Effectively Documenting the Remedy Selection Process

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RITS Spring 2010

Presentation Overview

- Introduction
- Background
  - Navy's Improved ROD Initiative
  - ROD Toolkit
- Record of Decision (ROD)
  - Effectively Using EPA's ROD Guidance
  - Writing a ROD
  - Applicable or Relevant and Appropriate Requirements (ARARs)
- Post-ROD Changes
- Summary

Why Should You Sit Through This Presentation?

- **Effectively use EPA's ROD Guidance and the ROD Toolkit to write higher quality RODs**
  - **Understand key elements that document remedy selection decision**
  - **Expedite stakeholder acceptance and signature**

Courtesy U.S. Navy

Why Should You Sit Through This Presentation?

- Understand the end game
  - Better implement and document earlier phases of the CERCLA process
- Identify common challenges and solutions in writing RODs
- Incorporate streamlining tools and improved ROD concepts
  - NOT another "Streamlined ROD" presentation

Courtesy U.S. Navy

RITS Spring 2010: Effectively Documenting the Remedy Selection Process

Why Document Remedy Selection?

- **Legal requirement**
  - **CERCLA §120 (42 U.S.C. 9620)**
    - Federal Facilities
  - **NCP §300.430 (f)(5)**
    - Remedial Investigation, Feasibility Study, and Remedy Selection
- **Justify basis for action**
- **Memorialize remedy decision**
- **Convey and solicit information**
  - **Regulators, public, trustees, stakeholders**

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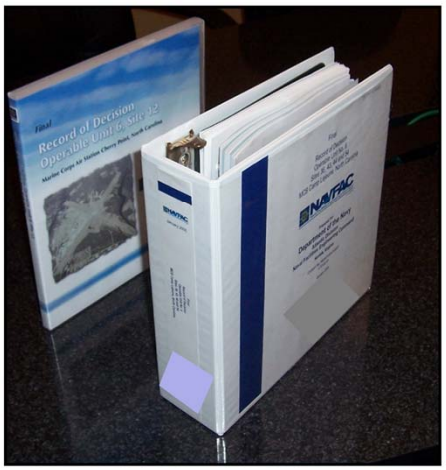
The remedy selection decision document, or ROD, is the culmination of the CERCLA process conducted at a given site and is a summary of the Admin Record. So if the remedy is challenged, this is a very important document that would likely be used in litigation.

What is a Record of Decision (ROD)?

- **Summarizes** information in the Administrative Record
- Provides **technical information** necessary for determining engineering components
- **Outlines** RAOs and cleanup levels for Selected Remedy
- Is a key **communication tool** for the public
- **Identifies** statutory requirements



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Since the objective of the ROD is to “summarize” and “outline” key information and serve as a communication tool for the public, it does not/should not be a 300 page document where the key information would easily be lost.

Types of RODs

- **Action**
  - **Documents remedy selection decision process**
  - **Presents the final remedy for the site**
  - **Most common**
    - Focus of presentation
- **No Action**
  - **Documents no unacceptable risk and no action needed**
  - **Documents where potential risks have been eliminated during previous or interim action(s)**

Photos Courtesy U.S. Navy

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If unacceptable risk is identified at a site and there is a basis for action, a Action ROD should be prepared…should address all media, COCs, exposure pathways

No risk should be remaining if preparing no action RODs, if there were risks identified but the team risk managed them, rationale should be documented.

Types of RODs

- **Interim Action**
  - **Documents rationale for interim action and path forward for final ROD**
    - Quick response to a high risk situation
    - Temporary measure to stabilize and prevent further contamination
    - Funding availability
    - Stakeholder preference
    - Project team goal
  - **Actions limited in scope and not the final remedy**
    - Addresses specific area / media / site within an Operable Unit
  - **Final ROD needed**

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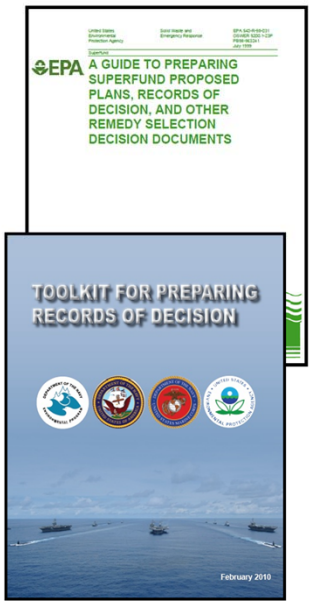
The Interim ROD should clearly present what the interim remedy will address and why, what is left to address, and the plan for subsequent/final RODs.

How Do You Document Remedy Selection?

- ***A Guide to Preparing Superfund Proposed Plans, Records of Decision, and Other Remedy Selection Decision Documents*** **(EPA, July 1999)**
  - **Required content**
    - Does not have to result in 200-600 page documents
- ***Draft Toolkit for Preparing Records of Decision*** **(DON and EPA, February 2010)**
  - **Streamlining tools and improved ROD concepts**
  - ***Draft Improved ROD Handbook*** **(DON, March 2009)**



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EPA Guidance presents a thorough informative guidance that provides detailed information about how to perform and document the CERCLA process but doesn't have to result in lengthy RODs, there is nowhere in the guidance that describes length. Navy toolkit and handbook provide tools and concepts to generate a concise ROD and how to present information to better tell the story of the site.

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Background of Navy ROD Initiative

- 2004 – Joint EPA / DoD Task Force
  - President's Management Agenda
  - Streamline site closeout
  - Improve ROD clarity and public understanding
  - Pilot test new information technologies
  - Comply with CERCLA and NCP
    - NCP Preamble

Active Members

U.S. Environmental Protection Agency (EPA)
Federal Facilities Restoration and Reuse Office (FFRRO)
Director Federal Facilities Enforcement Office (FFEO)
Office of Enforcement and Federal Facilities (OEFF)
Office of Site Remediation Enforcement (OSRE)
Office of Enforcement and Corrective Action (OECA)
Office of Superfund Remediation and Technology (OSRTI)

Department of Defense (DoD)
Office of Secretary of Defense (OSD)
Office of General Counsel (OGC)
Assistant Secretary of Navy (ASN)
Naval Facilities Engineering Command (NAVFAC)
U.S. Air Force
U.S. Army

Contributing Agencies
EPA Region III and Region IX
Department of Justice (DoJ)
Virginia Department of Environmental Quality (VDEQ)
N. Carolina Dept. of Env. and Nat. Resources (NCDENR)

11 Background — RITS Spring 2010: Effectively Documenting the Remedy Selection Process

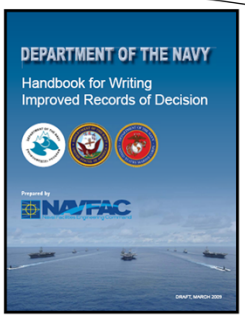
The Navy didn't just wake up one day and think that streamlining RODs would be a good idea, the concept was conceived by a joint task force that were tasked with implementing the President's Management Agenda, 2002 that directed government agencies to implement better business management practices to provide cost and time savings using electronic enhancements.

Focused on RODs because RODs were lengthy, resulting in long reviews, delays in signature and remedy implementation and there was a ROD/LUC dispute.

NCP Preamble states that information contained in the Admin Record need not be repeated.

Background of Navy ROD Initiative

- 2005 to 2006 – Pilot "Streamlined" RODs
  - Input from Department of Justice
- 2007 – ASN "Streamlined" ROD Strategy
  - FY 2009 – Goal 50% (exceeded goal - 69%)
  - FY 2010 – Goal 100%
- 2009 – Draft Navy "Improved" ROD Handbook
- 2007 to present – "Improved" RODs submitted
  - Wide range of formats and regulatory acceptance



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DoJ review because EPA wanted to confirm that the RODs were legally defensible and would stand up in a court of law.

SROD strategy issued upon "streamlined' ROD signature in 2007 so to assist RPMs to meet the strategy, the handbook was issued.

You'll notice that there have been several terms used to describe these RODs…"streamlined" and "improved" and there has been a lot of controversy on what to call it…some thought that the term "streamlined" indicated a short-circuiting of the CERCLA process, so "improved" was used, and the AF used "tailored" but regardless, they are still RODs.

Background of Navy ROD Initiative

- **2009 – Navy and EPA Collaboration**
  - **EPA reviewed Improved ROD Handbook**
    - Perceived as parallel guidance
    - Outline should be consistent with EPA's ROD Guidance
    - Positive response to streamlining tools
  - **Agreed RPMs would benefit from a resource that supplements EPA ROD Guidance**
    - ROD Toolkit

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Because the Navy Handbook took some liberties with consolidating the outline to reduce repetitiveness, EPA could not endorse a document that did not follow guidance and that the outline could be modified only on a site-specific basis.

Because EPA's ROD Guidance was published in 1999 and is not likely to be updated, they liked the idea of presenting new tools and data presentation techniques.

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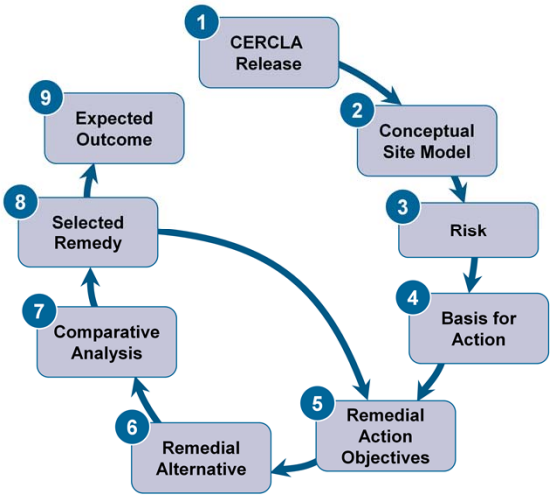
ROD Toolkit

- **Addresses fundamental ROD challenges**
  - **Disconnected documentation of remedy selection process**
  - **Data presentation**
    - Summarize and synthesize information
      -vs-
      Copy and paste from Administrative Record
    - Maximize use of tables and figures



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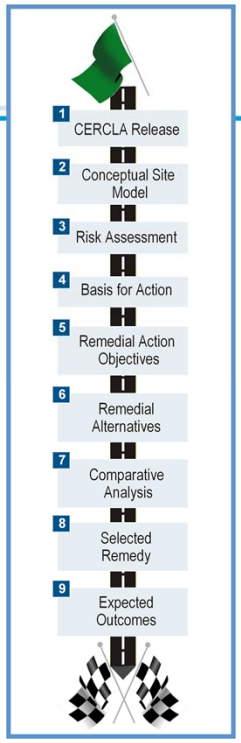
In collaboration with EPA, we realized that the primary challenge with RODs was how information was presented and documented, resulting in a disconnected story, in other words, some of the key links were missing and the reader has to piece the story together…9 key components….that tie together and carry through the document.

Copy and paste from Administrative Record can result in disconnected documentation, particularly if there are old RIs…don't copy and paste tables and figures from Administrative Record, recreate new summary figures presenting all the information to-date. If you copy a figure from the RI, there may be newer information missing from that figure leading the reader to ? information presented.

ROD Toolkit

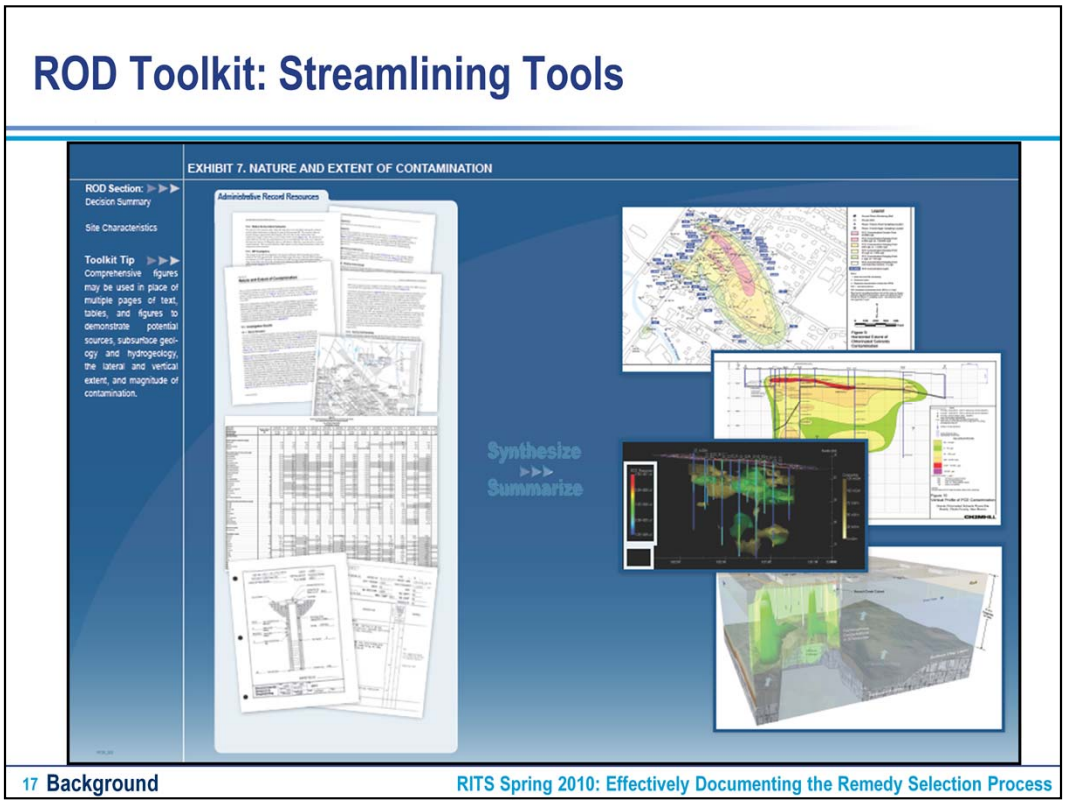
- Execution resource for RPMs
- Introductory text acknowledges the ROD…
  - Stand alone document
  - Tells the story of the site
  - Clear rationale for remedy selection
  - Recognizes site-specific flexibility in data presentation
  - Intended as a living and evolving tool
- Exhibits
  - Streamlining tools to convey information
- Common challenges identified during ROD reviews



16 Background RITS Spring 2010: Effectively Documenting the Remedy Selection Process

The toolkit provides the background and explains that this is a supplement to EPA ROD Guidance.

Encourage new ideas and techniques to present data.



Here is an example of one of the graphic exhibits that show how to summarize and synthesize information, in this case for presenting the N&E of contamination…showing how all the information regarding groundwater contamination and the relationship to aquifer characteristics from the RI can be resummarized in graphic depictions of the horizontal and vertical extent of contamination.

Each exhibit shows the section of the ROD the streamlining tool applies to and a “toolkit tip” for how to better present the info.

ROD Toolkit: Streamlining Tools

- **Reference materials from Administrative Record and other sources**

Site History and Enforcement Activities →	• Operational activities resulting in the CERCLA release • RCRA closure documentation • Analytical sample tables • Sample location and concentration figures • UFP-SAP • As built drawings	• Hazardous materials management information • Historical photographs • Site impacts if multiple OUs exist • Post interim action confirmation data tables • Conclusion sections of documents • Interim action cost information
Community Participation →	• Public Web site • Administrative Record index • Public notice documents	• Public meeting minutes • Community Involvement Plan
Scope and Role of OU or Response Action →	• Site Management Plan • Facility planning documents • Municipal planning documents	

18 **Background** RITS Spring 2010: Effectively Documenting the Remedy Selection Process

There is also an exhibit to show other resources that can be used to support the remedy selection decision, a lot of times you may just think of the RI/FS but there may be other document, for example, facility or base planning documents to help with the potential future land use.

ROD Toolkit: Streamlining Tools

- **Detailed references to Administrative Record information**
  - **Identify title/author/date, section number, and page numbers**

TCE concentrations appear to follow groundwater flow, moving from apparent source release points to the southeast and southwest toward the storm sewer system and the Site 2 inlet (Figure 4). A **video survey of the storm sewer**[10], which is below the water table, identified leaks in the system, supporting the fact that it is influencing the groundwater flow. Based on the analytical results and the corresponding potential source areas, the TCE plume at Site 21 has an aerial extent of approximately 8 acres, and extends laterally within the Columbia aquifer from the parking lot south of Building 64 (north) to the south side of former Building 46 (east) (**Figure 4**). The orientation of the daughter product plumes (cis-1,2-DCE and vinyl chloride) closely resemble that of the TCE. The maximum detected concentration of TCE in shallow groundwater (16,000 µg/L) indicates that **DNAPL**[11] is likely present at the site.

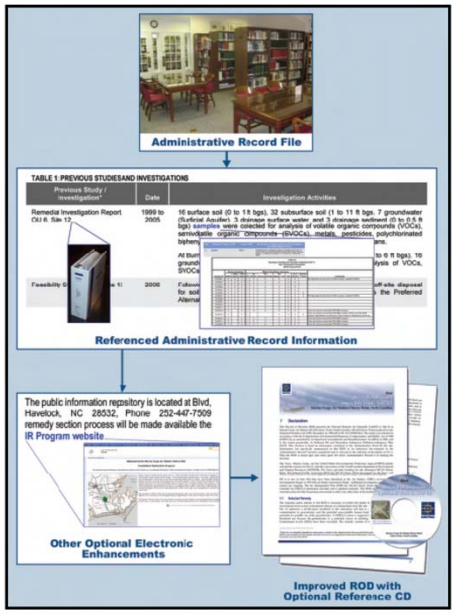
Item	Reference Phrase in ROD	Location in ROD	Identification of Referenced Document Available in the Administrative Record
10	video survey of the storm sewer	Section 2.3	*Final Remedial Investigation Report for Site 21. St. Juliens Creek Annex, Chesapeake, Virginia.* Appendix E.
11	DNAPL	Section 2.3	*Final Remedial Investigation Report for Site 21. St. Juliens Creek Annex, Chesapeake, Virginia.* Section 6.2, page 47.

19 Background RITS Spring 2010: Effectively Documenting the Remedy Selection Process

You can also provide detailed references to substantiate the summary information presented from the Admin record. So instead of a standard bibliography, include detailed references to lead the reader directly to the referenced info. You can use blue text or footnotes to identify key terms where additional information is referenced.

ROD Toolkit: Streamlining Tools

- **Optional Reference CD**
  - Provides immediate access to referenced material
  - Expedites stakeholder review process
  - Enhances community participation



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So a hyperlink would be provided to the information referenced from the Admin Record for easy access, or a simple CD of reference materials could be provided.

Was well-received when presented at RABs and community meeting

ROD Toolkit: Common Challenges

Section in ROD	Challenges and Considerations
Part 1: Declaration	
General	Because the Declaration is intended to be an Executive Summary it should be written following the Decision Summary and Responsiveness Summary and include a level of detail appropriate for an Executive Summary. Incorporate site-specific information in the declaration statements, such as identifying the lead and support agencies, the CERCLA release, the media impacted, the basis for action, and the Selected Remedy.
Authorizing Signatures	Ensure appropriate signatures and concurrence from stakeholders.
Part 2: The Decision Summary	
Site Name, Location, and Brief Description	The site boundary should reflect current conditions that encompass the source or release area, the extent of contamination, and the area affected by the remedial action.
Scope and Role of Operable Unit or Response Action	Recognize potential terminology differences between Navy and EPA for media, operable unit, site, and the facility and be consistent with use of terms throughout the ROD. Clarify how the response action addressed by the ROD fits into the overall strategy for the operable unit, facility, and/or site. Refer to EPA's Close Out Procedures for NPL Sites (EPA, January 2000).

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Toolkit includes a table of common challenges identified during ROD reviews by the Navy and EPA to help you avoid some of the common pitfalls and we'll go through these when we walk through the ROD sections.

Status of ROD Toolkit

- EPA HQ considering options to jointly issue and distribute to EPA RPMs
  - Review by EPA Council and Regions
- Review by Navy Workgroups
- Voluntary participation by EPA Regions
  - RODs negotiated with each EPA Region, State, and Partnering Team

Navy Preamble to ROD Toolkit

- Addresses Navy-specific policy and guidance
  - Basis for action consistent with background and sediment policies
  - RAOs consistent with Base planning and mission needs
  - Navy principles for LUCs
  - Optimizing Remedy Evaluation, Selection, and Design
  - Evaluating sustainability
  - Emerging contaminants

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Because the EPA and Navy plan to issue jointly, the preamble was generated to address Navy-specific policy and guidance.

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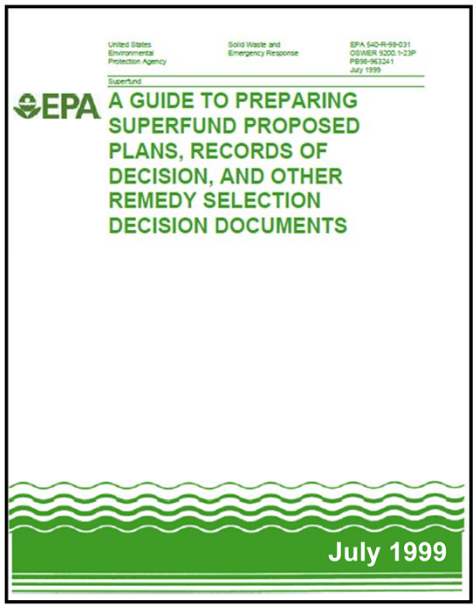
Effectively Using EPA ROD Guidance

- **Provides good explanation of key elements to document remedy selection**
  - Is thorough and detailed
  - "Recommends" outline
  - Identifies required content and examples

Highlight 6-3: Standard Language for Assessment of the Site

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.



Can result in 300 page docs, don't copy and paste standard or example language, make it site specific. For example the standard language for the assessment of the site should be included but expand on that to say what the response action in the ROD is and how it protects human health and the environment.

Effectively Using EPA ROD Guidance

- Unsure how to tease out applicable content for a given site
  - Leads to copying and pasting to "check the box"
  - Loses the story of the site
  - Misses logic and thread required to link the elements of remedy selection
  - May result in long RODs

RECOMMENDED OUTLINE AND CHECKLIST FOR A RECORD OF DECISION

PART 1: THE DECLARATION

The Declaration functions as the abstract and formal authorizing signature page for the ROD.

A. Site Name and Location

B. Statement of Basis and Purpose

- ☐ Certify the factual and legal basis for the Selected Remedy [see Highlight 6-2 for standard language].

C. Assessment of Site

- ☐ Certify that the site poses a threat to public health, welfare, or the environment [see Highlight 6-3 for standard language].

D. Description of Selected Remedy

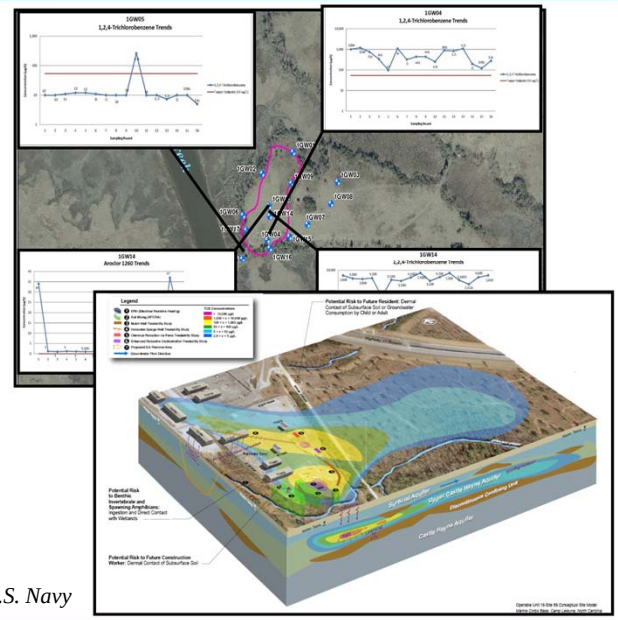
- ☐ Describe the major components of the Selected Remedy in a bullet fashion.
- ☐ Describe the scope and role of this operable unit within the overall site management strategy.

26 Record of Decision RITS Spring 2010: Effectively Documenting the Remedy Selection Process

Because there is a detailed checklist, leads to copying and pasting to "check the box"…

Effectively Using EPA ROD Guidance

- New ways to obtain and present information
  - Data collection technologies
  - Software packages
  - 3-dimensional graphics
  - Trend analysis and statistics
  - Electronic enhancements for interactivity



Courtesy U.S. Navy

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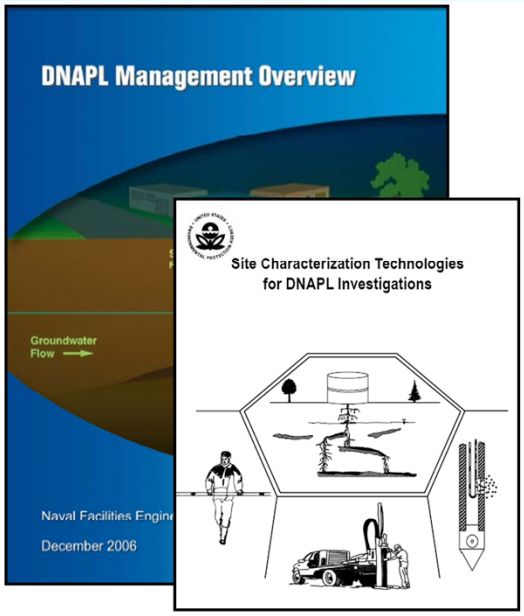
Effectively Using EPA ROD Guidance

- Evolution of cleanup program
  - Recognizing limitations for DNAPL remediation
  - Addressing asymptotic outcomes of pump and treat systems
  - Emerging contaminants
  - Incorporating sustainable solutions
  - Optimizing remedies
  - Emphasizing exit strategies



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This section of the ppt will show how to better present the remedy selection decision, following EPA Guidance and incorporating streamlining tools to address challenges resulting in a high quality ROD.

Writing a ROD

- Review outline and content for RODs
  - EPA ROD Guidance
  - Enhancements for better data presentation
  - Challenges identified during ROD reviews

CHALLENGES

- Presenting appropriate level of detail
- Avoiding redundant and extraneous information
- Identifying a clear thread connecting key elements that document remedy selection decisions
- Inconsistency between text, tables, and figures

Highlight 6-1: Recommended Outline for Standard Record of 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

30 Record of Decision — RITS Spring 2010: Effectively Documenting the Remedy Selection Process

Follow recommended outline from EPA ROD Guidance that consists of 3 parts.

Use embedded tables and figures to make it more reader-friendly and reduce flipping back and forth.

Explain that each slide will present content for each section (show prop) and include challenges box with the key challenges associated with that section. This challenges box presents the key challenges with writing a ROD….

Part 1: Declaration

- **Abstract – Executive Summary**
  - Lead and support agencies
  - Source of funding
  - Legal basis
  - Selected Remedy
  - Statutory Determinations
- **Data Certification Checklist**
  - Certifies ROD contains key elements of remedy selection
  - Required by EPA
- **Authorizing Signatures**

CHALLENGES

- Clarifying the CERCLA release and media-specific basis for taking action
- Communicating with stakeholders for endorsement
- Addressing inconsistent and contradictory comments

31 Record of Decision RITS Spring 2010: Effectively Documenting the Remedy Selection Process

The exec summary should actually be the last section that you write instead of the first and should not be lengthy

Lead and support agencies – For NPL sites the Navy is the lead agent

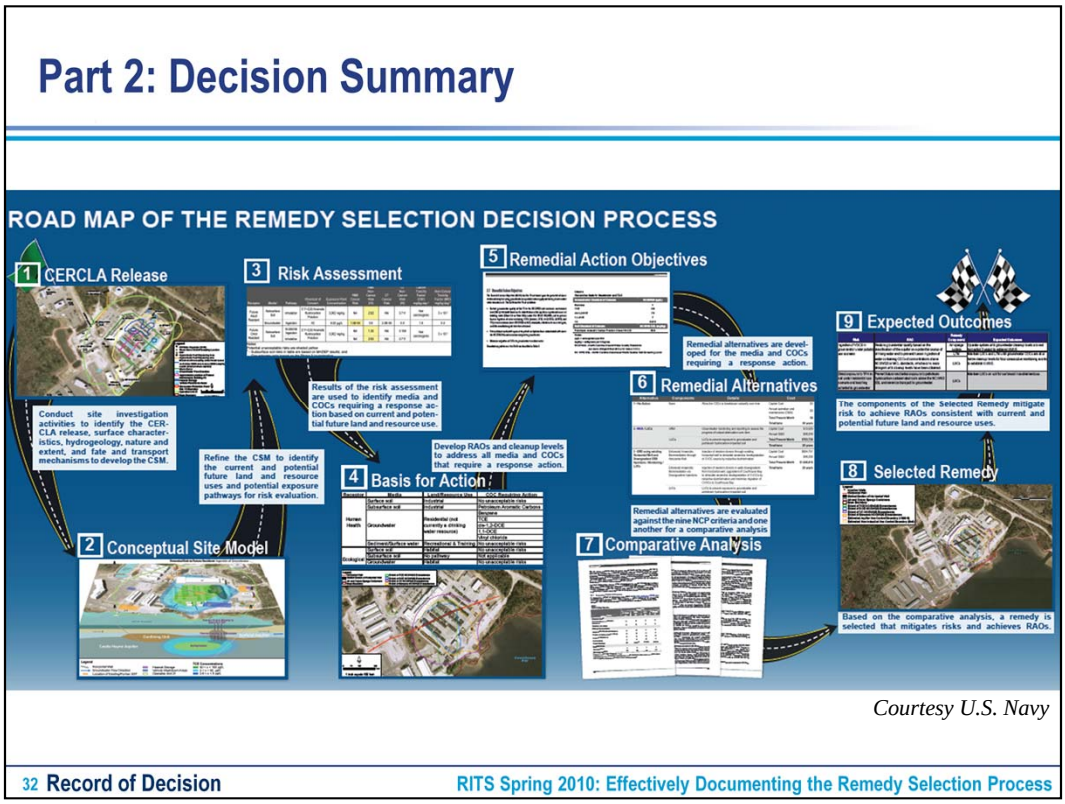
Source of funding – Under ERN, Navy provides funding

Legal basis - for action to address human health and eco risk

Selected Remedy – to address those risks

Statutory Determinations – that must be met

Data Certification Checklist required by EPA as a result of OGC audits finding ROD deficient in key elements, almost like a TOC

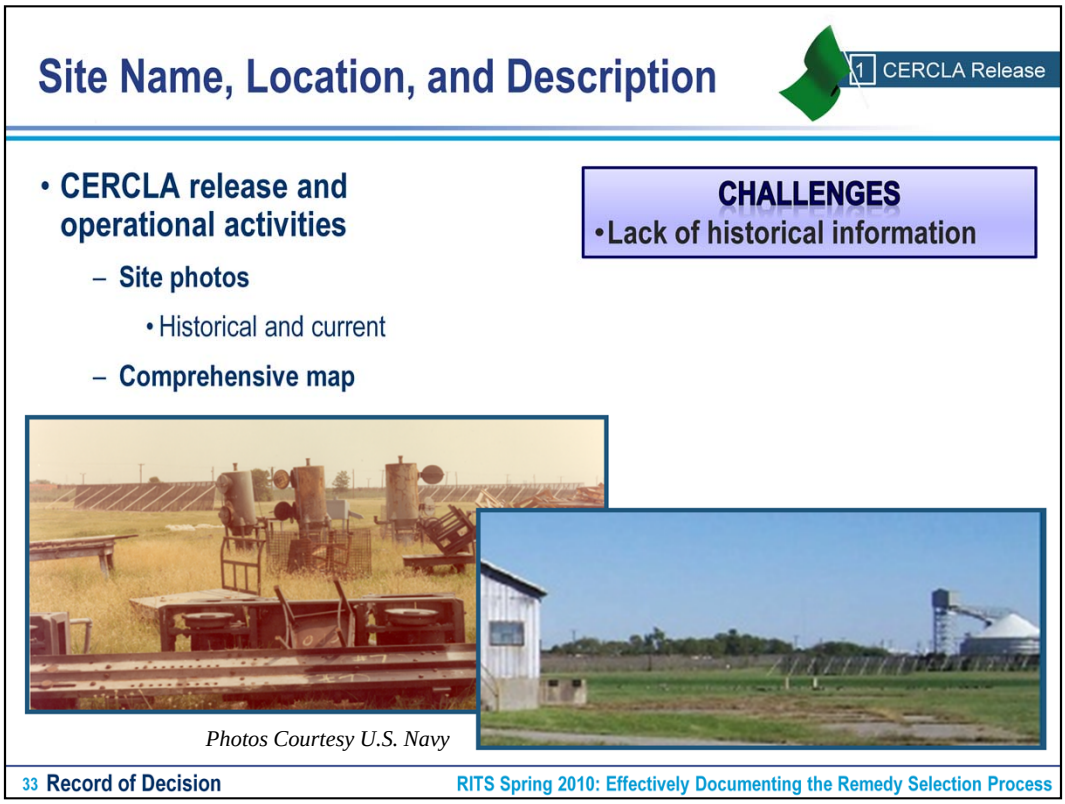


Courtesy U.S. Navy

The Decision Summary identifies the Selected Remedy, explains how the remedy fulfills statutory and regulatory requirements, and provides a substantive summary of the Administrative Record file that supports the remedy selection decision.

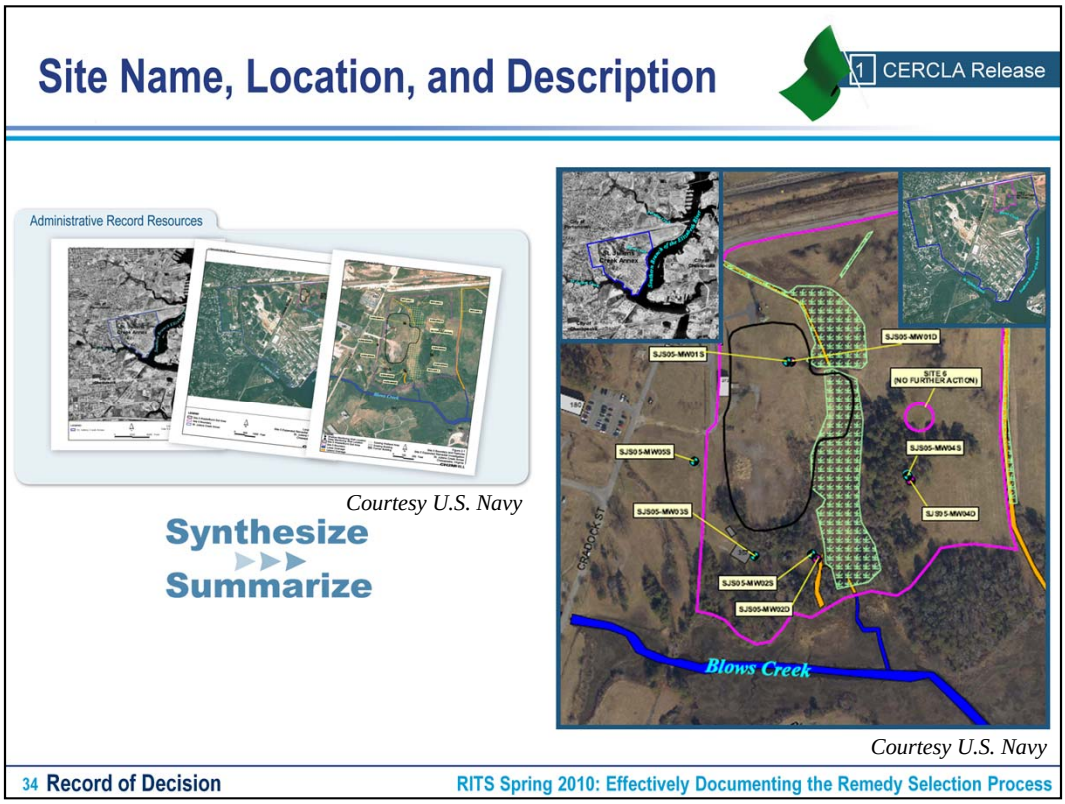
Clearly present the remedy selection decision process in the ROD. Similar to a directional road map, there should be a starting point (CERCLA release) and a finish line (Expected Outcomes) for the site. Identify all the stops along the way.

Key road map elements identified in subsequent slides



At top right corner of each slide, depicts the step in the road map for you to follow along.

May be lack of historical information, no facility records in the AR, no known source, if so, just state that.



Embedding regional and base location images and insets within a figure showing the detailed site layout can effectively consolidate information previously displayed in several figures. This type of comprehensive graphic combined with historic and current site photographs, if available, may be used to provide the reader a better understanding of the site.

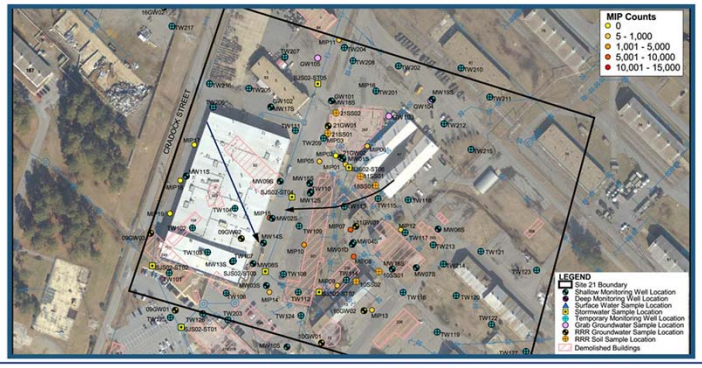
Site History and Enforcement Activities

1 CERCLA Release

- Previous site investigations and actions
  - Summarize chronologically
  - Demonstrate sample strategy
- CERCLA enforcement activities

CHALLENGES

- Avoiding redundancy with previous section
- Demonstrating adequate site characterization



Courtesy U.S. Navy

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Don't cut and paste detailed previous investigations text from the RI

Challenges-

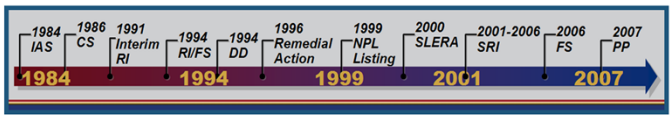
- Avoiding redundancy with previous section – b/c you just explained the site history and operational activities and site layout in previous section, don't repeat here, focus on previous investigations conducted to characterize contamination – this is one place where Navy previously consolidated outline
- Demonstrating adequate site characterization – show all media sampled and locations to show spatial sample distribution
- Include the sample locations that demonstrate adequate site delineation. Ensure extent of contamination is not truncated at artificial/physical boundaries (e.g., property line, roadways, water bodies).

Site History and Enforcement Activities

1 CERCLA Release

Synthesize ▸▸▸ Summarize

Previous Study / Investigation	Date	Investigation Activities
Preliminary Assessment (PA) (NUS Corporation, 1983)	1983	The PA was conducted to identify sites that required further investigation based on potential threat to human health or the environment. Ambient air at Site 2 (termed Dump B and the Dump B Incinerator) was monitored for VOCs and radiation. No readings above background were encountered and no significant signs of contamination were observed.
Resource Conservation and Recovery Act (RCRA) Facility Assessment (RFA) (A.T. Kearney, 1989)	1989	A preliminary review of all available relevant documents and a visual site inspection were conducted to identify solid waste management units (SWMUs) and areas of concern (AOCs). The RFA recommended further action for three SWMUs and one AOC identified within the current Site 2 boundary: SWMU 2 (Dump B), SWMU 3 (Dump B Incinerator), SWMU 4 (Dump B Blast Grit), and AOC A (Satellite Storage at Building 279).



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To enhance the site history and enforcement activities discussion, a summary table and/or graphic depicting previous investigations/actions may be used to demonstrate that the site has been adequately investigated utilizing appropriate sampling strategy. The level of detail in a summary table should be adequate to inform the reader of all pertinent investigation/action information as the site has gone through the CERCLA process.

For extensive site histories where a text summary may be more appropriate, consider use of a timeline to present a graphic depiction of the CERCLA process that has occurred.

Community Participation

1 CERCLA Release

- Required by CERCLA and the NCP
- Public participation activities
  - Community Involvement Plan
  - Restoration Advisory Board
  - Public notices and meetings
  - Administrative Record
  - Information Repository

CHALLENGES

- Considering flow in ROD
- Avoiding redundancy with subsequent sections

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EPA Highlight provides example of level of detail

Challenges

- Location in ROD – interrupts flow
- Level of detail – community responses detailed in Comparative Analysis and Responsiveness Summary

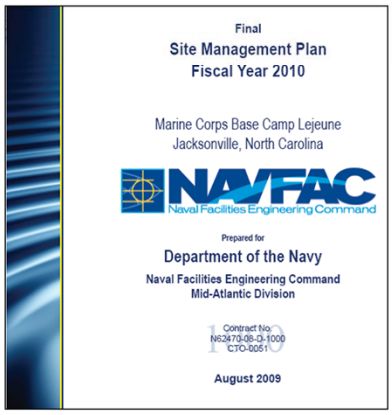
Scope and Role of OU or Response Action

1 CERCLA Release

- Overall cleanup strategy for facility
  - Describe how the cleanup program is organized and managed
  - Refer to the Site Management Plan
- Clarify the site / media addressed in this ROD and how it fits into overall cleanup program

CHALLENGES

- Considering flow in ROD
- Understanding and using appropriate terminology for facility, OU, site, media


Final
Site Management Plan
Fiscal Year 2010

Marine Corps Base Camp Lejeune
Jacksonville, North Carolina

NAVFAC
Naval Facilities Engineering Command

Prepared for
Department of the Navy
Naval Facilities Engineering Command
Mid-Atlantic Division

Contract No.
N62473-08-D-1000
CTO-0051

August 2009

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Recognize that EPA's and Navy's terminology for operable unit, site, and facility may differ [refer to EPA's *Close Out Procedures for NPL Site* (EPA, January 2000) and DoN's *Environmental Restoration Program Manual* (DoN, August 2006)]. When addressing the scope and role in the ROD, clarify how the response action fits into the overall site/operable unit/facility strategy.

Challenges

Varying level of detail

Using the appropriate terminology for, and understanding the relationship between media, operable unit, site, and the facility.

Clarify how the response action addressed by the ROD fits into the overall (operable unit, facility, site) strategy. Refer to EPA's Close Out Procedures for NPL Site (EPA, January 2000).

Navy – Facility/Installation/Base has OUs, Sites, Media

EPA – Site has OUs which may be media

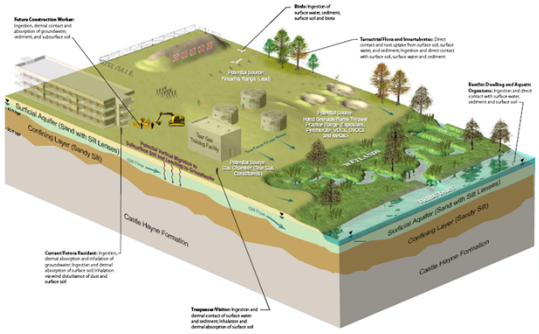
Site Characteristics

2 Conceptual Site Model

- Conceptual Site Model (CSM)
  - CERCLA release
  - Surface/subsurface features
  - Hydrogeology
  - Nature and extent of contamination
  - Fate and transport pathways
  - Land and resource uses
  - Exposure pathways and receptors

CHALLENGES

- Depicting integrated relationship
- Avoiding redundancy with previous sections
- Incomplete CSM
- Identifying site boundary to reflect extent of contamination



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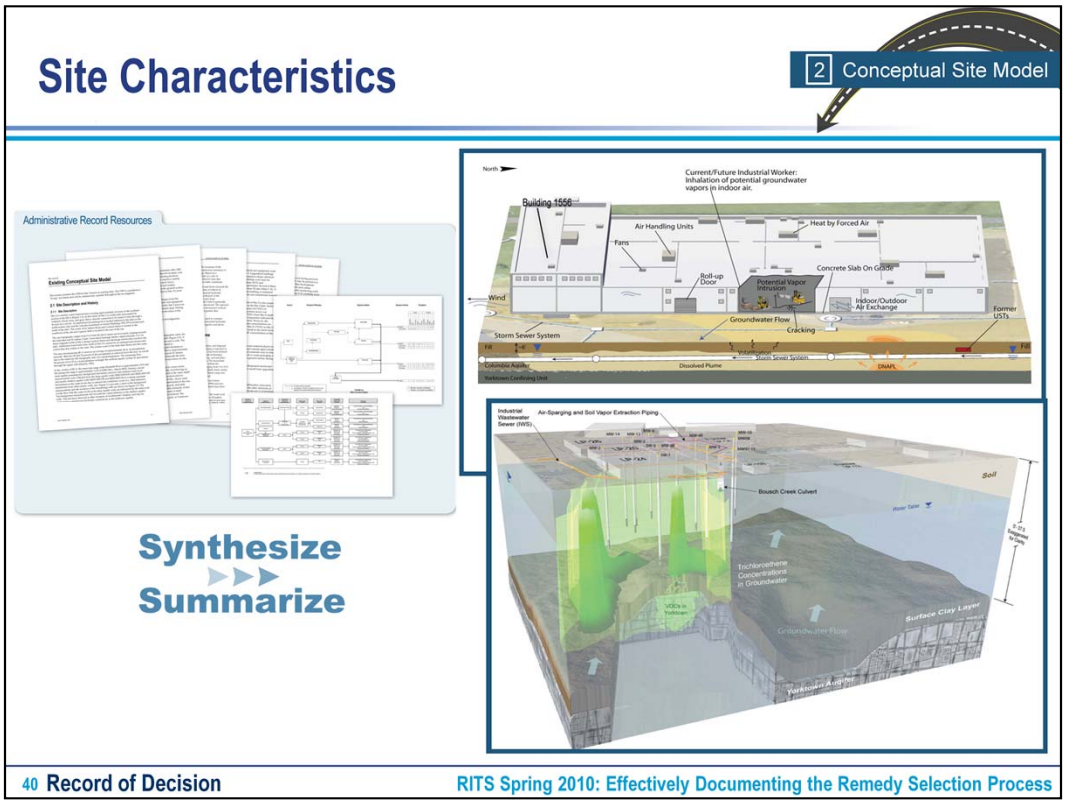
CHALLENGES

- Depicting relationship between CERCLA release, surface/subsurface features, hydrogeology, nature and extent, fate and transport mechanisms, current and potential future land and resource uses, and potential exposure pathways/receptors – Integrate elements into a comprehensive graphic CSM
- Redundant with previous investigations
- Truncated boundaries of contamination- Ensure extent of contamination is not truncated at artificial/physical boundaries (e.g., property line, roadways, water bodies).



RI text CSM with wire diagram is detailed and useful but graphic depiction better presents info. 1 – if VI potential pathway of concern, building CSM is useful to show bldg characteristics, relationship to plume, and potential pathways. 2 – for gw plume, need to present horizontal and vertical extent of contamination. 3D is a nice way but could use several 1D figures, site layout to show horizontal and then cross-section to show vertical.

Current and Potential Future Land and Resource Uses

2 Conceptual Site Model

- Current, future, and adjacent land and resource uses
  - Surface water use / recreation
  - Potable groundwater use

CHALLENGES

- Consistency with base master planning
- Identifying adjacent uses
- Identifying groundwater classification

Courtesy U.S. Navy

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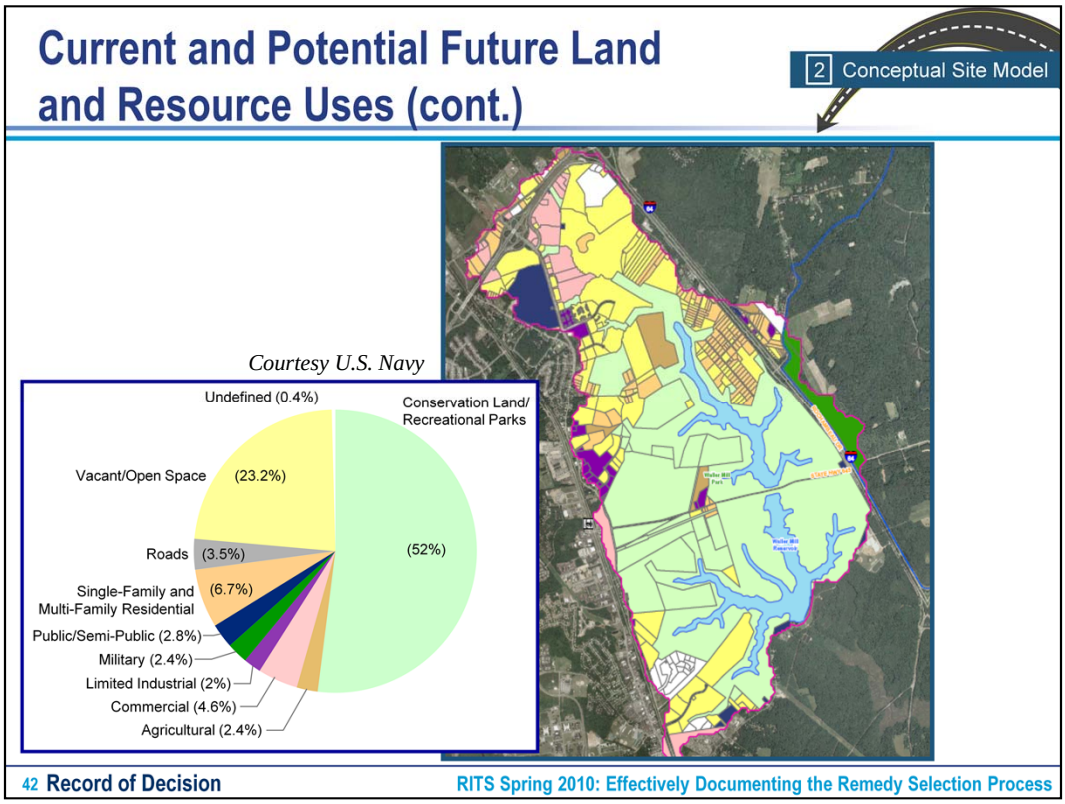
CHALLENGES

- Future uses consistent with mission needs –Regional Shore Infrastructure Plans, Base planning documents, Potential resources for the basis of future use assumptions include relevant land and resource management plans, zoning maps, 20-year development plans, State Groundwater Plans, promulgated State groundwater and/or surface water classification, and EPA groundwater classification guidelines. Nearby developments and dialogue with local land use planning officials may provide additional information regarding land and resource use.
- Identification of on-site and adjacent land/resource uses – conduct site visit, also identify if drinking water source nearby and why/why not expected to be impacted by the site
- Groundwater classification – include and ensure appropriate determination of RAOs



Using all info to present a comprehensive figure and refine CSM and identify potential exposure pathways for risk evaluation

CIP or WCSD sometimes have these figures or base master planning

Summary of Site Risks

3 Risk Assessment

- Human health and ecological risk results
  - Receptor / media / pathway
  - COCs / exposure point concentrations
  - Individual / cumulative risk
  - Toxicity values

CHALLENGES

- Managing uncertainties with old data, methodologies, and exposures
- Presenting appropriate level of detail

Receptor	Media	Exposure Route	Cancer Risk	COCs with Cancer Risks $>10^{-4}$	Hazard Index	COCs with HQ >1
Future Residential Child	Groundwater	Ingestion	NA		36	Arsenic (HQ=21) Iron (HQ=6.4 Manganese (HQ=2.5) Vanadium (HQ=7.1
		Inhalation	NA		NA	
		Dermal Contact	NA		0.82	
		Total	NA		36	
	Soil	Ingestion	NA		1.3	
		Inhalation	NA		NA	
		Dermal Contact	NA		0.31	
		Total	NA		1.6	
		Receptor Total	**NA**		**38**	

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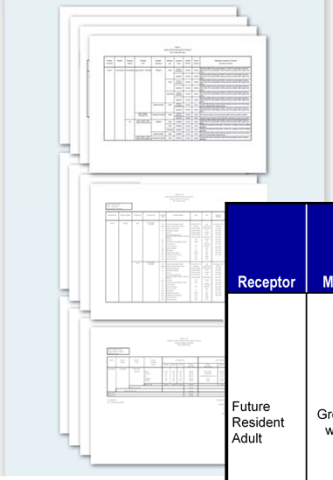
CHALLENGES

- Managing uncertainties associated with old data / methodologies – update risk assessment for site conditions (e.g., current residual risk if interim actions were taken, VI pathway if within 100' of VOC gw plume, RSLs) and toxicity, using current guidance.
- Full HHRA/ERA is long with tons of tables, so can be challenging to summarize.

Summary of Site Risks

3 Risk Assessment

Administrative Record Resources



Synthesize
Summarize

Receptor	Media	Pathway	Chemical of Concern	EPC	RME Cancer Risk	RME Non-Cancer Hazard (HI)	CTE Cancer Risk	CTE Non-Cancer Hazard (HI)	Cancer Toxicity Factor (CSF) mg/kg-day-1	Non-Cancer Toxicity Factor (RfD) mg/kg-day
Future Resident Adult	Ground-water	Ingestion	Arsenic	2.8	NA	2.9	NA	0.43	1.5E+00	0.0003
			Iron	12,000	NA	0.46	NA	0.16	NA	0.7
			Manganese	1,100	NA	1.6	NA	0.47	NA	0.02
		Dermal	Arsenic	28	NA	0.013	NA	0.0014	1.5E+00	0.0003
			Iron	12,000	NA	0.0024	NA	0.00052	NA	0.7
			Manganese	1,100	NA	0.2	NA	0.038	NA	0.0008

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Presenting RAGS– use 1 table to depict results with text explanation of the process – highlight unacceptable risks so the reader can get a quick snapshot of the issues – be sure to include cumulative risk and EPCs and tox factors so risk #s can be calculated/duplicated per EPA

Summary of Site Risks

4 Basis for Action

- Basis for action
  - Unacceptable risks
  - Media and COCs requiring a response action

CHALLENGES

- Using simple statements
- Not addressing all media
- Documenting risk management decisions
- Using COPCs vs. COCs

Receptor	Media	Land/Resource Use	COCs Requiring Action
Human Health	Surface Soil	Industrial	No unacceptable risks
	Subsurface Soil	Industrial	PAHs
	Groundwater	Residential (not currently a drinking water resource)	Benzene
			TCE
			cis-1,2,DCE
			1,1-DCE
			Vinyl chloride
	Sediment/Surface water	Recreational & Training	No unacceptable risks
Ecological	Surface Soil	Habitat	No unacceptable risks
	Subsurface Soil	No pathway	Not applicable
	Groundwater	Habitat	No unacceptable risks
	Sediment/Surface water	Habitat	No unacceptable risks

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Unacceptable risk range of >10-4 to 10-6 or HI>1

The basis for action may be presented in a summary table identifying the potential receptors, impacted media, land and resource uses, and COCs requiring action. Concentrations of COCs in each media and the standards of comparison may also be included to show magnitude of problem at the site.

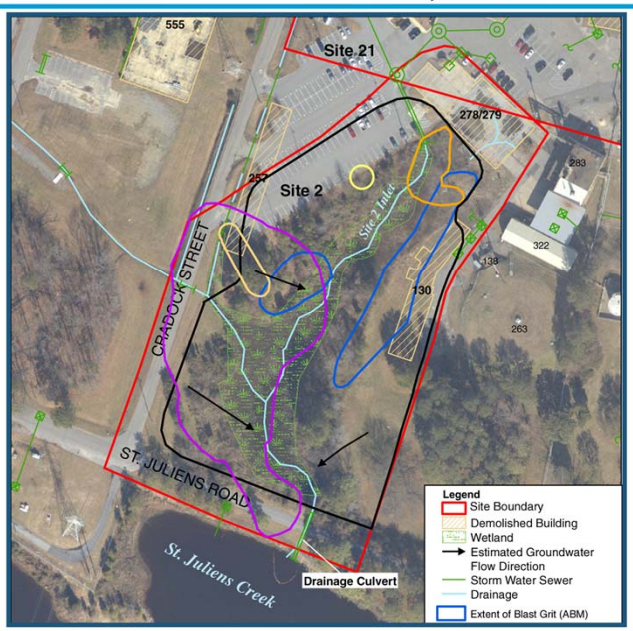
Challenges:

- Using simple statements – not resummarizing risk assessments
- Not addressing all media – leaving loose ends
- Documenting risk management decisions- Ensure actions are not considered for a constituent whose risk is within the acceptable range of 10-4 to 10-6 or below background, provide rationale for RM and stakeholder agreements, Navy policy to not clean up below bg or sd in water bodies with sources of recontamination
- Using COPCs vs. COCs – typically don't take action on risk screenings- COPCs, if so state why

Summary of Site Risks

4 Basis for Action

- Basis for action
  - Comprehensive graphic of areas requiring action



Courtesy U.S. Navy

Remedial Action Objectives

5 Remedial Action Objectives

- **RAOs and cleanup levels**
  - **For media and COCs requiring action**
  - **Example Groundwater RAOs**
    - To restore the aquifer to drinking water quality
    - To prevent exposure by implementing LUCs
    - To stop plume migration off-site
  - **Example Soil / Waste RAOs**
    - To clean up to levels that allow for unlimited use / unrestricted exposure (UU/UE)
    - To contain waste in-place and prevent exposure by implementing LUCs

CHALLENGES

- **Consistency with unacceptable risk and land / resource use**
- **Incorporating Navy's Optimization Guidance**
- **Balancing flexibility and cleanup levels**
- **Cleaning up groundwater within landfill waste boundary**

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Present RAOs in simple bulleted statements tied to land/resource use

Challenges:

- Cleaning up groundwater within landfill waste boundary – should only consider point of compliance downgradient from waste

Remedial Action Objectives

5 Remedial Action Objectives

- **Cleanup levels**
  - **For media and COCs requiring action**

COC	Ecological Risk-Based Goal	Human Health Risk-Based Goal	Cleanup Level
Surface Soil			
Inorganics (mg/kg)			
Aluminum	7,699	NA	7,669
Antimony	NA	8.7	8.7
Copper	70	NA	70
Iron	3,669	50,142	3,669
Lead	120	400	120
Vanadium	26.6	72	26.6
Zinc	38	NA	38
Pesticides/PCB (µg/kg)			
4,4-DDD	100	NA	100
4,4-DDE	532	NA	532
4,4-DDT	237	NA	237

CHALLENGES

- **Using risk-based cleanup levels vs. screening levels**
- **Explaining basis for cleanup levels**
- **Using PRGs or "goals" as final cleanup "levels"**

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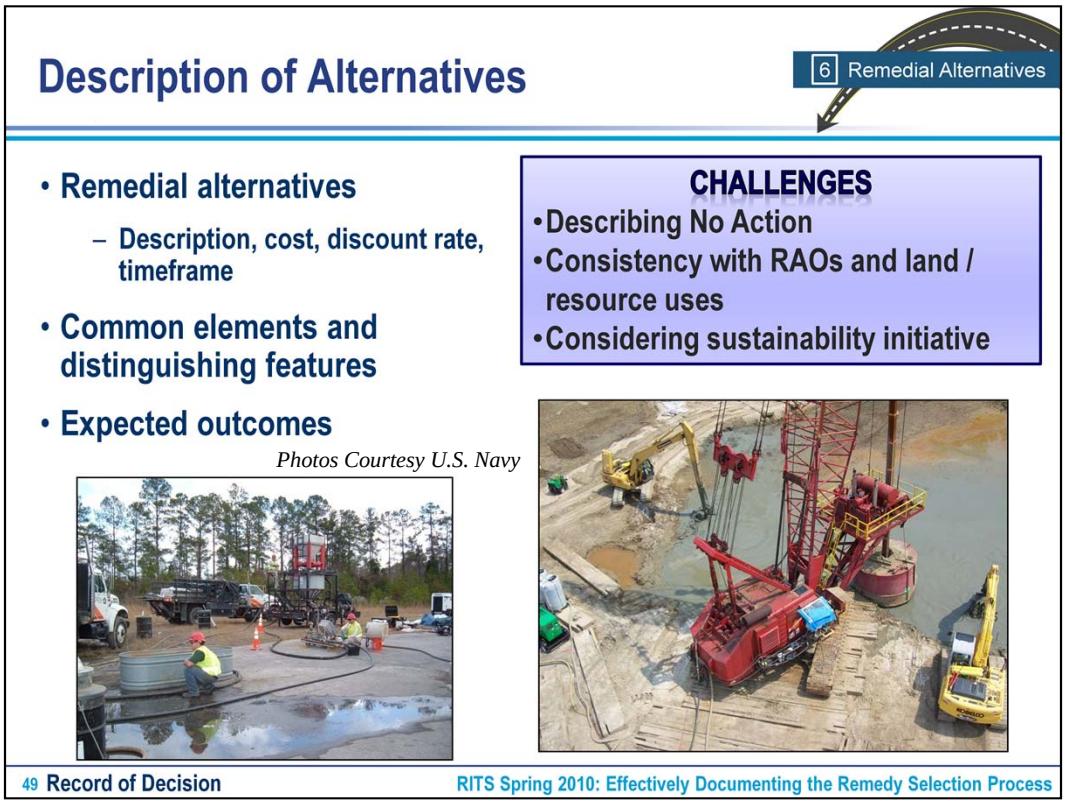
Challenges

- Using risk-based cleanup levels vs. screening levels – use site-specific clean up levels, if you use screening levels like rsls or btag values, provide justification
- Explaining basis for cleanup levels – show ex of more conservative of hh/eco/bg from table
- Using PRGs or "goals" as final cleanup "levels" – EPA does not like goals, arbitrary



Providing a complete description of alternatives - Refer to EPA's ROD guidance and do not overlook the required elements of each alternative necessary for comparative analysis (e.g., estimated time to achieve RAOs and common elements and distinguishing features).

Expected outcomes should provide land/resource use achieved after implementation.

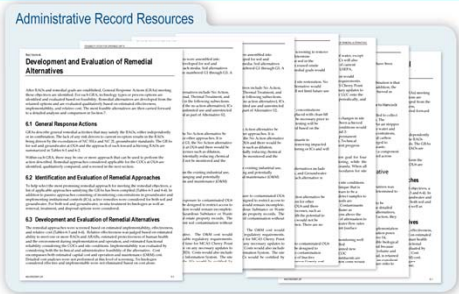
CHALLENGES

- Accurately describing the no action alternative - Do not include LUCs and/or monitoring or cost in the No Action alternative. No action means no action.
- Don't present alternatives that do not achieve RAOs and planned land / resource uses
- Sustainability is a relatively new initiative that may not have been included in the FS, document how the alt would impact/reduce the env footprint.

Description of Alternatives

6 Remedial Alternatives

Administrative Record Resources



Synthesize ▸▸▸ Summarize

Alternative	Components	Details	Cost
1 – No Action	None	No additional effort or resources expended.	Capital Cost $0 Annual O&M Cost $0 **Present-Worth Cost $0** Time Frame – 30 years
2 – Soil Cover, LUCs, and Groundwater LTM	Cover Maintenance LUC LTM	Maintain existing soil cover. Implement LUCs to ensure soil cover is not altered or disturbed and site use does not change. Conduct Groundwater LTM to monitor for potential site releases and migration of contaminants.	Capital Cost $31,860 Annual O&M Cost $67,789 **Present-Worth Cost $2,728,125** Time Frame – 30 years Discount Rate 3.5%

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The remedial alternatives may be presented in a summary table identifying the alternatives, major components (e.g., estimated volume of excavation), costs (C, O&M, PW, discount rate), and estimated timeframe to achieve RAOs. Accompanying text can present the common elements and distinguishing features that are unique to the alternatives and may directly affect the implementation, operation, or outcome if selected as the remedy.

Comparative Analysis of Alternatives

7 Comparative Analysis

- Comparison of remedial alternatives with respect to nine NCP criteria
  - Detailed text
  - "Consumer Reports" style table

CHALLENGES

- Presenting alternatives that meet the Threshold criteria
- Comparing alternatives with each other
- Evaluating contingency remedies with NCP criteria

CERCLA Criteria	Soil Alternatives			Groundwater Alternatives	
	No Action	Bio-stimulation and Off-Site Disposal	Excavation and Off-site Disposal	No Action	MNA and LUCs
Threshold Criteria					
Overall Protection of Human Health and the Environment	□	■	■	□	■
Compliance with ARARs	□	■	■	□	■
Balancing Criteria					
Long-Term Effectiveness and Permanence	□	■	■	□	◘
Reduction in Toxicity, Mobility or Volume through Treatment	NA	■	NA	NA	NA
Short-Term Effectiveness	□	◘	■	□	◘
Implementability	■	□	◘	■	◘
Present-Worth Cost	$0	$291,600	$229,300	$0	$194,300
Modifying Criteria					
State Acceptance	□	◘	■	□	■
Community Acceptance	NC	NC	NC	NC	NC

Ranking: □Low ◘Moderate ■High

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Use EPA Highlight!

This is new info so need detailed text and the table is useful tool b/c it can be hard as you are reading through the text to follow and keep track of ranking, particularly if there are a lot of alternatives, so good visual to keep track

Clearly show winner, use symbols not numbers b/c it is subjective

CHALLENGES

- Comparing each alternative against one another and not just re-stating the description of each individual alternative with respect to NCP criteria. - Compare each alternative against one another and discuss their weighted strengths and weakness for each NCP criteria. Identify the distinguishing element(s) or factor(s) that favors one alternative above the others as the rationale for selection of the remedy.
- Identify distinguishing factors for remedy selection

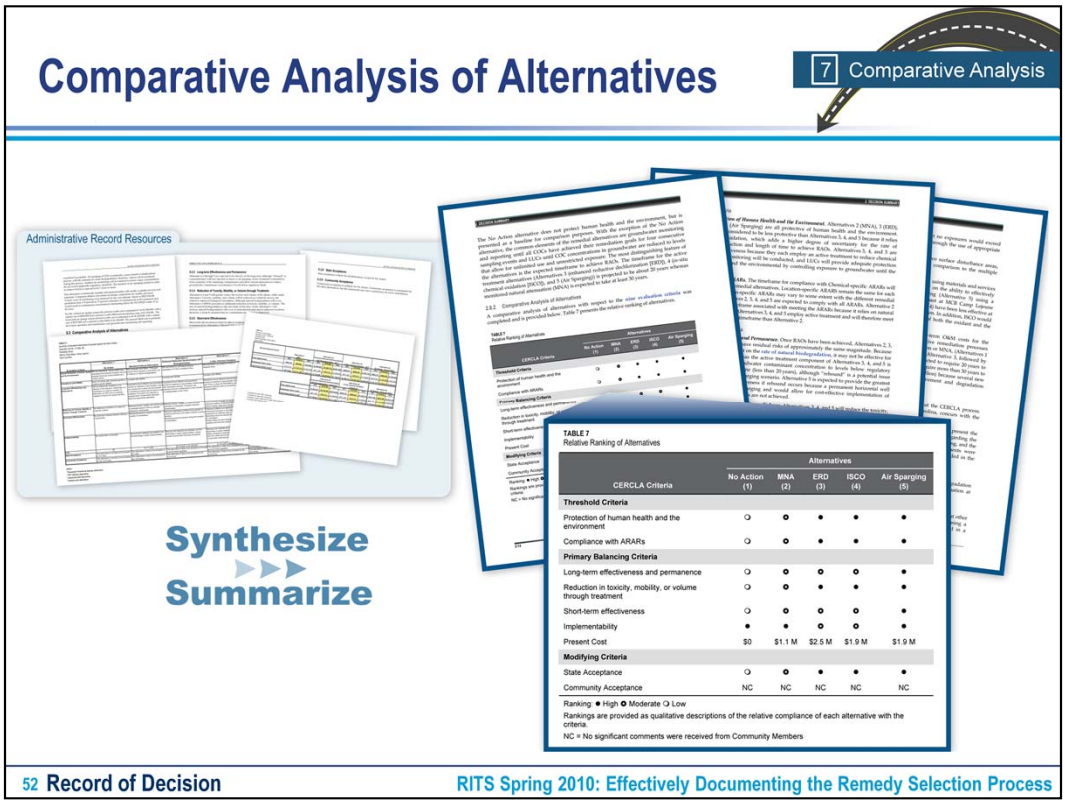
Contingency Remedy Decisions

May be appropriate when uncertainty in technologies and meeting cleanup levels

Specify performance levels for when to implement

More testing may be needed to develop performance criteria

Must evaluate contingency against NCP criteria



Summary text should explain how each alternative compares to each other relative to the nine NCP criteria. A graphic "consumer report" style table may be used to present the relative ranking. When comparing alternatives, opportunities for sustainable solutions should be considered.

New info for modifying criteria so do not cut and paste.

Principal Threat Waste

1 CERCLA Release
3 Risk Assessment

- Identify presence or absence of principal threat waste source material
  - Liquid
  - Highly toxic
  - Mobile
  - Significant risk if exposure occurred

CHALLENGES

- Considering flow in ROD
- Identifying rationale for whether there are or are not principal threat waste

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CHALLENGES

BETTER PRESENTED AFTER RISK ASSESSMENT so ensure alt address PTW

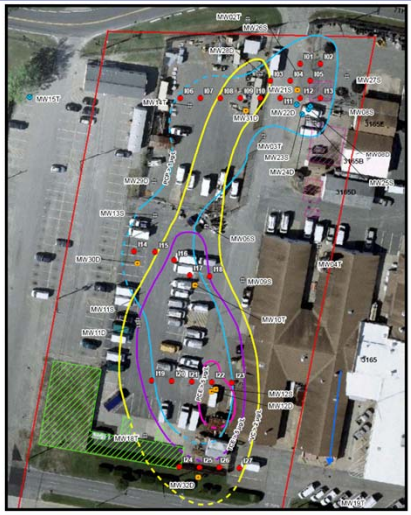
- Appropriately identifying principal threat wastes and source control, as opposed to simply stating that principal threat wastes are present or not. (eg, pest in soil, risk assessment considered not high risk, no migration to gw = no PTW)

Selected Remedy

8 Selected Remedy
9 Expected Outcomes

- **Summary of the rationale for remedy selection**
  - **Based on comparative analysis**
- **Detailed description**
  - **Expand on alternative description**
  - **Summary graphic**
    - Removal areas
    - Staging areas
    - Well injection / pump locations
    - Estimated LUC boundary

CHALLENGES
- **Explaining rationale for selection**



Courtesy U.S. Navy

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When LUCs are a component of a remedial alternative, identification of LUC objectives and implementation with a forward reference to a LUC RD should be included in accordance with the *Principles and Procedures for Specifying Monitoring and Enforcement of Land Use Controls and Other Post ROD Actions* (DoD, January 2004).

Providing the rationale for selecting the remedy. - Simply state why the remedy was chosen based on the comparative analysis and how any facility/site-specific information factored into the selection.

Provide justification for mna

Selected Remedy

8 Selected Remedy
9 Expected Outcomes

- **Expected outcomes**
  - **Available land and resource use once cleanup levels are met**

CHALLENGES
- Identifying exit strategies
- Closing the loop

Risk	RAO	Remedy Component	Metric	Expected Outcomes
Ingestion of VOCs in groundwater under potable use scenario	Restore groundwater quality based on the classification of the aquifer as a potential source of drinking water and to prevent human ingestion of water containing COCs at concentrations above NCGWQS or MCL standards, whichever is more stringent until cleanup levels have been obtained.	Air sparge system	Operate system for up to 5 years or until groundwater cleanup levels within the radius of influence are met, whichever is the shortest period.	Achieve UU/UE
		LTM	Implement until each groundwater COC is at or below its respective cleanup level for four consecutive monitoring events.	
		LUCs		
Direct exposure to TPH in soil under residential use scenario and leaching potential to groundwater	Prevent future residential exposure to petroleum hydrocarbon-contaminated soils above the NC HWS SSL and minimize transport to groundwater.	LUCs	Maintain LUCs until COCs in the soil are at such levels that allow for UU/UE.	Maintain industrial use
Transport of VOCs in groundwater to surface water	Minimize migration of COCs in groundwater to surface water.	ERD biobarrier	Maintain until COCs in groundwater meet cleanup levels, or until it is determined that biodegradation can be maintained naturally and further enhancements are not required.	Minimize migration of COCs in groundwater to surface water
		LTM	Implement until each groundwater COC is at or below its respective cleanup level for four consecutive monitoring events.	
		LUCs		

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A summary table may be used to supplement ROD text to demonstrate how the components of the Selected Remedy mitigate risk to achieve RAOs consistent with current and potential future land and resource uses.

Statutory Determinations

8 Selected Remedy

CHALLENGES
- Explaining how and why

- How remedy satisfies CERCLA requirements
  - Protection of human health and the environment
  - Compliance with ARARs
  - Cost-effectiveness
  - Use of permanent solutions and treatment technologies
  - Satisfies preference for treatment
- Five-year review requirements

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Use EPA Highlight!

CHALLENGES

- Explaining why the Selected Remedy does or does not meet the statutory requirements, as opposed to simply stating the selected remedy will or will not meet them.
- Explicitly state how the Selected Remedy does/does not meet each of the statutory requirements (e.g., For protection of human health and the environment, discuss how the Selected Remedy will adequately protect human health and the environment through treatment, engineering controls, and/or institutional controls).

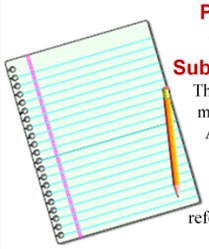
Documentation of Significant Changes

- Description and rationale for significant changes to the Selected Remedy since the Proposed Plan
- Limited to those changes that could have been reasonably anticipated by the public
  - Otherwise public comment period required

Part 3: Responsiveness Summary

- Presents stakeholder concerns about the site and preferences for remedial alternatives
  - Summary of issues and responses
- Explains how concerns and preferences were addressed and factored into remedy selection process

Mark Your Calendar for the Public Comment Period



Public Comment Period
July 27 – August 27, 2005

Submit Written Comments

The Navy will accept written comments on the Proposed Remedial Action Plan during the public comment period.

To submit comments or obtain further information, please refer to the insert page.

Attend the Public Meeting
Monday August 8, 2005

Time – 5:30 pm
Place – Portsmouth Main Branch Public Library
601 Court Street
Portsmouth, Virginia 23704

The Navy will hold a public meeting to explain the Proposed remedial Action Plan. Verbal and written comments will be accepted at this meeting.

Presentation Overview

- Introduction
- Background
  - Navy ROD Initiative
  - ROD Toolkit
- Record of Decision (ROD)
  - Effectively Using EPA's ROD Guidance
  - Writing a ROD
  - ARARs
- Post-ROD Changes
- Summary

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Selection and documentation of ARARs are one of the primary challenges in a ROD and they become legally binding upon ROD signature so they are important than just c/p from FS.

Why are Applicable or Relevant & Appropriate Requirements Important to RPMs?

- Required by CERCLA
- Assists in developing RAOs and determining the metric for identifying when the response is complete
- Distinguishing feature for remedy selection
- Failing to comply leaves Navy open to liability
- Improper identification of ARARs may result in significant impacts to timing and cost of response actions

Distinguishing feature for remedy selection – one of 9 NCP criteria and statutory det.

Why are ARARs Important to RPMs?

- **Development**
  - **Navy, as lead agency, is responsible for identifying ARARs**
  - **Navy RPM should request input on the ARARs**
    - Regulatory agencies
      - Early and open communication
    - Navy legal counsel
- **Compliance**
  - **Navy is responsible for complying with ARARs unless waived**
    - Remedial action - fully
    - Removal action - to the extent practicable
  - **Required until the response is complete**

Early and open communication during initial development of alternatives and t/o process. Keep in mind that reg agencies only providing alt to consider.

Removal action - to the extent practicable b/c it is not final action and still opportunity to fully comply.

What is the Role of ARARs in CERCLA Remediation?

- Identified for all CERCLA remedial and removal actions
- Threshold NCP Criteria that must be met
  - Unless a waiver is obtained
- ARARs documented in RODs and Action Memos are legally binding

Navy and EPA agree
"Compliance with ARARs of other environmental laws is a cornerstone of CERCLA"
-EPA, 1992

Distinction between remedial and removal actions:

Removal action is interim action, documented in and ee/ca and am whereas remedial action is interim or final action documented in fs and rod.

What are ARARs?

- Federal and state environmental laws that are either
  - Applicable: Legal requirements regardless of CERCLA
  - OR
  - Relevant and Appropriate: Based on professional judgment addresses situations similar and well-suited to the site or action
- State requirements should only be accepted if
  - More stringent than federal requirements,
  - Promulgated, and
  - Identified in a timely manner

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Applicable: regardless of who you are/reg umbrella –must comply (eg, if action involves sw discharge, cwa applies)

Relevant and Appropriate: eg SDWA MCLs are req to be met for potable water supplies so if action affects one = applicable but if remediating gw to meet potable use stnds= rel and app; 8 elements in reg to compare to, must be both rel and app, more flexibility in determining but if identified as both, must be met as if applicable.

State requirements should be consistently applied.

What are ARARs?

- **Site-specific requirements to be met for removal and remedial actions**
  - **Chemical Specific**
    - Federal MCLs
    - State Groundwater Quality Standards
  - **Location Specific**
    - Federal Endangered Species Act
    - State Wetland Regulations
  - **Action Specific**
    - Federal Clean Water Act
    - State Erosion and Sediment Control Laws
- **Substantive requirements**

Ex of federal and state ARARs

Federal MCLs

State Groundwater Quality Standards (both for protection of drinking water, but state only applies if more stringent)

Federal Clean Water Act (sw discharges)

State Erosion and Sediment Control Laws (lf cover)

What are Substantive vs. Administrative Requirements?

- **Substantive requirements**
  - **Standards of control**
    - Level of protection in the requirement
  - **Must be met**
- **Administrative requirements**
  - **Implementation mechanisms**
    - Permits, reports, records, and enforcement
  - **Must be met for off-site actions only**

United States Environmental Protection Agency | Office of Solid Waste and Emergency Response | Publication 9234.2-01/FS-A | July 1991

EPA

ARARs Q's & A's:
General Policy, RCRA, CWA, SDWA, Post-ROD Information, and Contingent Waivers

Office of Emergency and Remedial Response
Office of Program Management 0S-240

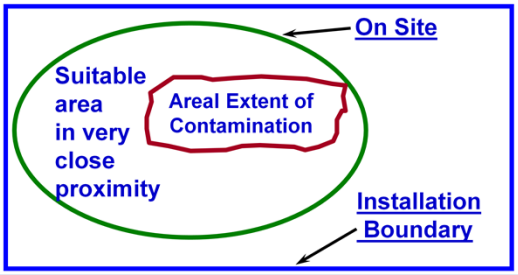
Quick Reference Fact Sheet

Because Navy is lead agent, there is broad response action authority under CERCLA

What are On-Site vs. Off-Site Actions?

ARARs only apply On-Site

- On-site:
  - Substantive sections must be met
  - No permits required
  - ARARs waiver eligible
- Off-site:
  - Substantive and administrative sections must be met
  - Permits required
  - Must comply with applicable Federal, State, and local regulations



Off-site: if transporting waste from site to an off-site facility for disposal, must meet all DOT requirements and permits as if public

If CERCLA action involves suitable area in very close proximity to your site and w/in installation boundary, can be considered on-site (eg. Landfill cover, downgradient barrier wall)

What are To-Be Considered (TBCs)?

- Developed by State or Federal agencies
  - Advisories
  - Guidance
  - Criteria
- Optional under CERCLA
  - If useful in developing CERCLA remedy
  - If supplements and helps clarify aspects of the remedy

Regional Screening Level (RSL) Master Table DECEMBER 2009

Contaminant	Screening Levels					
	Soil		Soil		Air	
Analyte	mg/kg	key	mg/kg	key	mg/kg	key
Benzene	1.1E+00	c*	5.4E+00	c*	3.1E-01	c
Benzenethiol	7.8E-01	n	1.0E+01	n		
Benzidine	5.0E-04	c	7.5E-03	c	1.4E-05	c
Benzoic Acid	2.4E+05	nm	2.5E+06	nm		

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Not promulgated, laws, or regs

Ex: RSLs, BTAG, state SSLs for protection of gw

Should be documented in am or ROD.

How are ARARs Documented?

- Potential ARARs
  - Engineering Evaluation / Cost Analysis or Feasibility Study
- Final ARARs
  - Action Memorandum or ROD / Decision Document
- Should be specified to the narrowest section or subsection
  - 40 CFR 141.62(b) vs. 40 CFR 141
  - Requirements within a subsection of a regulation may not be divided
- Tables
  - Chemical, Location, and Action Specific
  - Federal and State

Media	Requirement	Prerequisite	Citation	ARAR Determination	Comment
Safe Drinking Water Act					
Groundwater	MCL SDWA standards serve to protect public water systems	Groundwater COCs exceed MCLs	40 CFR 141.61 (a) (1), (5), (7), and (9)	Relevant and Appropriate	Aquifer is not currently nor reasonably anticipated to be used as a potable water supply

Provide example of section vs. subsection for State SSLs vs. MCLs and how apply

Presentation Overview

- Introduction
- Background
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  - ARARs
- Post-ROD Changes
- Summary

Documenting Post-ROD Changes

- **Memo to File**
  - Minor or non-significant changes
- **Explanation of Significant Difference (ESD)**
  - Significant changes
- **ROD Amendment**
  - Fundamental changes

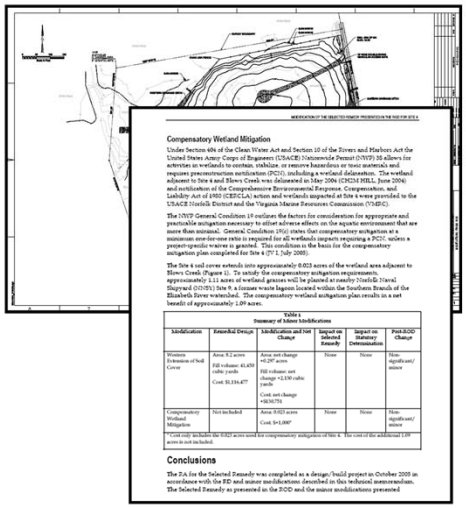
Highlight 7-2: Sample Outline and Checklist for ESDs and ROD Amendments

Component	Explanation of Significant Differences	ROD Amendment
Introduction to the Site and Statement of Purpose	• Site name and location. • Identification of lead and support agencies. • Citation of CERCLA §117(c) and NCP §300.435(c)(2)(I). • Include date of ROD signature. • Summary of circumstances that led to the need for an ESD.	• Site name and location. • Identification of lead and support agencies. • Citation of CERCLA §117 and NCP §300.435(c)(2)(ii). • Include date of ROD signature. • Summary of circumstances that led to the need for a ROD Amendment.

3 types based on type of change per EPA guidance

Documenting Post-ROD Changes

- **Memo to File**
  - **Minor or non-significant changes**
    - No significant impact on scope, performance, or cost of remedy
      - –Small increase in volume
      - –Change in disposal location
      - –Revised monitoring frequency
  - **Content**
    - Short memo describing change
  - **Public involvement not legally required**
    - Fact sheet and / or public statement optional
  - **Include in Post-ROD Site File**



MODIFICATIONS OF THE SELECTED REMEDY PRESENTED IN THE ROD FOR SITE 4

Compensatory Wetland Mitigation

Under Section 404 of the Clean Water Act and Section 10 of the Rivers and Harbors Act the United States Army Corps of Engineers (USACE) Nationwide Permit (NWP) 38 allows for activities in wetlands to contain, stabilize, or remove hazardous or toxic materials and requires preconstruction notification (PCN), including a wetland delineation. The wetland adjacent to Site 4 and Elsews Creek was delineated in May 2004 (CH2M HILL, June 2004) and notification of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) action and wetlands impacted at Site 4 were provided to the USACE Norfolk District and the Virginia Marine Resources Commission (VMRC).

The NWP General Condition 19 outlines the factors for consideration for appropriate and practicable mitigation necessary to offset adverse effects on the aquatic environment that are more than minimal. General Condition 19(c) states that compensatory mitigation at a minimum one-for-one ratio is required for all wetlands impacts requiring a PCN unless a project-specific waiver is granted. This condition is the basis for the compensatory mitigation plan completed for Site 4 (TV 1, July 2005).

The Site 4 soil cover extends into approximately 0.023 acres of the wetland area adjacent to Elsews Creek (Figure 1). To satisfy the compensatory mitigation requirements, approximately 1.11 acres of wetland grasses will be planted at nearby Norfolk Naval Shipyard (NNSY) Site 9, a former waste lagoon located within the Southern Branch of the Elizabeth River watershed. The compensatory wetland mitigation plan results in a net benefit of approximately 1.09 acres.

Table 1
Summary of Minor Modifications

Modification	Remedial Design	Modification and Net Change	Impact on Selected Remedy	Impact on Statutory Determination	Post-ROD Change
Western Extension of Soil Cover	Area: 8.2 acres Fill volume: 41,450 cubic yards Cost: $1,184,477	Area: net change +0.297 acres Fill volume: net change +2,330 cubic yards Cost: net change +$68,751	None	None	Non-significant/ minor
Compensatory Wetland Mitigation	Not included	Area: 0.023 acres Cost: $+1,000*	None	None	Non-significant/ minor

* Cost only includes the 0.023 acres used for compensatory mitigation of Site 4. The cost of the additional 1.09 acres is not included.

Conclusions

The IA for the Selected Remedy was completed as a design/build project in October 2005 in accordance with the RD and minor modifications described in this technical memorandum. The Selected Remedy as presented in the ROD and the minor modifications presented

Documenting Post-ROD Changes

- **Explanation of Significant Difference (ESD)**
  - **Significant changes**
    - Change to remedy component that does not alter overall cleanup approach
      - Increase in remediation timeframe and/or cost
      - Change in ARAR or LUC
  - **Content:**
    - Document nature and rationale for change
    - Declare the change complies with CERCLA and NCP
      - NCP comparative analysis generally not required
  - **Public notice required**
    - Public comment period not required
  - **Include in Administrative Record and Information Repository**

Documenting Post-ROD Changes

- **ROD Amendment**
  - **Fundamental changes**
    - Change in scope, performance, and / or cost that leads to change in remedial approach
      - –Change in treatment method
      - –Increase in cost
      - –Community preference
  - **Content**
    - Rationale for amendment, NCP criteria analysis, and statutory determinations
  - **Revised Proposed Plan required**
    - Public notice and comment period required
  - **Include in Administrative Record and Information Repository**

Courtesy U.S. Navy

73 **Post-ROD Changes** RITS Spring 2010: Effectively Documenting the Remedy Selection Process

Ex-excavation of soil technically infeasible during RD so ROD amendment to consider in situ treatment

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Take-Home Messages

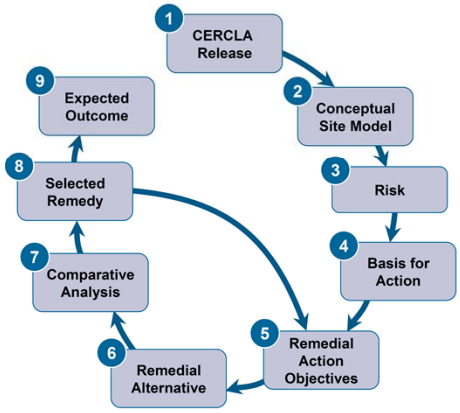
- Develop high quality RODs
  - Use EPA Guidance and ROD Toolkit
  - Avoid copying and pasting
  - Incorporate streamlining tools and improved ROD concepts
  - Communicate with stakeholders for endorsement
- Meet ASN Goals for ROD Initiative
  - FY 2010 – Goal 100%

75 Summary RITS Spring 2010: Effectively Documenting the Remedy Selection Process

Because you now understand what goes into documentation of remedy selection you better….

Take-Home Messages

- **Understand the end game**
  - **Better document earlier phases of CERCLA process**
    - CSM, RI / FS, ARARs
- **Properly identify and comply with ARARs**
  - **Navy is responsible for taking lead on ARARs**
  - **Engage Counsel for review**
  - **Improper identification may result in impacts to schedule and cost**
  - **Failing to comply leaves Navy open to liability**



76 Summary RITS Spring 2010: Effectively Documenting the Remedy Selection Process

Close loopholes and recognize inadequacies earlier in CERCLA process, create valuable resources, use EPA ROD guidance earlier (e,g, FS comparative analysis) in prep for ROD

Take-Home Messages

- **Migration of Concepts**
  - **Improve data presentation**
  - **Use graphics and electronic enhancements**
    - CSMs, tables, and figures
    - Hyperlinks
  - **BERA – Blows Creek**
    - Watershed approach
    - Multiple contaminant sources

Analyte Name	Range of Detected Concentrations	Screening Value	Frequency of Exceedance	Location of Maximum Exceedance	Range of Hazard Quotients
Inorganics (MG/KG)					
Aluminum	1,090 – 27,400	18,000	11 / 56	SJSBK-SD09-002	0.060 – 1.50
Antimony	0.600 – 2.10	2.00	1 / 55	SJS01-SD02-001	0.300 – 13.1
Arsenic	2.90 – 61.1	8.20	37 / 56	SJBC-SD18-03C	0.350 – 7.50
Barium	18.6 – 927	48.0	15 / 56	SJBC-SD18-03C	0.390 – 19.0
Cadmium	0.210 – 2.30	0.990	18 / 56	SJSBK-SD08-001	0.210 – 2.30

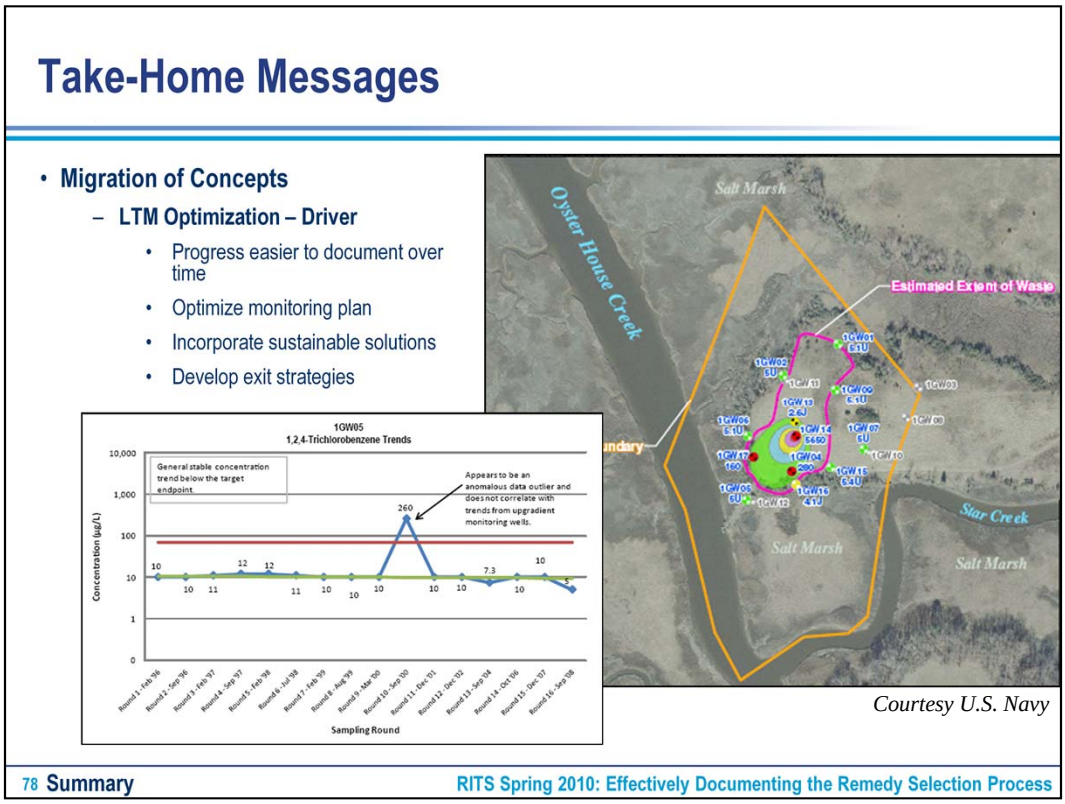
Courtesy U.S. Navy

77 **Summary** RITS Spring 2010: Effectively Documenting the Remedy Selection Process

Improve other documentation – Navy efforts

Used interactive tables and figures to present data similar to desktop GIS to allow flexibility for review.

Click on sample locns, barium, show mouse over for conc data, arsenic to see trends of hq exceedances/risk



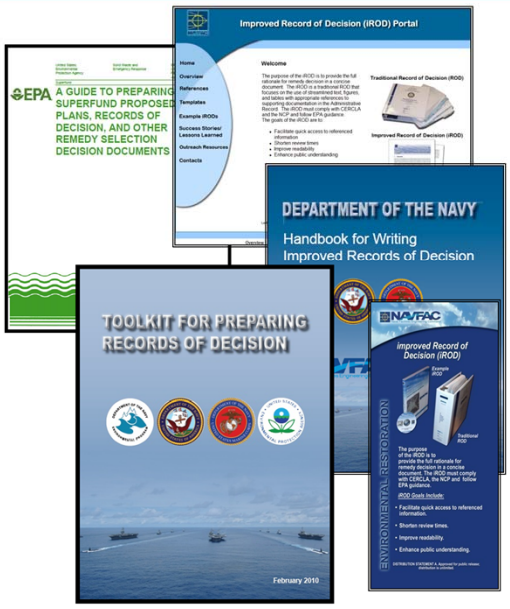
Most recently for BRAC facility with 12 yrs of data

Helps provide justification for reduction in monitoring and significant cost savings to Navy's LTM program

Click through trends, explain data variability and interpretations

ROD Resources

- ERT2 ROD Portal
- EPA ROD Guidance
- "Improved" ROD Brochure
- Draft "Improved" ROD Handbook
- ROD Toolkit
  - Draft – 2010



References

- *NERP Manual, August 2006*
- *Guidance on Documenting Milestones Throughout the Site Closure Process, March 2006*
- *EPA A Guide to Preparing Superfund Proposed Plans, Records of Decision, and Other Remedy Selection Decision Documents, July 1999*
- *Federal Facilities Streamlined Oversight Directive, November 29, 1996*
- *Guidance on Accelerating CERCLA Environmental Restoration at Federal Facilities, August 22,1994*
- *NCP Final Rule Preamble (55 Fed. Reg.8666, 8732), March 8, 1990*
- *CERCLA/Superfund Orientation Manual, Section XII, pg 1, EPA, October 1992*
- *EPA CERCLA Compliance with Other Laws Manual: CERCLA Compliance with the CWA and SDWA February 1990*

References

- *EPA ARARs Q's & A's: General Policy, RCRA, CEW, SDWA, Post-ROD Information and Contingent Waivers, July 1991*
- *EPA ARAR Q's & A's: Compliance with New SDWA National Primary Drinking Water Regulations for Organic and Inorganic Chemicals, August 1991*
- *EPA ARAR Q's & A's: State Groundwater Antidegradation Issues, July 1990*
- *EPA Clarification of the Role of Applicable, or Relevant and Appropriate Requirements in Establishing Preliminary Remediation Goals Under CERCLA, August 1997*
- *EPA A Guide to Principal Threat and Low Level Threat Wastes, November 1991*
- *EPA Conducting Non-Time-Critical Removal Actions Under CERCLA, December 1993*
- *Navy Policies and Guidance*