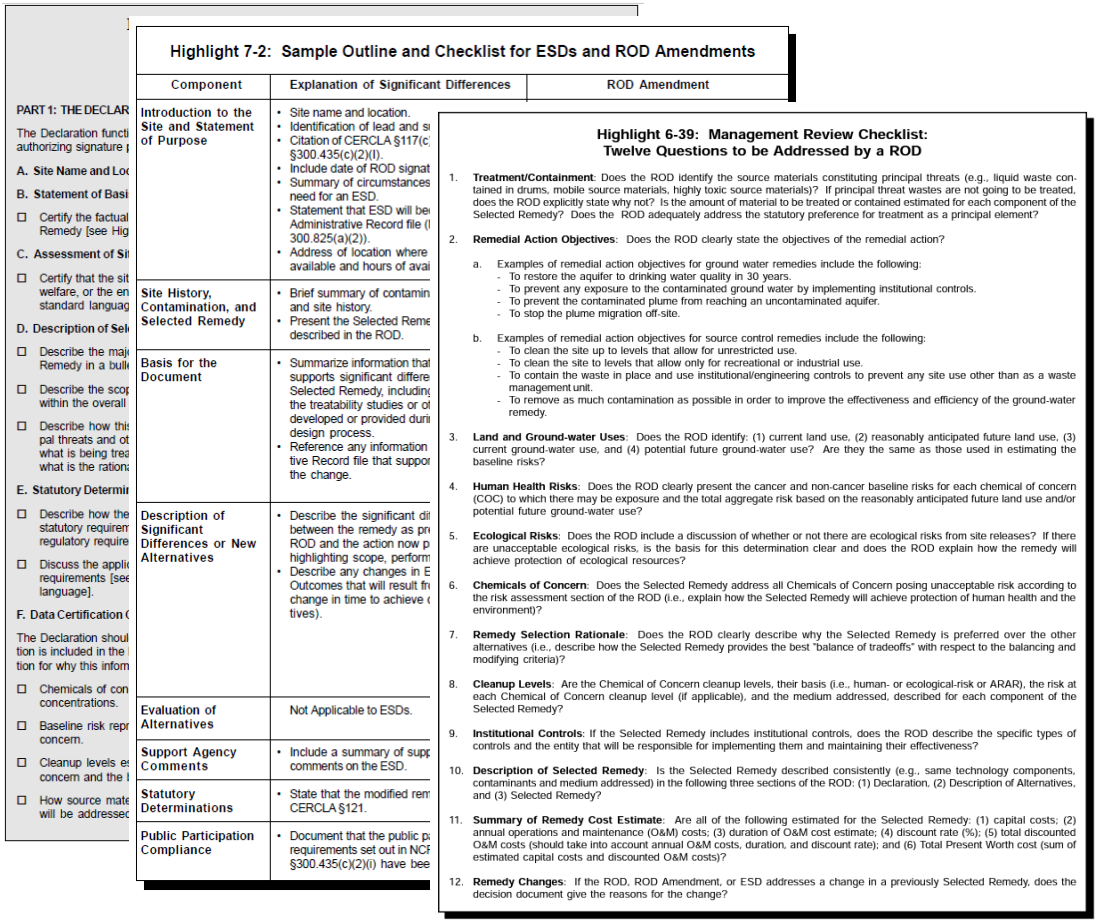
# Headquarters Federal Facility Regional Coordinators

| Region | FF |
|---|---|
| 1 | Clark, Ethan |
| 2 | Clark, Ethan |
| 3 | Burchette, John |
| 4 | Lapachin, Jyl |
| 5 | Burchette, John |
| 6 | Pryson, Haylie |
| 7 | Lapachin, Jyl |
| 8 | Branby, Jill |
| 9 | Tso, Jonathan |
| 10 | Pryson, Haylie |

# Checklists

**1999 Best ROD Guidance contains outlines and/or checklists for:**

- Proposed Plan and ROD
  - (Section 3, p. 3-14) and (Section 6, p. 6-60)
- ESDs and ROD Amendments
  - (Highlight 7-2, p. 7-7)
- Management Review Checklist
  - (Highlight 6-39, p. 6-59)
- No Action RODs
  - (Highlights 8-4, 8-5 and 8-6, pp. 8-5 to 8-7)
- Interim Action Decision
  - (Highlight 8-7, p. 8-8)
- Contingency Remedy Decision
  - (Highlight 8-8, p. 8-10)



**Highlight 7-2: Sample Outline and Checklist for ESDs and ROD Amendments**

| Component | Explanation of Significant Differences | ROD Amendment |
|---|---|---|
| Introduction to the Site and Statement of Purpose | • Site name and location.<br>• Identification of lead and s<br>• Citation of CERCLA §117(c §300.435(c)(2)(i)).<br>• Include date of ROD signat<br>• Summary of circumstances need for an ESD.<br>• Statement that ESD will be Administrative Record file ( 300.825(a)(2)).<br>• Address of location where available and hours of avai | |
| Site History, Contamination, and Selected Remedy | • Brief summary of contamin and site history.<br>• Present the Selected Reme described in the ROD. | |
| Basis for the Document | • Summarize information that supports significant differe Selected Remedy, including the treatability studies or ot developed or provided duri design process.<br>• Reference any information tive Record file that suppor the change. | |
| Description of Significant Differences or New Alternatives | • Describe the significant di between the remedy as pr ROD and the action now p highlighting scope, perform<br>• Describe any changes in E Outcomes that will result fr change in time to achieve tives). | |
| Evaluation of Alternatives | Not Applicable to ESDs. | |
| Support Agency Comments | • Include a summary of supp comments on the ESD. | |
| Statutory Determinations | • State that the modified rem CERCLA §121. | |
| Public Participation Compliance | • Document that the public p requirements set out in NCF §300.435(c)(2)(i) have bee | |

**Highlight 6-39: Management Review Checklist: Twelve Questions to be Addressed by a ROD**

1. **Treatment/Containment**: Does the ROD identify the source materials constituting principal threats (e.g., liquid waste contained in drums, mobile source materials, highly toxic source materials)? If principal threat wastes are not going to be treated, does the ROD explicitly state why not? Is the amount of material to be treated or contained estimated for each component of the Selected Remedy? Does the ROD adequately address the statutory preference for treatment as a principal element?

2. **Remedial Action Objectives**: Does the ROD clearly state the objectives of the remedial action?

   a. Examples of remedial action objectives for ground water remedies include the following:
   - To restore the aquifer to drinking water quality in 30 years.
   - To prevent any exposure to the contaminated ground water by implementing institutional controls.
   - To prevent the contaminated plume from reaching an uncontaminated aquifer.
   - To stop the plume migration off-site.

   b. Examples of remedial action objectives for source control remedies include the following:
   - To clean the site up to levels that allow for unrestricted use.
   - To clean the site to levels that allow only for recreational or industrial use.
   - To contain the waste in place and use institutional/engineering controls to prevent any site use other than as a waste management unit.
   - To remove as much contamination as possible in order to improve the effectiveness and efficiency of the ground-water remedy.

3. **Land and Ground-water Uses**: Does the ROD identify: (1) current land use, (2) reasonably anticipated future land use, (3) current ground-water use, and (4) potential future ground-water use? Are they the same as those used in estimating the baseline risks?

4. **Human Health Risks**: Does the ROD clearly present the cancer and non-cancer baseline risks for each chemical of concern (COC) to which there may be exposure and the total aggregate risk based on the reasonably anticipated future land use and/or potential future ground-water use?

5. **Ecological Risks**: Does the ROD include a discussion of whether or not there are ecological risks from site releases? If there are unacceptable ecological risks, is the basis for this determination clear and does the ROD explain how the remedy will achieve protection of ecological resources?

6. **Chemicals of Concern**: Does the Selected Remedy address all Chemicals of Concern posing unacceptable risk according to the risk assessment section of the ROD (i.e., explain how the Selected Remedy will achieve protection of human health and the environment)?

7. **Remedy Selection Rationale**: Does the ROD clearly describe why the Selected Remedy is preferred over the other alternatives (i.e., describe how the Selected Remedy provides the best "balance of tradeoffs" with respect to the balancing and modifying criteria)?

8. **Cleanup Levels**: Are the Chemical of Concern cleanup levels, their basis (i.e., human- or ecological-risk or ARAR), the risk at each Chemical of Concern cleanup level (if applicable), and the medium addressed, described for each component of the Selected Remedy?

9. **Institutional Controls**: If the Selected Remedy includes institutional controls, does the ROD describe the specific types of controls and the entity that will be responsible for implementing them and maintaining their effectiveness?

10. **Description of Selected Remedy**: Is the Selected Remedy described consistently (e.g., same technology components, contaminants and medium addressed) in the following three sections of the ROD: (1) Declaration, (2) Description of Alternatives, and (3) Selected Remedy?

11. **Summary of Remedy Cost Estimate**: Are all of the following estimated for the Selected Remedy: (1) capital costs; (2) annual operations and maintenance (O&M) costs; (3) duration of O&M cost estimate; (4) discount rate (%); (5) total discounted O&M costs (should take into account annual O&M costs, duration, and discount rate); and (6) Total Present Worth cost (sum of estimated capital costs and discounted O&M costs)?

12. **Remedy Changes**: If the ROD, ROD Amendment, or ESD addresses a change in a previously Selected Remedy, does the decision document give the reasons for the change?

# So, Who Should I Coordinate with on Decision Documents?

- Site technical team (Lead Agency, State and EPA RPM, CIC, Hydro, Risk Assessors, (Lead Agency, State & EPA), SEMD management, contractor)
- Reviewers (Site Attorney, EPA HQ (OSEM), State)
- Each agency has a structured management review process
  - Developing decision documents
  - Briefings
  - Engaging HQ reviewers and required consultations- Remedies> 100 M, ARAR waivers, MNA, PFAS, radiation, IC Only remedies, munitions, five-year reviews, res pb
  - Handling document approval

# How can cleanup decisions complement each other?

# Removal Actions

- LEARNING OBJECTIVES:
  - Distinguish emergency, time-critical, and non-time-critical removal actions
  - Understand how the NCP governs removals and how CERCLA Section 120 applies to federal facilities

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  - Know key decision documents, public participation, and compliance requirements
  - Recognize federal-facility-specific roles, agreements, and pitfalls

# Response Actions at Federal Facilities generally involve multiple media, contaminants, and land areas

- EPA Guidance Documents:

Use of Non-Time-Critical Removal Authority in Superfund Response Actions (PDF

Conducting Non-Time-Critical Removal Actions under CERCLA

# General Removal Guidelines under CERCLA 40 CFR 300.415

- Often a short-term action designed to address an immediate threat to human health or the environment.

- Executive Order 12580: Delegates Authority to other federal agencies (e.g. DoW, DOE, DOI) as the lead for removal actions

- Goal –Accelerate cleanup
- Removal actions shall, to the extent practicable, contribute to the efficient performance of any anticipated long-term remedial action.

# General Removal Guidelines under CERCLA 40 CFR 300.415

- 40 CFR 300.415 (b)(3)
- If the lead agency determines that a removal action is appropriate, actions shall, as appropriate, begin as soon as possible to abate, prevent, minimize, stabilize, mitigate, or eliminate the threat to public health or welfare of the United States or the environment. The lead agency shall, at the earliest possible time, also make any necessary determinations pursuant to paragraph (b)(4) [refers to requirements for Non-time Critical Removals) of this section.

# Federal Facility Agreements (FFAs) - CERCLA Section 120

- EPA Oversight through (FFAs) or other interagency agreements for Federal Facilities on the National Priorities List (NPL)
- Early coordination: Under NCP and CERCLA, EPA expects early notice of proposed removals, joint scoping, and agreement on whether action is emergency, time-critical, or non-time critical
- FFAs may specify when EPA concurrence is required and how disputes are resolved.

# Federal Facility Agreements (FFAs) - CERCLA Section 120

Federal Facilities context:

- CERCLA §120: federal agencies must comply “to the same extent as any nongovernmental entity”
- EPA oversight; additional commitments are documented in Federal Facility Agreements (FFAs) for NPL sites

# EPA's Role - Removals at Federal Facilities

- EPA Reviews the Decision Document: Action Memorandums and Engineering Evaluation/Cost Analysis (EE/CA)
- EPA's role is primarily oversight, communicating whether EPA believes actions are protective and consistent with **NCP** and **ARARs** (Chemical, Location, Action-specific)
- EPA supports Lead Agency coordination with states, tribes, and the public

# EPA's Role – Removals at Federal Facilities

- EPA Technical reviews: Work Plans, including Sampling and Analysis Plans (SAPs), Quality Assurance Project Plans (QAPPs); NOTE:EPA retains approval authority under CERCLA for SAPs.

- EPA or States may conduct field oversight and/or collect split or confirmatory sampling

- Review compliance with: CERCLA Off-Site Rule: Under 40 CFR 300.440, CERCLA wastes can only go to EPA-acceptable facilities.

# Implementation and Oversight

- Community and Stakeholder involvement 40 CFR 300.820 Administrative Record and Public Notices required – required 60 days prior to initiation
- Public Comment Period (at least 30 days) required for Time Critical and Non-Time Critical Removal Actions
- Responsiveness Summary required
- For Removals >120 days, establish Community Involvement Plan, appoint Community Coordinator, Maintain on-line repository for documents

# Implementation and Oversight

- If hazardous substances remain at levels that do not allow unlimited use or unrestricted exposure where removals conducted, EPA reviews **five-year reviews**

- EPA verifies institutional controls, long-term monitoring, and any post-removal operations and maintenance for protectiveness.

# Removal Action Goals Summary

- EPA's oversight aims to ensure that Removal Actions led by other Federal Agencies are timely, protective, and consistent with CERCLA and the NCP.  EPA accomplishes this by early coordination, rigorous review of technical information and decision documents, ensuring ARARs, community involvement,  and off-site disposal requirements are met, monitoring field execution and data quality, and enforcing schedules and overall quality through the FFAs and NCP's oversight tools.

# Removal Actions

- **Emergency Response**
  - Action is typically required within hours
  - May not have time to issue an Action Memo (AM) before taking action
- **Time-Critical Removal Action (TCRA):**
  - Action is required within 6 months
  - Typically, an approved action memo (AM) is in place prior to initiating
- **Non-Time-Critical Removal Action (NTCRA)**
  - Planning period of more than 6 months is available
  - Requires an Engineering Evaluation/Cost Analysis (EE/CA), or its equivalent, before Action Memo is signed

# Action Memo: Documents Removal Action Selection

- Site Background and Description of Threat
- Determination of need and type (emergency, time-critical, non-time critical
- Alternatives considered and rationale for selection
- ARARs determination to extent practicable, consistent with RA
- Statutory Limits analysis and any exemptions
- Estimated costs and schedule; roles and responsibilities
- Community involvement steps and state/tribal coordination

# Accelerating CERCLA Environmental Restoration at Federal Facilities, 1994

- Developed and signed by EPA, DoW, and DOE
  - Encourage and support efforts at federal facilities to accelerate and develop streamlined approaches
  - Identifies the use of removal actions to streamline cleanup
    - e.g., non-time critical removal actions and interim response actions
  - CERCLA § 120 and Executive Order (EO) 12580 establish unique requirements for Federal Facilities and encourage the potential for cooperative decision-making

Accelerating CERCLA Environmental Restoration at Federal Facilities, 1994

# Sampling and Analysis Plans and Removal Actions

SAPs are reviewed by EPA

- Under environmental-related removal actions, EPA is responsible for reviewing and approving SAPs.
- 40 CFR 300.415(b)(4)(ii): "If environmental samples are to be collected, the lead agency shall develop sampling and analysis plans that shall provide a process for obtaining data of sufficient quality and quantity to satisfy data needs. Sampling and analysis plans shall be reviewed and approved by EPA."
- The Uniform Federal Policy for Quality Assurance Project Plans (UFP QAPP) provides guidance for data collection at federal facility sites; and EPA IT/IM Directive Standard, Quality Assurance Project Plan Standard (EPA IT/IM Std) based on Directive No: CIO 2105-S-02.0: EPA QAPP Standard]]

# Removal Action Guidance and Time Critical Removal Actions (TCRAs)

# TCRAs and Public Participation

- Public Notice and comment:
  - When: Less than 6 months of planning before on-site removal must begin
  - Publish a notice of availability of the Action Memo in the administrative record file (ARF) 40 CFR 300.820: major on-line media
  - Provide public comment period of at least 30 days, with adequate notice to a community within 60 days of start of on-site action;
  - Prepare a responsiveness summary addressing public comments

# TCRAs and Public Participation

## Public Notice and comment:

- If on-site work is expected to extend beyond 120 days: Provide additional public participation: Community Involvement Plan should be established and Maintain Repository
- Typically a 30-day comment period on the AM (or post-decisional opportunity for comment)
- Responsiveness summary required, place in the ARF. 40 CFR 300.415(n)(2).

# TCRA Action Memo – Concise Written Record of Removal Action Selection

- Elements of AM:
  - Site Background, threat determination, objectives and scope, alternatives considered, selected action, cost estimate, statutory limits (if applicable) and any exemptions, ARARs to the extent practicable, off-site rule compliance, community involvement, enforcement considerations, expected duration, consistency with future remedial actions, any institutional controls or post-removal site control needs, community involvement and ARF.

  - Make documents reasonably available to the public (information repository) 40 CFR 300.415(n)

# TCRA Completion

## Removal Action Completion/Close-out Memo:

- Documents completion criteria and confirm achievement of objectives;

- Transition to remedial/long-term actions as needed: If residual risks remain, coordinate hand-off to the remedial program or further removal phases; ensure long-term stewardship is addressed if required.

# Removal Action Guidance and Non-Time Critical Removal Actions (NTCRAs)

# NTCRA Requirements – What Makes a Removal "non-time critical'?

- **When:** Planning window: At least six months to plan before on-site work would begin 40 CFR 300.415(b)(2)

- **Prerequisite Evaluation:**
  - Removal Site Evaluation (RSE): Site assessment sufficient to determine threats, pathways, receptors, and whether removal is appropriate 40 CFR 300.410
  - (Threats constitute a 'problem warranting action' under CERCLA, i.e., risk> CERCLA risk range
  - -ARARs met to the extent practical

# NTCRA Decision: Engineering Evaluation/Cost Analysis

- EE/CA mandatory for NTCRAs
  - Defines Removal Action Objectives and Scope
  - Identifies and Evaluates Range of Alternatives
  - Identifies ARARs
  - Evaluates alternatives using
  - 1) effectiveness, 2) implementibility, and 3) cost (per EPA EE/CA guidance)

# NTCRA Decision: EE/CA

- Elements of EE/CA:
  - Selects the removal alternative, documents basis for selection, threats addressed, ARARs to be met to the extent practical, estimated cost, statutory limit status, consistency with future remedial actions, and any institutional controls or post-removal site control needs.

# NTCRAs: Public Participation 40 CFR 300.415(n)

- Designate Community Relations Spokesperson, develop Community Involvement Plan
  - Provide public notice of EE/CA availability and public comment period of at least **30 days**, extend if appropriate;
  - Establish Repository to include Administrative Record File (ARF)
  - Hold a public meeting if there is sufficient interest (not required if not enough interest)
  - Prepare a responsiveness summary addressing public comments, put in ARF 40 CFR 415(n)(4)

# NTCRAs Action Memo: Decision Document

## Action Memo

- Documents decision from evaluation in EE/CA
- Make documents reasonably available to the public (information repository) 40 CFR 300.415(n)

# EPA and DOE Joint Policy Memo, 1995

- Establishes the approach agreed upon by EPA and DOE for decommissioning surplus DOE facilities
  - Consistent with CERCLA
  - Achieves risk reduction without unnecessary delay
- Policy establishes that decommissioning activities will be conducted as NTCRAs
  - Integrates EPA oversight responsibility, DOE lead agency responsibility, state and stakeholder participation
  - DOE and EPA recognize that removal actions will not necessarily be the final response action needed at the facility

# Records of Decision (RODs)

# Purpose of the ROD

1. Certifies the remedy selection process was carried out in accordance with CERCLA and the National Contingency Plan (NCP)
2. Summarizes the technical rational and background information
3. Provides technical information which outlines remedial action objectives and cleanup levels
4. Key Communication tool for the public on what is the remedy and why it was selected

# Remedial Investigation

- Remedial Investigation (RI) (40 CFR 300.430(d))
  - NCP: "The purpose of the remedial investigation (RI) is to collect data necessary to adequately characterize the site for the purpose of developing and evaluating effective remedial alternatives."
  - RI/FS Guidance: "The objective of the Rl/FS process is not the unobtainable goal of removing all uncertainty, but rather to gather information sufficient to support an informed risk management decision regarding which remedy appears to be most appropriate for a given site." (https://semspub.epa.gov/work/HQ/128301.pdf)

# Feasibility Study

- Feasibility Study (RI) (40 CFR 300.430(e))
  - NCP: “The primary objective of the feasibility study (FS) is to ensure that appropriate remedial alternatives are developed and evaluated such that relevant information concerning the remedial action options can be presented to a decision-maker and an appropriate remedy selected.”
  - Basis for the Proposed Plan and Record of Decision

# Proposed Plan

- When can the lead agency start drafting a proposed plan?
  - As soon as site data and risk information make it possible to do so
- What needs to be in the Administrative Record to support the decision?
  - The lead agency shall establish an administrative record that contains the documents that form the basis for the selection of a response action.
  - Update the administrative record with all supporting documentation when you issue the Proposed Plan
  - Update the administrative record when the ROD is signed

# Key Sections of a ROD

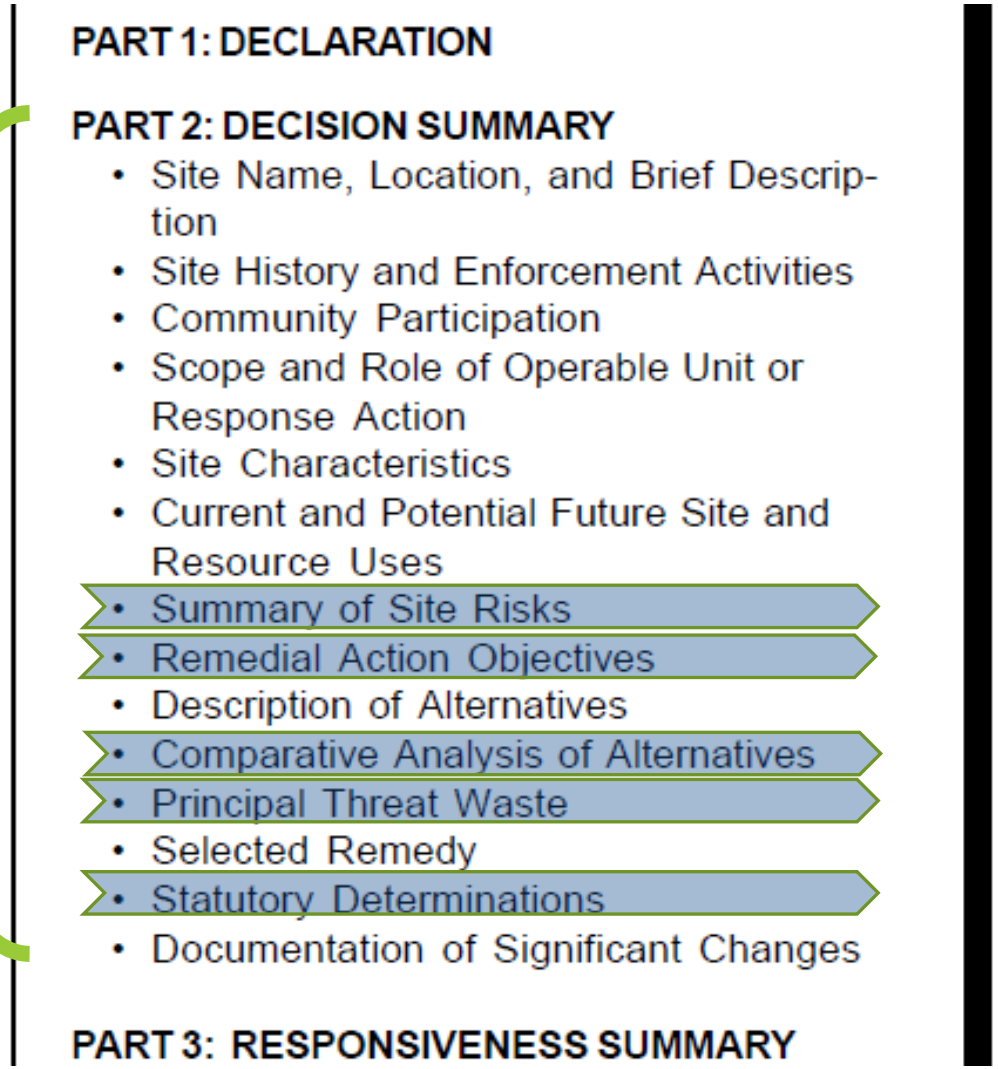
**Highlight 6-1: Recommended Outline for Standard Recordof Decision***

**PART 1: DECLARATION**
- Site Name and Location
- Statement of Basis and Purpose
- Assessment of Site
- Description of Selected Remedy
- Statutory Determinations
- ROD Data Certification Checklist
- Authorizing Signatures

**PART 2: DECISION SUMMARY**
- Site Name, Location, and Brief Description
- Site History and Enforcement Activities
- Community Participation
- Scope and Role of Operable Unit or Response Action
- Site Characteristics
- Current and Potential Future Site and Resource Uses
- Summary of Site Risks
- Remedial Action Objectives
- Description of Alternatives
- Comparative Analysis of Alternatives
- Principal Threat Waste
- Selected Remedy
- Statutory Determinations
- Documentation of Significant Changes

**PART 3: RESPONSIVENESS SUMMARY**
- Stakeholder Comments and Lead Agency Responses
- Technical and Legal Issues

* See the expanded outline/checklist at the end of Chapter 6.



# Basis for Action under CERCLA

- A release or substantial threat of release of a hazardous substance into the environment (or of a pollutant or contaminant "which may present an imminent and substantial danger to public health or welfare")
- Unacceptable risk to human health based on reasonably anticipated future land use
  - Carcinogenic risk exceeds $10^{-4}$ or non-carcinogenic hazard index (HI) greater than 1
- Adverse environmental / ecological impacts
- Exceedance of chemical-specific standards or other measures that define acceptable risk levels (and exposure to contaminants above these acceptable levels is predicted for the reasonable maximum exposure).

# Standard Language for Basis for Action

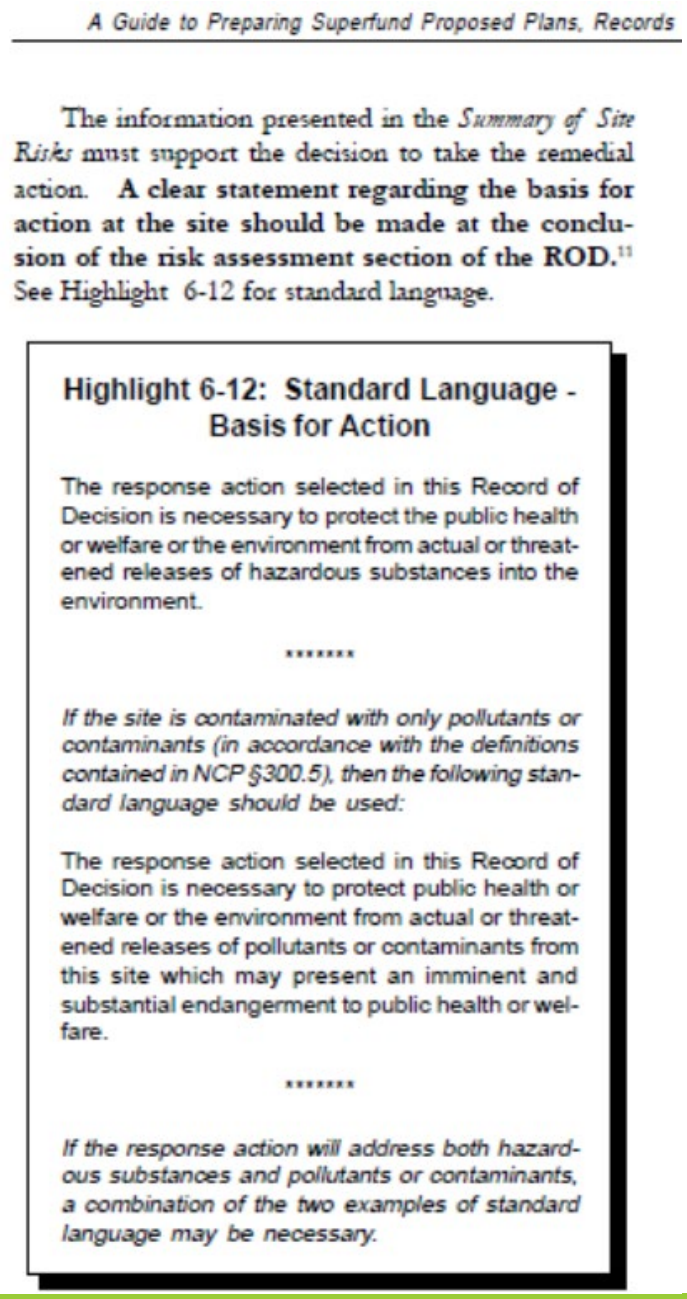
**Hazardous substances only**:

"The response action selected in this Record of Decision is necessary to protect the public health or welfare or the environment from actual or threatened releases of hazardous substances into the environment."

**Pollutants or contaminants only**:

"The response action selected in this Record of Decision is necessary to protect public health or welfare or the environment from actual or threatened releases of pollutants or contaminants from this site which may present an imminent and substantial endangerment to public health or welfare."

ROD Guidance page 6-3 Highlight 6-12:



*A Guide to Preparing Superfund Proposed Plans, Records*

The information presented in the *Summary of Site Risks* must support the decision to take the remedial action. **A clear statement regarding the basis for action at the site should be made at the conclusion of the risk assessment section of the ROD.**[11] See Highlight 6-12 for standard language.

**Highlight 6-12: Standard Language - Basis for Action**

The response action selected in this Record of Decision is necessary to protect the public health or welfare or the environment from actual or threatened releases of hazardous substances into the environment.

*******

*If the site is contaminated with only pollutants or contaminants (in accordance with the definitions contained in NCP §300.5), then the following standard language should be used:*

The response action selected in this Record of Decision is necessary to protect public health or welfare or the environment from actual or threatened releases of pollutants or contaminants from this site which may present an imminent and substantial endangerment to public health or welfare.

*******

*If the response action will address both hazardous substances and pollutants or contaminants, a combination of the two examples of standard language may be necessary.*

# What is a Remedial Action Objective (RAO)?

- RAO term used in the NCP discussion of FS at NCP 300.430(e)(2)(i)

- Lead agency shall establish remedial action object
  - Contaminants of concern
  - Media of concern
  - Potential exposure pathways
  - Remediation goals

# Remedial Action Objectives Further Detailed in Guidance

- PP section of ROD Guidance https://semspub.epa.gov/work/HQ/500009392.pdf
  - "The RAOs describe what the proposed site cleanup is expected to accomplish."
- RAGS D Section 4.1.1 "Remedial Action Objectives"
  - "As discussed in the NCP, RAOs should describe, in general terms, what a remedial action in order to be protective of human health and the environment. should accomplish

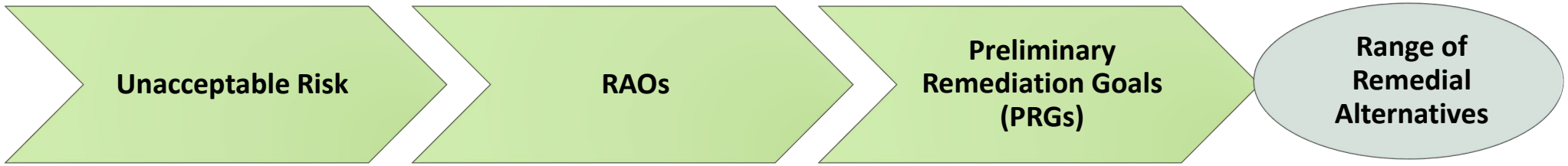
# RAO Components

- **Purpose of action**
- **Receptors**
- **Exposure pathway**
- **Environmental media of concern**
- **Contaminants of concern**
- Contaminant concentrations, concentration ranges, or risk levels -or- what can EPA measure to confirm the RAO is achieved?

# Remedial Action Objectives

- Link the exposure pathways and receptors to remedy components
- What is EPA going to change to address unacceptable risk?
- RAOs evolve through the cleanup process

**In the FS:**




**In the ROD:**

# RAO Purpose or “Objective” of Action

- “Prevent” / “Protect from”
- “Restore”
- “Minimize / Reduce”

**What will the cleanup accomplish?**

# Process for Establishing Remediation Goals for Media (in FS)

**NCP Section 300.430(e)(2)(i)(A) – (G)**

A. Determine if there are any ARARs that establish media cleanup levels

B. When ARARs are not available or sufficiently protective because of multiple contaminants, calculate a preliminary remediation goal

   Methodologies for noncarcinogens and carcinogens differ

   Describes point of departure for carcinogens and factors for moving from it

C. Consider MCLs and non-zero MCLGs

D. Consider the impact of multiple contaminants

E. Consider Federal Ambient Water Quality Criteria

# Nine Criteria to Evaluate Remedial Alternatives

## Threshold Criteria

- Overall Protection of Human Health and the Environment
- Compliance with ARARs (Applicable or Relevant and Appropriate Requirements)

## Primary Balancing Criteria

- Long-Term Effectiveness
- Reduction of TMV (toxicity, mobility, volume)
- Short-Term Effectiveness
- Implementability
- Cost

## Modifying Criteria

- State Acceptance
- Community Acceptance

# Overall Protection of Human Health and the Environment

**NCP Section 300.430(e)(9)(iii)(A)**

- Relates to the statutory requirements that an alternative must satisfy to be selected

# Compliance with ARARs

**NCP Section 300.430(e)(9)(iii)(B)**

- Relates to the statutory requirements that an alternative must satisfy to be selected
- Not required to be met for interim actions
- Specific ARARs can be waived

# Long-term Effectiveness and Permanence

**NCP Section 300.430(e)(9)(iii)(C)**

- Magnitude of the remaining risk
- Adequacy and reliability of controls

# Reduction of Toxicity, Mobility, or Volume Through Treatment

**NCP Section 300.430(e)(9)(iii)(D)**

- The treatment processes used and material that are treated
- The amount of material that is treated
- The degree of the reduction of toxicity, mobility, or volume of the material
- The degree to which the treatment is irreversible
- The type and quantity of the remaining residuals
- The degree of which treatment reduces the inherent hazards posed by principal threats

# Short-term Effectiveness

**NCP Section 300.430(e)(9)(iii)(E)**

- Protection to the community during the cleanup
- Protection to the workers during the cleanup
- Potential environmental impacts during the cleanup
- Time it takes to until protection is achieved

# Implementability

**NCP Section 300.430(e)(9)(iii)(F)**

- Technical ability to construct and operate the remedy
- Administrative feasibility
- Availability of services and materials, including adequate off-site treatment/storage capacity

# Cost

**NCP Section 300.430(e)(9)(iii)(G)**

- Capital costs
- Annual operation and maintenance costs
- Net present value of capital and operation and maintenance costs

# State Acceptance

**NCP Section 300.430(e)(9)(iii)(H)**

- Not completed until after the public comment period

# Community Acceptance

**NCP Section 300.430(e)(9)(iii)(I)**

- Not completed until after the public comment period, but can be considered throughout

# Principal Threat Waste

A. NCP Section 300.430(a)(1)(iii)(A):“EPA expects to use treatment to address the principal threats posed by a site, wherever practicable. Principal threats for which treatment is most likely to be appropriate include liquids, areas contaminated with high concentrations of toxic compounds, and highly mobile materials.”

B. Principal threat wastes are those source materials considered to be highly toxic or highly mobile that generally cannot be reliably contained, or would present a significant risk to human health or the environment should exposure occur.

C. This section should discuss the source materials constituting principal threats at the site and discuss how the alternatives will address them.

# Statutory Determinations

A. Protect Human Health and the Environment
B. Comply with Applicable or Relevant and Appropriate Requirements
C. Cost-Effective
D. Utilize Permanent Solutions and Alternative Treatment (or Resource Recovery) Technologies to the Maximum Extent Practicable
E. Preference for Treatment as a Principal Element

# Statutory Determinations

A. The ROD must state whether a five-year review is required pursuant to CERCLA Section 121(c) and NCP 300.430(f)(5)(iii)(C)



**Highlight 6-36: Determinations for Five-Year Reviews**

The purpose of this Section is to explain determinations for five-year reviews. The NCP states that the ROD must describe whether a five-year review is required (i.e., a "statutory review"). The ROD should also discuss whether the site is likely to undergo any discretionary policy reviews (i.e., a "policy review"). The structure and content of the five-year review is the same for both statutory and policy reviews.

# Six Types of RODs

- **No Action ROD-** Risk assessment concluded there is no site risk so no active remediation may occur but a passive remedy such as institutional controls could be implemented
- **Early Action ROD-** Remedial action taken before the RI/FS
- **Interim Action ROD-** Taking a quick action to protect human health and the environment from an imminent threat in the short term, while a final remedy is being developed for the site.

# Six Types of RODs

- **Contingency Action ROD-**A contingency ROD may be appropriate when there is a contingent remedy because there is significant uncertainty about the ability of preferred remedy to achieve cleanup levels (e.g., cleanup of an aquifer to MCLs or non-zero MCLGs).
- **Adaptive Management Action ROD-**An adaptive management remedy includes phased interim remedies with contingency remedies that provide a formal process to achieve site cleanup goals and remedial action objectives and maintains forward progress with an approach of multiple components for the remedies.
- **Regular Action ROD-** Regular final preferred remedy that could include each media.

# Views on Interim Actions

- There are differing views on the use of Interim RODs as part of a cleanup framework.
- EPA supports the use of interim RODs
- DOE has expressed support for the use of Interim RODs by using them across the DOE complex
- DoW has expressed less support for the use of Interim RODs and a preference for Final RODs

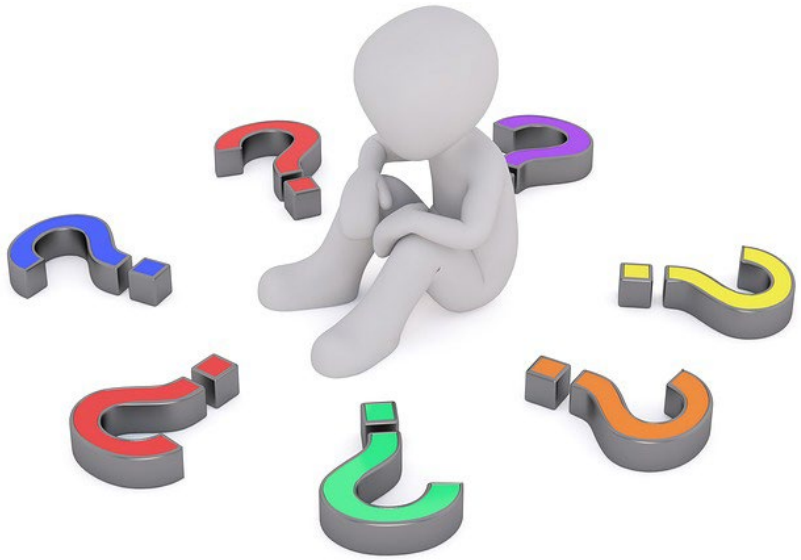
# Changing the Remedy Post-ROD

HIGHLIGHT 7-1 OF THE ROD GUIDANCE

# Changing the Remedy Post-ROD

- Post-ROD changes are documented by the following:
  - A memo or note to the Post-ROD file for an **insignificant or minor change**
  - An Explanation of Significant Differences (ESD) for a **significant change**
  - A ROD Amendment for a **fundamental change**
- Changes significantly affecting the remedy selected in the ROD will need more explanation and opportunity for public comment

# Determination of the Type of Post-ROD Change



- Scope
  - Does the change alter the scope of the remedy?
- Performance
  - Would the change alter the performance of the remedy?
- Cost
  - Are there significant changes in costs from estimates in the ROD?

# Memo to File

# Non-Significant/Minor Changes

- Non-significant or minor changes should be recorded in the post-ROD administrative record file (ARF).

- Examples include:
- A change to monitoring frequency
- Small increase in the volume of remedial waste

# Explanation of Significant Differences (ESD)

# Explanation of Significant Differences
## CERCLA 117(c) and 300.435(c)(2)(i) and 300.825(a)(2)

- Changes in the remedy that are significant are issued in an ESD. Unaffected components of remedy can continue while the ESD is being drafted.
- An ESD must:
  - Describe to the public why a significant change is needed and the nature of the change(s)
  - Summarize the information that led to making the changes
  - Affirm that the revised remedy complies with the National Contingency Plan (NCP) and the statutory requirements of CERCLA

# Explanation of Significant Differences

- Generally, a new nine-criteria analysis is not required.
- A side-by-side comparison of the original and proposed remedy components is suggested to clearly display the significant differences.

- Public notice and record keeping:
  - Publishing a notice of availability and a brief description of the ESD in a major media outlet
  - Placing it in the ARF and information repository
  - Public meeting not required

# ESD Examples

**Large increase in volume and/or cost increase:**

*Sampling during the remedial design phase indicated the need to significantly increase the volume of contaminated waste material, substantially increasing the cost of the remedy. The change is significant but not fundamental.*

**Introduction of secondary technology:**

*The lead agency decides to use a biological treatment method instead of air stripping (which was specified in the ROD) for in-situ treatment of extracted groundwater. The basic pump-and-treat approach remains unaltered and the cleanup levels in the ROD will be met by the alternative technology. The change is significant but not fundamental.*

# ROD Amendments

# ROD Amendments

**Fundamental change means the basic features of the remedy are being changed**

- When a fundamental change is made to the remedy selected in a ROD with respect to scope, performance, or cost
- For the portion of the ROD being amended, a new nine criteria analysis, including a new ARARs analysis, will be necessary (NCP 300.430(f)(1)(ii)(B)(2))

# ROD Amendments

- RD/RA activities being conducted on other portions of the site or at OUs not proposed for changes may continue during the amendment process.
- The remedy for the ROD must have a public comment period and be signed before any design and construction activities can take place.
- Lead agency **must** conduct the required public participation and documentation procedures
  - Includes a public comment period on the Proposed Plan
  - Requires a Public Meeting

Similar to ROD community involvement process

# ROD Amendment Examples

**A change in primary treatment method:**

*The in-situ soil washing selected in the ROD proves to be infeasible to implement after testing during remedial design. A decision is made to fundamentally change the remedy to excavate and thermally treat the waste*

**Remedy change from containment to treatment with cost increase:**

*During a five-year review for a small industrial site, tests indicate that the containment remedy will not be protective and now a more active response approach (e.g., treatment) is necessary. A new remedy must be selected that will meet protectiveness requirements, resulting in unanticipated costs for the site.*

# Five-Year Reviews, Impacts on Remedies, and NPL Site Deletion

# Five-Year Reviews- Statutory Requirement

Federal Facility Five-Year Review Training is available!

- Consistent with EO 12580, other Federal Agencies are responsible for ensuring that Five-Year Reviews (FYRs) are conducted at sites where required or appropriate. Five years from the first remedial on-site construction.
- For Federal Facility sites, the Lead Agency conducts the review, prepares the reports, and submits the report to EPA for review and comment.
  - EPA will either concur with the protectiveness determination or provide independent findings.
- The Lead Agency is responsible for ensuring that the recommendations and follow-up actions in the report are completed.

# Protectiveness Determinations in Five-Year Reviews

- Protective.
- Will be protective once the remedy is completed
- Protective in the short-term; however, in order for the remedy to be protective in the long-term, follow-up actions need to be taken…
- Not protective, unless the following action(s) are taken to ensure protectiveness…
- Protectiveness cannot be determined until further information is obtained (a time frame should be provided)…

# Helpful Components of RAOs for Evaluating Remedy Protectiveness

| | |
|---|---|
| **Risk Drivers** | • Media, pathways, receptors, COCs, cleanup levels |
| **Land Use** | • Current and potential future use |
| **Purpose of Action** | • Prevent? Minimize? Eliminate? Restore? |

# Remedies Considered Not Protective

- An immediate threat is present (e.g., exposure pathways that could result in unacceptable risks are not being controlled);
- Migration of contaminants is uncontrolled and poses an unacceptable risk to human health or the environment;
- Potential or actual exposure is clearly present or there is evidence of exposure (e.g., institutional controls are not in place or not enforced and exposure is occurring); or
- The remedy cannot meet a new cleanup level and the previous cleanup level is outside of the risk range.

# Follow Up Actions Based on FYR

- If the remedy is not protective based on the FYR, then recommendations to address protectiveness should be identified with timelines

- If the FYR determines the remedy is not performing as designed, changes to the selected remedy may be needed through an ESD or ROD Amendment

# NCP Criteria for NPL Site Deletion

- No further response is appropriate;
- Documentation of clean-up actions and decision-making at site is complete
- Institutional Controls are in place
- Operation and Maintenance (O&M) is not considered a response by the NCP

**All RAOs must be achieved before a site can be deleted from the NPL**

# Course Summary

- A variety of decision documents/approaches can be used under the CERCLA process
  - Removal Actions
  - Remedial Actions

- Existing RODs may need to be changed
  - Memos to file
  - ESDs
  - ROD Amendments
  - Five-Year Reviews and impacts on RODs