



Considering Natural Resource Injury and Damages in the ER Program

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Overview

▶ Background/Definitions

- CNO NRI Policy Statements
- Wrap Up

Natural Resources at Department of the Navy (DON) Facilities

- **Most DON facilities have one or more natural resources (NRs) at or adjacent to the site**
 - For example, groundwater, surface water, wetlands, and biota
- **At DON Environmental Restoration (ER) sites, one or more NRs may be adversely affected by the associated release**
- **In addition, cleanup activities may also impact one or more NRs**



Photo courtesy U.S. Navy

Protecting Natural Resources at DON Facilities

- DON places a high priority on protecting natural resources
 - DON is a Natural Resource Trustee with stewardship responsibilities for natural resources on its sites
- Natural Resource Trustee (Trustee):
 - Federal officials designated by the President, State officials designated by Governors, and Tribal officials designated by federally-recognized Tribal governments (Executive Order 12580, Superfund Implementation)
 - Trustees have statutory responsibility for protecting/managing particular natural resources
 - Some resources, depending on their nature and location, may have multiple Trustees (Co-Trustees)

Natural Resource Trustees

Trustee	Natural Resource
Secretary of the Interior (FWS)	Fish and wildlife
Secretary of Commerce (NOAA)	Fish and wildlife in oceans, seas, and bays
Secretary of Defense (each Service)	Natural resources on DoD property
States (e.g., DNR, Attorney General)	Natural resources within the state
Federally Recognized Tribes	Natural resources on Tribal lands

EPA is NOT a Trustee

- **Has no Trustee responsibilities**
- **Primary role is notification of and coordination with Trustees**
 - **Notify Trustees of a release**
 - **Coordinate assessments, investigations, and planning with Trustees**

FWS = U.S. Fish and Wildlife Service

DNR = Department of Natural Resources

NOAA = National Oceanic and Atmospheric Administration EPA = U.S. Environmental Protection Agency

DoD = U.S. Department of Defense

Natural Resources and CERCLA

Natural Resource:

“...land, fish, wildlife, biota, air, water, ground water, drinking water supplies, and other such resources belonging to, managed by, held in trust by,... the United States, any State, local government, Indian Tribe.” CERCLA § 107

• Five Resource Categories:

- Soil
- Air
- Surface Water
- Groundwater
- Biota

Natural Resources and the ER Program

- **The natural resources, as defined under CERCLA, are the resources evaluated in the Environmental Restoration (ER) program for contamination and unacceptable risks, and which remedial actions target**
 - **Characterize contaminant concentrations in environmental media (remedial investigation)**
 - **Identify release-related impacts via risk assessments (both human health [HHRA] and ecological [ERA] assessments)**
 - **Select remedies that reduce risks and avoid/minimize remedy-related impacts (feasibility study)**
- **Considerations of natural resources in DON's ER Program**
 - **Helps fulfill DON's Trustee responsibilities as a steward for natural resources on its sites**

DON Policy on Natural Resource Injury and Damages in the ER Program

- **In 2001, the Chief of Naval Operations (CNO) released its policy:**
 - *Policy on Natural Resource Injury and Damages in the Installation Restoration Program (2001)*
 - Expands on DoD policy regarding natural resource injury responsibilities and environmental restoration activities (DERP Manual, Enclosure 3, Section 17)
- **The DON policy:**
 - Clarifies natural resource injuries (NRI)
 - Provides direction on selecting and conducting response actions to avoid or minimize further NRIs; and
 - Clarifies the roles and responsibilities of Trustees and RPMs with regard to NRI considerations for site investigations and cleanup

Why the Concern for NRIs in the ER Program?

Natural Resource Damage Assessment (NRDA)

“...the process of collecting, compiling, and analyzing information, statistics, or data through prescribed methodologies to determine damages for injuries to natural resources...”

- **NRDAs are conducted by Trustees to evaluate NRIs and assess monetary damages against Potentially Responsible Parties (PRPs)**

- **Department of the Interior regulations (43 CFR 11 *Natural Resource Damage Assessment*) call for assessing NR that have been injured by:**
 - **A release of a hazardous substance under CERCLA,**
 - **A release of a mixture of oil and hazardous substances under CERCLA, or**
 - **A discharge of hazardous substances in or near waters of the U.S. (Clean Water Act)**

Why the Concern for NRIs in the ER Program? (cont.)

- **Trustees conduct NRDA's to assess NRIs and file suit against PRPs**
 - For monetary damages (\$) to recoup assessment costs
 - To acquire money to restore or replace NRs that have been injured or lost
- **Federal Trustees do not file claims against Federal PRPs**
 - But can support State and Tribal Trustees in conducting NRDA's against Federal PRPs
 - Damage claims must be filed no later the 3 years after remedy completion
- **So the concern = damage claims may be substantive**
 - Ohio vs. Dept. of Energy: \$200 million

Key Points

NRDA's are NOT conducted in the ER Program

- DON does NOT conduct NRDA's against its own installations
- Conducting an NRDA is NOT an RPM activity

Injury vs. Damages

Natural Resource Injury (NRI)

“... a measurable *adverse change*, either long- or short-term, in the chemical or physical quality or viability of a NR resulting directly or indirectly from exposure to a discharge of oil or a release of a hazardous substance...”

(43 CFR 11.14)

Interim Injury –

Injury from a non-remediated release

Remediation-related Injury –

Injury from the response action

Residual Injury –

Injury that remains after remediation

NRI = an adverse impact

Natural Resource Damages (NRD)

“... the *amount of money* sought by the NRT as compensation for injury, destruction, or loss of natural resources as set forth in Section 107(a) or 111(b) of CERCLA.”
(43 CFR 11.14)

- Money to be used to recoup assessment costs, restore the injured resource, and/or compensate for past loss of resource use

NRD = money

Ecological Risk vs. Natural Resource Injury

- Ecological Risk

- The expected frequency or probability of undesirable *effects resulting from exposure to a contaminant*
- Based on measureable or predicted effects

- Natural Resource Injury

- A measurable adverse change, either long- or short-term, in the chemical or physical quality or viability of a NR *resulting from direct or indirect exposure to a hazardous substance*
- Based on measurable effects

- Both focus on adverse effects following exposure
- Both also identify impacts of the response action

But:

Risk ≠ Injury

Presentation Overview

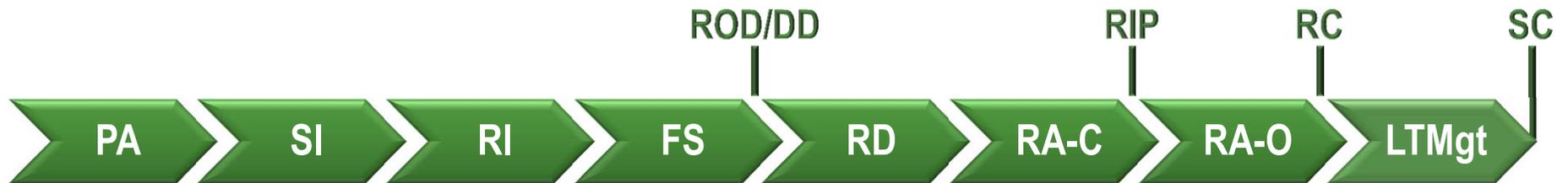
- Background/Definitions

▶ CNO NRI Policy Statements

- Wrap Up

- Eight Policy Statements
 - ER Process
 - Example

The ER Process



PA – preliminary assessment

SI – site inspection

RI – remedial investigation

FS – feasibility study

ROD/DD – record of decision/decision document

RD – remedial design

RA-C – remedial action construction

RIP – remedy in place

RA-O – remedial action operation

RC – response complete

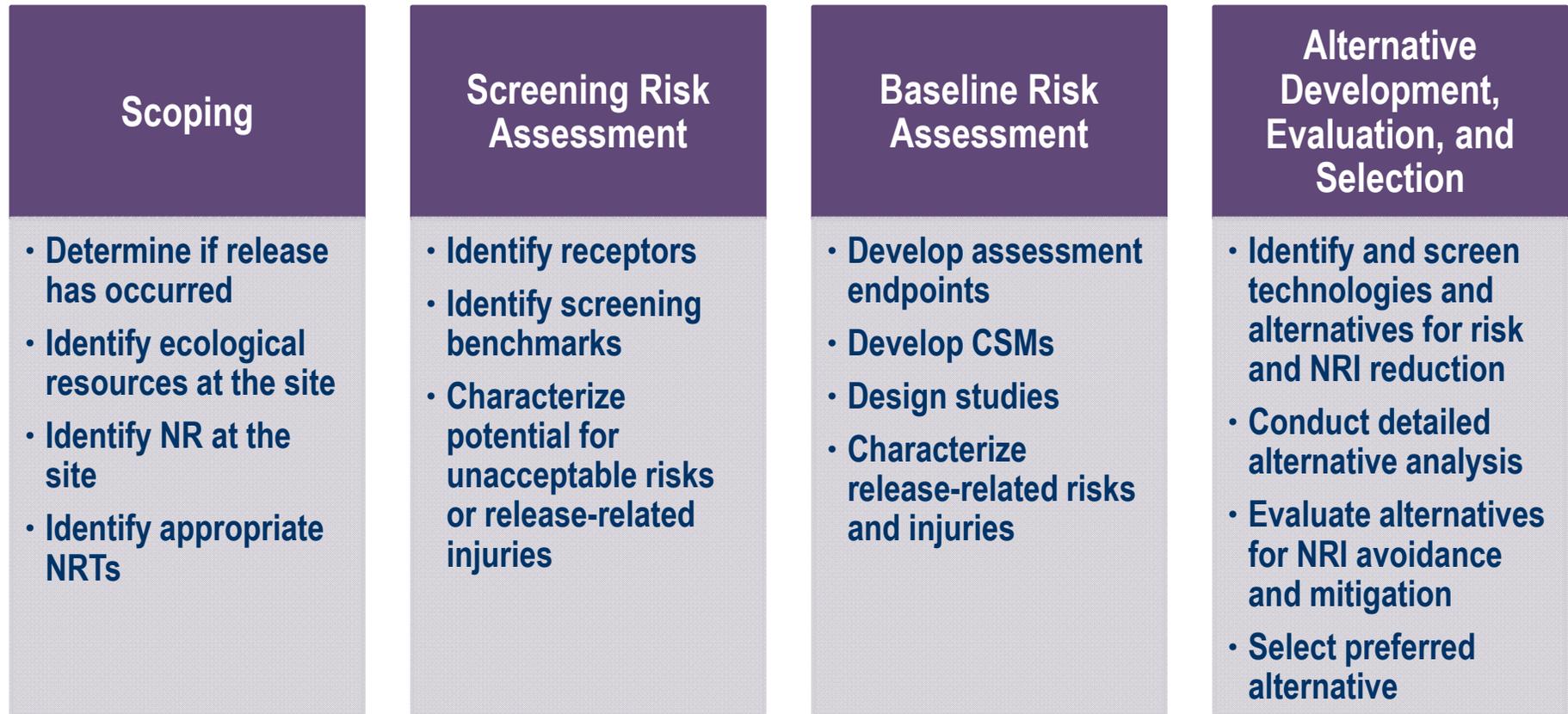
LTMgt – long-term management

SC – site closeout

NRI Integration into the ER Program

- NRIs should be considered during each phase of the investigation and cleanup process:
 - Project scoping
 - Site characterization
 - Risk assessment
 - Remedy evaluation
- Trustee coordination/interaction should occur throughout all aspects of the process:
 - Help identify natural resources (NRs)
 - Provide natural resource-specific data
 - Aid in identification of possible injuries
- NRI integration is consistent with DON's implementation of green and sustainable remediation (GSR) in remedy selection, design, and operation

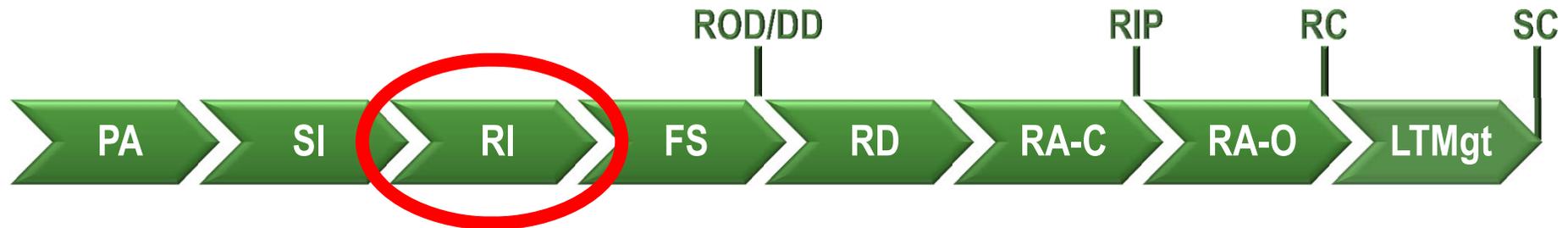
NRI Integration Process



Key Point

Consideration of NRIs is done to the extent practicable, with risk reduction the primary goal

NRI Policy Statement #1



The injury to natural resources shall be investigated during the Ecological Risk Assessment (ERA) process of the ER Program.

- Investigate NRIs within the ERA, and possibly the HHRA
- Involve appropriate NRTs early in the process
 - Problem formulation, selection of benchmarks and endpoints, development of exposure scenarios

Key Points

- DON is the lead response agency and makes final cleanup decisions with the regulators
- Trustees may comment and suggest, but have no decision-making authority

NRI Integration: Risk Assessment

- **Because of the similarities between risk and injuries, and because the same resources are considered, integration may be relatively straightforward**
 - **The risk assessment has exposure scenarios, and a study design specific to addressing release-related risks**
 - **Consider whether NRs could be addressed by those same scenarios and study designs**
 - **If not, consider revising or adding additional scenarios and methods so that NRI concerns may also be addressed**

Key Points

- **Must be cost-, time-, and effort-effective**
- **Primary focus is still risk!**

NRI Policy Statement #1 – Example: Identify Appropriate Resources and Potential Risks/Injuries

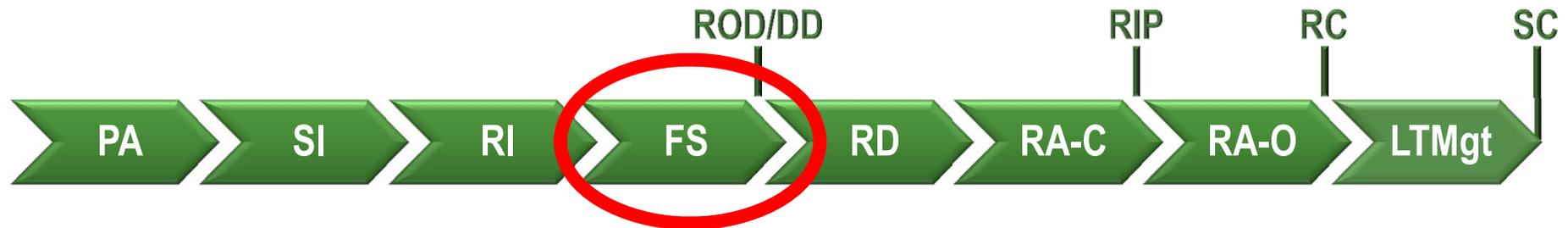
- **Problem:**

- A past release has affected natural resources both on and off site
- Which NRs should be evaluated?

- **Resolution:**

- Begin with DON NR staff, previous site and installation reports
 - NR staff may help identify Trustee contacts
- Consult/coordinate with Trustees to:
 - Identify/verify NRs that may occur in affected areas
 - Identify/verify potential nature and magnitude of risks/injuries

NRI Policy Statement #2



To the extent practicable, select a response alternative that best addresses the NRI caused by past practices.

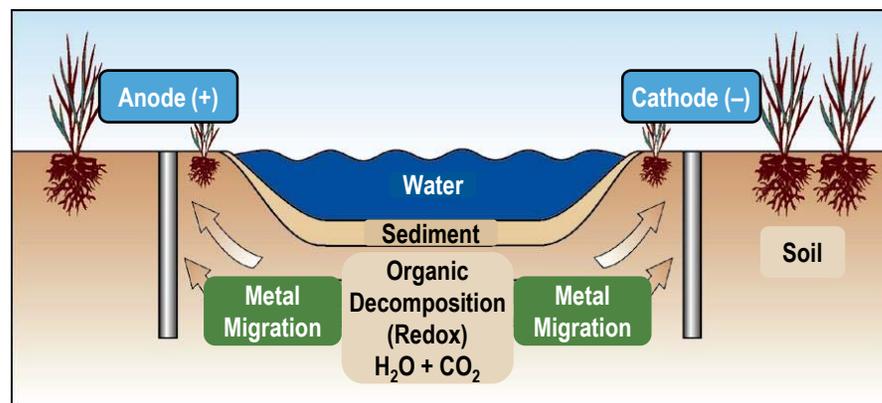
- Remedial alternatives must focus on risk reduction
- To the extent practicable, develop and evaluate alternatives that incorporate approaches for addressing interim injuries
- Because of similarity between risk and injury, an alternative that reduces risk should also be effective in addressing interim injuries

Key Point

Select the alternative that meets risk-reduction needs and best mitigates NRIs within an acceptable cost and time frame

NRI Integration: Remedial Alternative Development and Evaluation

- During development of remedial alternatives
 - Identify alternatives that best address risk (*top priority*)
 - Also consider potential for alternatives to mitigate release-related (interim) NRIs



- Evaluate alternatives using the 9 CERCLA evaluation criteria
 - Select the alternative that meets the risk-reduction needs *and* best mitigates interim NRIs
 - Includes Green Sustainable Remediation (GSR) considerations

The 9 CERCLA Remedy Selection Criteria

Threshold Criteria:

Each alternative must meet these criteria in order to be eligible for selection.

1. **Overall protection of human health and the environment**
2. **Compliance with ARARs**

Primary Balancing Criteria:

The best balance of trade-offs where the balancing should emphasize long-term effectiveness and reduction of toxicity, mobility, or volume through treatment.

3. **Long-term effectiveness and permanence**
4. **Reduction of toxicity, mobility, or volume**
5. **Short-term effectiveness**
6. **Implementability**
7. **Cost**

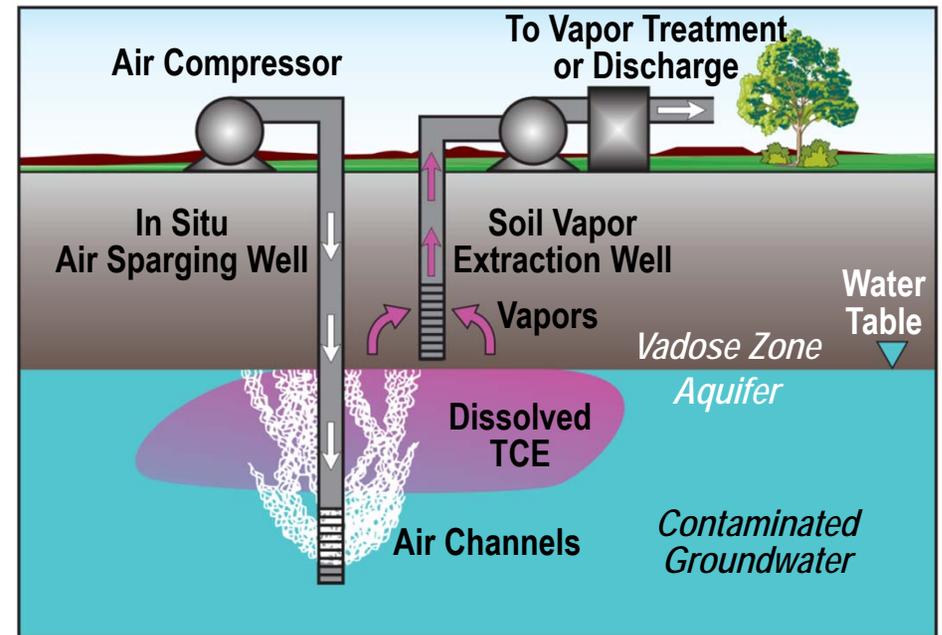
Modifying Criteria:

In making the remedy selection, these factors "shall also be considered".

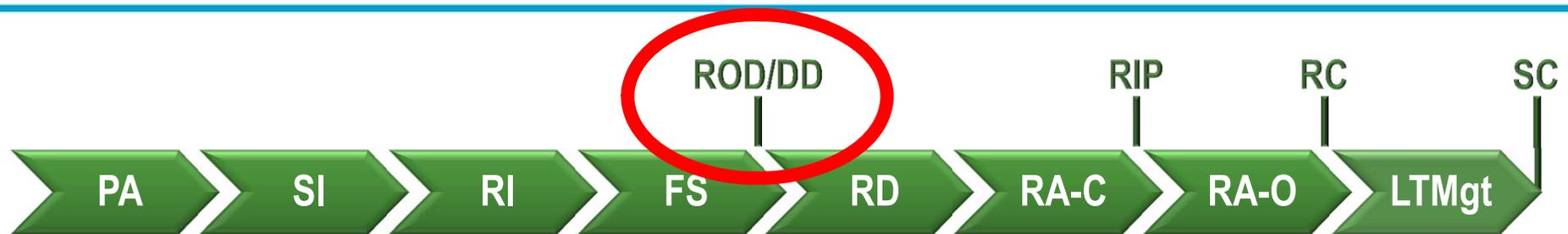
8. **State acceptance**
9. **Community acceptance**

NRI Policy Statement #2 – Example

- **Problem:**
 - A trichloroethylene (TCE) plume is in a groundwater aquifer
 - The NRI is to groundwater quality
- **Resolution:**
 - Air sparging is selected for source removal
 - Followed by enhanced *in situ* bioremediation to restore the aquifer
 - Ultimately mitigates the groundwater injury



NRI Policy Statement #3



Document the response action that will address the injury to the natural resource in the Record of Decision (ROD).

- If the response action has one or more elements that address NRI mitigation, this should be documented in the decision document
- This documents DON's attempt to restore NRIs associated with a site release and subsequent response

NRI Policy Statement #3 (cont.)

- **If the response action addresses NRIs, the decision document should:**
 - **Provide a summary of the NR and NRIs considered during remedy selection**
 - **Describe how NRs were considered in the risk assessments and summarize results**
 - **Describe how each alternative evaluated could mitigate NRIs**
 - **Explain how the selected remedy meets the risk reduction and NRI needs while balancing the 9 CERCLA evaluation criteria**

NRI Policy Statement #3 – Example

- **Former Demolition Debris Landfill, Naval Amphibious Base Little Creek, VA**
 - Covered about 2 acres near Little Creek
 - Dig and haul 30,000 tons of landfill debris
- **Site-Related NRIs:**
 - Landfill impacted site habitat, biota, and water quality in adjacent channel and wetlands
 - Phragmites-dominated marsh in and around the landfill



Photo courtesy U.S. Navy

NRI Policy Statement #3 – Example (cont.)

- **Clean backfill graded to match adjacent wetland contours**
 - Constructed a 1.56-acre tidal wetland with 14,497 plantings, and the existing associated marsh was restored to a *Spartina* marsh



Photo courtesy U.S. Navy

NRI Policy Statement #3 – Example (cont.)

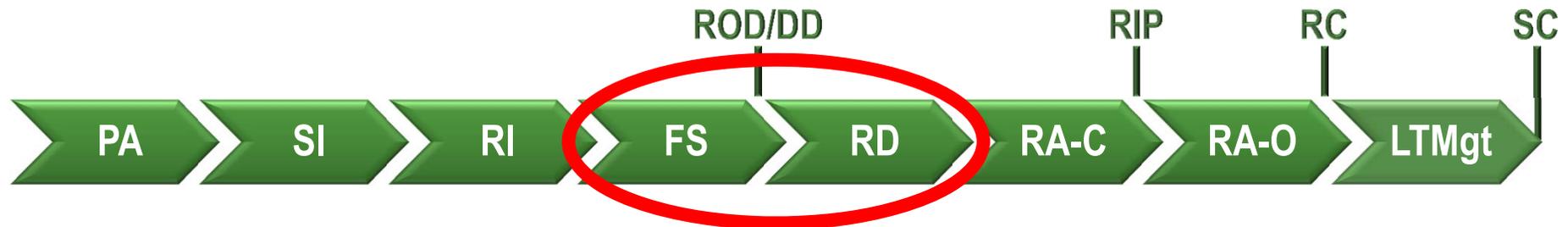


Photo courtesy U.S. Navy

- **An Engineering Evaluation/Cost Analysis (EE/CA) documented the alternatives evaluated and selection of the remedy that included construction of tidal wetland**
 - Also documented agreement between DON, VDEQ, and EPA that the wetlands would compensate and/or mitigate ecological risks
- **The ROD summarized the EE/CA, and documented agreement among DON, VDEQ, and EPA that No Further Action (NFA) is required under CERCLA**
 - DON would continue monitoring the wetland through a regional natural resources program

VDEQ = Virginia Department of Environmental Quality

NRI Policy Statement #4



To the extent practicable, select a response alternative that minimizes injury to the natural resource.

- Policy Statement #2 addressed residual injuries, while Policy Statement #4 addresses implementation injuries
- To the extent practicable, select an alternative that avoids or minimizes NRIs that could occur during implementation (GSR considerations)
- Intent is to minimize implementation impacts – alternatives may provide similar risk reduction but with differing levels of implementation injury

Key Point

Refinements to design, construction, and operations may reduce implementation injuries

NRI Policy Statement #4 (cont.)

- **Remedy must focus on risk reduction goals**
 - **Consider avoidance of implementation impacts to the extent practicable**
- **During alternative screening and evaluation:**
 - **Consider footprint, nature, timing, and duration of remedial alternative activities (GSR considerations)**
 - **Identify anticipated long-term and short-term NRIs**
 - Can alternatives be modified to avoid or minimize these?
 - **Identify natural recovery potential of potentially affected NRs**
 - **Evaluate alternatives per the 9 CERCLA criteria**
 - Criterion 5 Short-Term Effectiveness focuses on implementation impacts

NRI Policy Statement #4 – Example

- **Wetland alternatives:**

- **Dig and haul all contaminated soils**

- Direct loss of habitat and biota

- **Remove source area near edge of wetland, institutional controls for rest of area**

- **Winter excavation**

- **Contaminated sediment alternatives:**

- **Dredging**

- Directly impacts ecosystem in dredge area
 - Suspends contaminants, impacting water quality and biota

- **Capping**

- Directly impacts ecosystem in dredge area

- **Monitored Natural Recovery**

NRI Policy Statement #4 – Example (cont.)

100+ year old trees

Unacceptable human health risks,
acceptable ecorisks

Contaminated
hot spots

Full Cleanup 260 acres Large equipment Extensive loss >100-yr forest @ \$4+ million	vs.	Hot Spot Cleanup Hot spots only Small equipment <20 mature trees removed @ \$1 million
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NRI Policy Statement #5

Paying damages for loss of services related to interim injury and/or residual injury shall not be addressed during the ER Process!

- **ER,N/BRAC funds are used only to remediate sites**
- **ER,N/BRAC FUNDS are not eligible to fund conduct of NRDA's nor provide payment for NR damage claims**
- **NRD claims are recovered by Trustees through the legal system**
 - **An NRD claim against DON is a claim against the U.S. Government for natural resources injured by the DON**
 - **In such claims, the Department of Justice (DOJ) represents the DON**

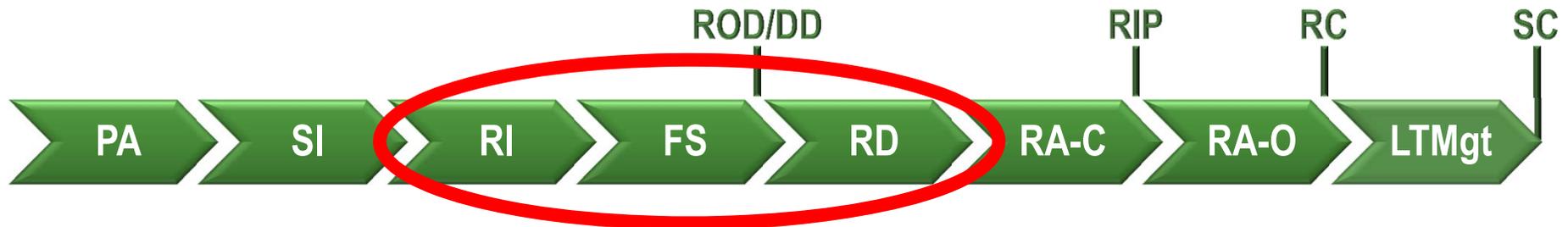
Key Point

If an RPM receives a claim or request for NRD payment, consult DON legal counsel immediately

NRI Policy Statement #5 – Example

- **Letter from Tennessee Department of Environment and Conservation to NAVFAC Southeast:**
 - Tennessee Department of Environment and Conservation wanted DON to transfer one or more facilities in exchange for a waiver of any future NRD claim
 - No NRDA conducted – for ‘future’ claims
 - This ‘claim’ would not be used for resource restoration
- **Response:**
 - DON politely declined. WHY?

NRI Policy Statement #6



The impact to NR at Munitions Response (MR) sites shall be considered when planning site preparation work for investigations and response actions.

- Consider impacts when planning investigations for investigation and response actions
- Worker safety must not be compromised

Key Points

- RPM shall select investigation methods that are most effective for locating munitions with the least amount of NRI
- RPM shall select response action that is most effective in minimizing worker risk with the least amount of NRI

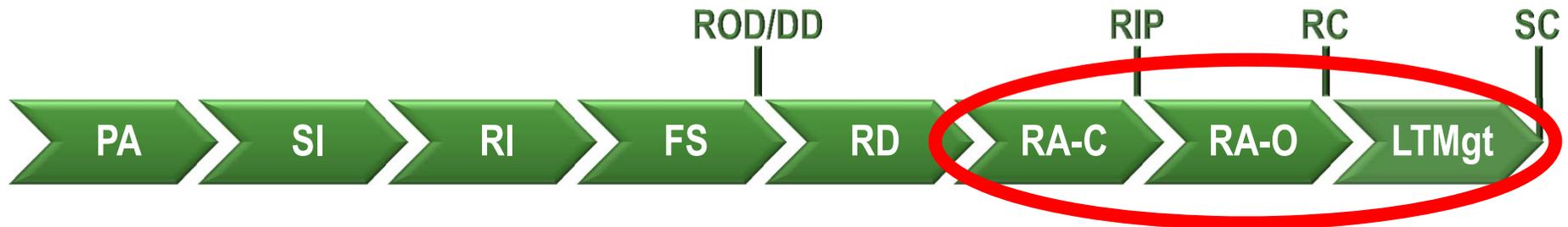
NRI Policy Statement #6 – Examples

- Use of a magnetometer to survey site rather than clear cutting
- Relocating endangered species
- Planning activities around mating and nesting seasons



Photos courtesy U.S. Navy

NRI Policy Statement #7



ER,N/BRAC funds shall only be used to *restore* the natural resource that was *injured as a result of a contaminant release and any subsequent cleanup*, and shall not be used to construct or repair non-natural resource items.

- Use of ER,N/BRAC funds shall be authorized only for resource restoration, not for resource-related infrastructure construction or repair

**Key
Point**

Okay to spend money for restoration if part of selected remedy, but not to pay NRD claim

NRI Policy Statement #7 – Examples

- ER,N/BRAC funds are **not** to be used to construct or repair:
 - Boat ramps, piers, building, access ramps, etc.
- ER,N/BRAC funds **may** be used to:
 - Restore wetlands, shoreline, drinking water, etc., if included as part of the preferred alternative

NRI Policy Statement #8

**DON will consider conducting a NRDA if our natural resource has been injured by non-DON activities.
The NRDA will not use ER,N/BRAC funding.**

- **If another PRP has injured a DON natural resource, DON may consider conducting an NRDA**
 - **A release from a non-DON entity has reached a DON facility and is affecting natural resources at that facility**
- **The appropriate DON counsel will determine the best legal course of action to take, and whether the DOJ should be involved**

Key Point

If an RPM feels that DON natural resources are being/have been injured by another PRP, they should contact DON legal counsel

NRI Policy Statement #8 – Example

- **Naval Station (NAVSTA) Great Lakes, IL**

- **Pettibone Creek**

- 1.2-mile stream that flows through an industrialized area of North Chicago, then through NAVSTA Great Lakes before discharging to Lake Michigan
 - One of the upstream industries was a secondary refiner-smelter of non-ferrous metals

- **Releases during smelter operations (1941-2001) contaminated the downstream creek bed and harbor sediments**

- **Includes NAVSTA Great Lakes**

NRI Policy Statement #8 – Example

In 2001 the DOJ filed a \$9 million claim on behalf of EPA, DOI, NOAA, and DON for response costs and natural resource damages

- Contaminant releases to a creek at NAVSTA Great Lakes, IL that reach the boat basin and harbors
- The DON NRD was estimated at **\$1.15 million**, based on:
 - Costs to repair and restore creek and inner harbor bed
 - Costs of an environmental impact statement (EIS)
 - Costs associated with loss of recreational use of the harbor
 - Costs to construct a dam to reduce sediment loading and reintroduce aquatic plants
 - Costs to improve habitat
 - Costs of monitoring

Overview

- **Background/Definitions**
- **CNO NRI Policy Statements**



Conclusion – CNO Policy on Natural Resource Injury and Damages in the ER Program

- **The CNO policy provides clarification on investigating NRIs and conducting response actions in the DON ER Program**
- **RPMs are to:**
 - **Involve Trustees early and throughout the ER process**
 - Keep in mind: Trustees have no decision authority
 - **Evaluate NRIs using the risk assessment process**
 - Focus still on risks, and consider NRIs to the extent practicable
 - **Select actions that address risk reduction needs**
 - To the extent practicable, may mitigate NRIs due to contamination and minimize or avoid additional NRIs from remedy implementation
 - **Use ER,N/BRAC funds only to address the NRIs and NOT to construct or repair non-natural resources**

Key Point

DON may seek (outside of the ER Process) damages from others that have injured DON NRs – not an RPM activity

Additional Resources

- **Navy/Marine Corps Policy on Natural Resource Injury and Damages in the Installation Restoration Program, December 21, 2001.**
- **Defense Environmental Restoration Program (DERP) Management Manual, 4715.20, March 9, 2012.**
 - Enclosure 3, Section 17. Natural Resource Injury (NRI)
- **NCP – Subpart G – Trustees for Natural Resources**
- **43 CFR 11 – Natural Resource Damage Assessments**
- **Natural Resource Damages:**
www.epa.gov/oerrpage/superfund/programs/nrd/
- **Department of the Navy Guidance on Green and Sustainable Remediation, UG-2093-ENV Rev. 1.**

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