

Regulatory Basis for Conducting Ecological Risk Assessments

1.0 Introduction

Often the question arises “Do I need an ecological risk assessment (ERA) at my site?” The answer to this question is always yes, although the scope and magnitude of the ERA may vary widely. There are a number of legal drivers that require the Navy to evaluate the effects of contaminant spills or releases on ecological resources at its Installation Restoration (IR) Program and Base Realignment and Closure (BRAC) sites. These drivers include the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA or Superfund); Superfund Amendments and Reauthorization Act of 1986 (SARA); and Resource Conservation and Recovery Act (RCRA). It is these regulations that serve as the underlying basis for the Navy Policy (see Navy Policy on the Main Menu) for conducting ERAs. Implementing regulations and guidance associated with these acts identify specific processes, procedures, and evaluations that must be followed or implemented for regulatory compliance, and these identify the need to evaluate impacts and/or risks to ecological resources. Furthermore, implementation of the BRAC requires compliance with CERCLA, which includes the need for conducting ERAs.

The Navy also has an important role as a Natural Resource Trustee (Trustee) for the natural resources that occur on its sites. As a Trustee, the Navy is responsible for managing its natural resource holdings and for restoring any resources injured by contaminant releases from Navy operations or sites. Furthermore, other Trustees may hold the Navy legally responsible, through the natural resource damage assessment (NRDA) process, for restoring any injured resources resulting from releases from Navy sites or operations. ERAs may play an important role in evaluating injuries to ecological resources from contaminant spills or releases, and in restoring any resources that may have been injured.

2.0 CERCLA, SARA, and the National Contingency Plan

2.1 Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) and Superfund Amendments Reauthorization Act (SARA)

CERCLA was enacted to provide a program for identifying and responding to releases of hazardous substances into the environment. SARA was enacted to strengthen CERCLA by requiring that site cleanups be permanent and that they use treatments that

significantly reduce the volume, toxicity, or mobility of hazardous pollutants. CERCLA authorizes the U.S. Environmental Protection Agency (EPA) to protect the public health and welfare and the environment from the release or potential release of hazardous substances, pollutants, or contaminants.

The [EPA Superfund Program](#) carries out that agency's mandate under CERCLA and SARA. The [National Oil and Hazardous Substances Pollution Contingency Plan](#) (or National Contingency Plan) (NCP) is the EPA's implementing regulations for CERCLA. The NCP identifies a process for the identification and mitigation of environmental impacts (such as toxicity, bioaccumulation, death, reproductive impairment, growth impairment, and loss of critical habitat) at release sites and for the selection of remedial actions to protect the environment. In 1997, the EPA issued guidance specifically for designing and conducting ERAs under the Superfund Program, commonly referred to as ERAGS (Ecological Risk Assessment Guidance for Superfund). In 1999, the Navy issued policy for conducting ERAs that identifies a three-tiered process that is consistent with ERAGS. The Navy Policy is discussed elsewhere on this website (select Navy Policy from the Main Menu), while the EPA guidance can be obtained at <http://www.epa.gov/superfund/programs/risk/ecorisk/ecorisk.htm>.

2.1.1 Requirements for Complying with CERCLA

By law, all Federal agencies (including the Navy) are required to comply with the requirements of CERCLA, as indicated in the following sections of the act:

- Section 120(a)(1) makes Federal facilities subject to CERCLA “in the same manner and to the same extent, both procedurally and substantively, as any nongovernmental entity.” The term “Federal facilities” includes facilities owned or operated by the Navy.
- Section 120(a)(2) provides that all guidelines, rules, regulations, and criteria that are applicable to remedial action at facilities at which hazardous substances are located shall be applicable to Federal facilities “in the same manner and to the same extent.” Again, the term “Federal facilities” includes those facilities owned or operated by the Navy.
- Section 120(a)(2) also provides that no Federal agency (including the Navy) may adopt or utilize any guidelines, rules, regulations, or criteria that are “inconsistent with” the guidelines, rules, regulations, or criteria established by the EPA under CERCLA (i.e. by the Superfund Program and including the NCP).

2.1.2 Requirements for Evaluating and Protecting the Environment

Several sections of CERCLA identify the requirement for conducting “environmental” evaluations in order to evaluate risks and identify appropriate remedial actions. In addition, CERCLA also identifies the requirement to implement remedies to protect the environment. The principal sections include:

- Section 104, which authorizes the President to take removal or remedial actions consistent with the NCP in order to protect public health, welfare, or **the environment**.
- Section 105(a)(2), which calls for methods to evaluate and remedy “any releases or threats of releases...which pose substantial danger to the public health or **the environment**.”
- Section 121(b)(1), which requires selection of remedial actions that are “protective of human health and **the environment**.”
- Section 121(c), which calls for “assurance that human health and **the environment** continue to be protected.”
- Section 121(d), which directs the EPA to attain a degree of cleanup “which assures protection of human health and **the environment**.”

Note the extensive reference in these sections to the term “environment.” CERCLA defines the “environment” as:

- A. The navigable waters, the waters of the contiguous zone, and the ocean waters of which the natural resources are under the exclusive management authority of the United States under the Magnuson-Stevens Fishery Conservation and Management Act (16 U.S.C. 1801 et seq.); and
- B. Any other surface water, groundwater, drinking water supply, land surface or subsurface strata, or ambient air within the United States or under the jurisdiction of the United States.

The process for evaluating risks is identified in the NCP, which is discussed in the next section of this guidance.

2.2 Implementing CERCLA: The National Oil and Hazardous Substances Pollution Contingency Plan (NCP)

The NCP (40 CFR 300 et seq.) provides the organizational structure and procedures for implementing CERCLA. [Click here to view or download the NCP](#), and is required by Section 105 of CERCLA and by Section 311 of the Clean Water Act (CWA). The NCP specifically identifies the requirement for collecting and evaluating data to determine if site contaminants pose a risk to human health and the environment and to identify a remedial action that is protective of human health and the environment. Section 300.400 (Hazardous Substance Response) of the NCP was written to implement the objectives of the Superfund Remedial Action Program, which are “to determine the nature and extent of the threat presented by the release and to evaluate proposed remedies. This includes sampling, monitoring, and exposure assessment, as necessary, and includes the gathering of sufficient information to determine the necessity for and proposed extent of remedial

action.” ERAs accomplish the environmental assessment goals of these NCP requirements.

2.2.1 The CERCLA Process

The CERCLA process consists of two major components; a remedial site evaluation (40 CFR 300.420) and a remedial investigation/feasibility (RI/FS) study (40 CFR 300.430). The remedial site evaluation is conducted through a preliminary assessment (PA) and site inspection (SI), and represents a screening process to eliminate some sites from further evaluation, identify other sites for immediate action, and identify still other sites for further, more detailed evaluation.

This screening process includes evaluations of potential risks to both human health and ecological resources. If the PA/SI determine that further investigation is necessary, a remedial investigation (RI) and feasibility study (FS) are conducted. The primary objectives of the RI are to characterize the nature and extent of contamination, to evaluate the potential for unacceptable risks to human health and ecological resources from exposure to the contaminants, and if warranted identify preliminary cleanup goals.

A major component of the RI is the baseline risk assessment (BRA), which evaluates risks to human health and ecological resources. In the BRA, characterization data collected during the RI are used together with BRA-specific studies to evaluate potential human health and ecological risks. The results of the RI (including the BRA) support one of two decisions: 1) the site poses acceptable risks and remediation is not warranted or 2) remediation is warranted because there are unacceptable risks to human health and/or ecological resources.

The primary objective of the FS is to ensure that, in the event that remediation is warranted, remedial alternatives are developed and evaluated with regard to risk reduction effectiveness and to environmental impacts associated with remedy implementation and operation.

2.2.2 The Preliminary Assessment and Site Inspection

The PA and SI (40 CFR 300.420 (b) and (c), respectively) assist in differentiating among sites that warrant immediate attention, sites which require further evaluation, and sites that pose no concerns to the public health or the environment and may thus be removed from further consideration. The overall objectives of the PA/SI are to:

The PA uses existing data to distinguish between those sites that pose little or no threat to human health or the environment (including ecological resources) and those sites that pose a potential threat and require further evaluation. The PA also identifies sites requiring assessment for possible emergency removal actions. If the PA indicates a need for further investigation, then an SI is conducted. The SI builds on the PA information, but includes field investigation and sampling. The SI identifies sites that enter the NPL site listing process and provides the data needed by the EPA to propose and list an installation on the NPL. For more information on the HRS, please see http://www.epa.gov/superfund/programs/npl_hrs/hrsint.htm.

Sites that are placed on the NPL or are identified to require further evaluation proceed to the next phase of CERCLA, the RI/FS process. *Note that a site does not need to be placed on the NPL in order to enter the RI/FS process*, and many DoD sites are not on the NPL. The Tier 1 Screening Risk Assessment (SRA) of the Navy ERA Policy (Figure 2.1) is largely analogous with and (from an ecological perspective) meets the objectives of the PA/SI process.

2.2.3 The Remedial Investigation/Feasibility Study Process

The RI/FS process involves the conduct of a Remedial Investigation (RI) and, if warranted a Feasibility Study (FS). The RI includes two major parts:

- A characterization of the nature and extent of contamination and
- A BRA, which includes a human health risk assessment (HHRA) and an ERA.

Section 300.430(a)(2) of the NCP directs the lead agency to complete a “risk assessment” as part of the RI/FS process. Furthermore, Section 300.430(d)(4) directs the lead agency (which may be the Navy) to conduct a “site-specific baseline risk assessment to characterize the current and potential risks to human health and the environment that may be posed by contaminants migrating to groundwater or surface water, releasing to air, leaching through soil, remaining in soil, and bioaccumulating in the food chain.” The Tier 2 Baseline Ecological Risk Assessment (BERA) of the Navy ERA Policy (Figure 2.1) is analogous to and meets the requirements of the BRA component of the RI.

The FS develops and evaluates remedial options to address the risks and the preliminary remediation goals identified in the RI. Section 300.430(d)(4) of the NCP identifies the use of the BRA to help establish “acceptable exposure levels for use in developing remedial alternatives in the Feasibility Study.” The NCP identifies nine remedy evaluation criteria to aid in the development and evaluation of remedial options. The Tier 3 Evaluation of Remedial Alternatives of the Navy ERA Policy (Figure 2.1) identifies the requirement to evaluate remedial alternatives from an ecological perspective using the nine evaluation criteria. Thus, Tier 3 is consistent with the FS portion of the RI/FS process.

3.0 Executive Order 12580, Defense Environmental Restoration Program, and Installation Restoration Program

3.1 Executive Order 12580

Executive Order (EO) 12580, Superfund Implementation, addresses the delegation of duties and powers assigned to the President in CERCLA. Under EO 12580:

- The DoD is delegated authority and responsibility to carry out response actions, including cleanup, for hazardous substance releases on or from DoD facilities.
- At sites under its control, the DoD is the lead agency authority to select remedial actions consistent with CERCLA Section 120.

Section 2(d) expressly provides that the above authorities must be exercised consistent with the requirements of CERCLA Section 120. EO 12580 may be viewed or downloaded at <http://www.denix.osd.mil/denix/Public/Legislation/EO/toc.html>.

3.2 Defense Environmental Restoration Program (DERP)

The Defense Environmental Restoration Program (DERP) addresses the cleanup of DoD hazardous waste sites consistent with the requirements of CERCLA. In accordance with SARA Section 211, the three main objectives of DERP are:

1. The identification, investigation, research and development, and cleanup of contamination from hazardous substances, pollutants, and contaminants;
2. The correction of other environmental damage (such as detection and disposal of unexploded ordnance) that creates an imminent and substantial endangerment to public health or the environment; and
3. The demolition and removal of unsafe buildings and structures, including buildings and structures of the DoD at sites formerly used by or under the jurisdiction of the Secretary of Defense.

DERP requires the Secretary of Defense to carry out a program of environmental restoration for hazardous substance, pollutant, and contaminant releases at facilities under the Secretary's jurisdiction **consistent with Section 120 of CERCLA**. DERP is identified in 10 USC 2701.

3.3 Installation Restoration Program

The IR Program is the DoD's restoration program under DERP to identify, investigate, and clean up contamination at active/operating sites. The IRP focuses on cleanup of contamination associated with past DoD activities. SARA Section 211 and EO 12580 require that the IR Program be conducted in a manner consistent with CERCLA Section 120. The Navy/Marine Corps Installation Restoration Manual provides IR Program policy, guidance, and other information to be used to move an IR site through identification, investigation, and, if necessary, through cleanup and closure. ERAs are discussed in Section 5.9 of the manual, which may be viewed or downloaded at http://erb.nfesc.navy.mil/erb_a/restoration/irmanual.pdf.

4.0 The Resource Conservation and Recovery Act

RCRA requires corrective action for releases of hazardous waste or hazardous waste constituents from solid waste management units (SWMUs) at permitted hazardous waste treatment, storage and disposal facilities (TSDFs), as well as facilities seeking a RCRA permit or approval of final closure. RCRA requires the owner or operator of a facility seeking a RCRA permit to institute corrective action as necessary to protect human health and the environment from all releases of hazardous waste and hazardous constituents from any SWMU at the facility and to implement corrective actions beyond the facility boundary if appropriate.

Through remedy selection, the corrective action process of RCRA consists of three components, and it is analogous in many ways to the CERCLA NCP process. These three components are the RCRA facility assessment (RFA), the RCRA facility investigation (RFI), and the corrective measures study (CMS).

The objective of the RFA is to identify the SWMUs or areas of concern (AOCs) where releases have occurred or have the potential to occur. The RFA evaluates existing data to determine whether further evaluation is required, or if an interim measure is necessary to address an imminent threat to human health or the environment. If the RFA identifies an actual or potential release but no imminent threat, then an RFI is initiated to characterize the nature and extent of the release and evaluate risks to human health and ecological resources. The results of the RFI are used to support one of the following decisions:

- No further action is required,
- Remediation may be necessary, or
- An interim corrective measure is necessary.

If a potential need for remediation is indicated, then a CMS is conducted to establish remedial goals and identify and evaluate potential remedial alternatives. In the CMS, a remedy is selected on the basis of degree of protection of human health and the environment (including ecological resources), attainment of media-specific cleanup standards, control of sources to eliminate continued harmful releases, and compliance with RCRA waste management and disposal requirements.

Note the similarity between the CERCLA and RCRA processes. Both include an initial phase in which existing data are evaluated to determine whether further investigation is necessary. In both processes, if an imminent human health or environmental threat is indicated, a mitigating action is authorized. Both processes include a thorough characterization of the nature and extent of contamination, together with an evaluation of risks to human health and the environment. Finally, each process includes a formal evaluation of potential remedies. The CERCLA and RCRA processes are compared in Figure 2.2.

5.0 The Navy's Role as a Natural Resource Trustee

5.1 What Is a Natural Resource Trustee?

The Navy, in addition to conducting its military duties and typical day-to-day activities (including IR Program activities) at its facilities, also serves as a Natural Resource Trustee (Trustee) at its facilities. A Trustee is:

- an official of a Federal natural resource management agency or agency managing Federal lands, as designated in subpart G of the NCP,
- a designated State official,
- an Indian tribe, or,
- in the case of discharges covered by the Oil Pollution Act (OPA), a foreign government official, who may pursue claims for damages under Section 107(f) of CERCLA or Section 1006 of the OPA.

CERCLA defines "natural resources" to mean "land, fish, wildlife, biota, air, water, ground water, drinking water supplies, and other such resources belonging to, managed by, held in trust by, appertaining to, or otherwise controlled by the United States..., any State or local government, any foreign government, any Indian tribe, or, if such resources are subject to a trust restriction on alienation, any member of an Indian tribe."

Trustees are responsible for the Natural and Cultural Resources Management Program within the Federal government and have statutory responsibilities with regard to the protection and/or management of natural resources or to stewardship as a manager of Federally-owned land.

5.2 What Are Natural Resource Injuries and Damages?

A natural resource injury is a measurable long- or short-term adverse change in the chemical or physical quality or the viability of a natural resource resulting from direct or indirect exposure to a discharge of oil or a release of a hazardous substance (43 CFR Part 11.14(v)). An injury may also result from exposure to the degradation products associated with a spill or release. Injury definitions applicable to specific natural resources can be found in 43 CFR 11.62.

Natural resource damages represent the amount of money sought by a Trustee as compensation for a natural resource injury as defined in CERCLA. Damages include not only the cost of restoring injured resources to their baseline condition but also compensation for the interim loss of injured resources pending recovery and for the reasonable cost of a damage assessment (43 CFR Part 11; 15 CFR Part 990). Loss refers a measurable adverse reduction of a chemical or physical quality or viability of a natural resource. Interim loss represents the time period from the initial spill or release to completion of restoration. Note that the regulations identify that damages are **not** to be punitive in nature. Rather, they are specifically for restoration, compensation for lost

services, and reimbursement of assessment costs. While only post-CERCLA damages are recoverable by Trustees, the burden of proof lies with the Principle Responsible Party (PRP).

There are a number of very important terms related to natural resource injuries and damages. A portion of the damages goes to restoring injured resources to their baseline condition. Baseline is defined (43 CFR Part 11.14(e)) as the condition of the resource and services that would have existed had the spill or release not occurred. For example, assume that a spill has occurred into an estuary, and because of the contamination, fish avoid the area and waterfowl have stopped using the site for nesting. Under baseline conditions, fish would have continued to inhabit the area, and waterfowl would have continued to nest there.

Services are defined [43 CFR 11.14(nn)] as the physical and biological functions performed by a natural resource including the human uses of those functions. For example, the fish from the previous example provide a variety of services, including food for other fish and fish-eating birds and recreational activities for the public. The estuary itself provides habitat for fish and wildlife and supports recreational activities such as fish, boating, and bird watching.

5.3 Why Is the Navy a Trustee?

A number of Federal statutes designate the President as a Trustee on behalf of the public for Federally-owned or -managed natural resources. These statutes include CERCLA (42 USC Sec. 9601), OPA 1990 (33 USC Sec. 2701), and CWA (33 USC Sec. 1251). Subsequently, Presidential Trustee authority has been delegated to specific executive agencies, including the DoD, by Executive Order (EO):

- EO 12580 designates the Secretary of Defense as an authorized Trustee under CERCLA.
- EO 12777 designates the Secretary of Defense as an authorized Trustee under OPA 1990 and the CWA.

Under these EOs, the Secretary of Defense is the Trustee for all natural resources that occur on DoD-owned or DoD-managed lands.

Within the DoD, DoD Instruction 4715.7 (Environmental Restoration Program) delegates Trustee authority under CERCLA to each Service Secretary. Thus, under CERCLA, the Secretary of the Navy is the designated Trustee for natural resources that occur on Navy-owned or Navy-managed lands. In contrast, the Secretary of Defense has not delegated OPA 1990 Trustee authority to the services.

5.4 The Navy's Responsibilities as a Trustee

As the Trustee at its facilities, the Navy has a number of responsibilities regarding natural resources. In addition to managing the natural resources for the benefit of the public, the

Navy must also ensure that natural resources are considered fully in its IR Program. A number of requirements are identified in OPNAVINST 5090.1B (<http://erb.nfesc.navy.mil/>) for carrying out the Navy's Trustee responsibilities under the IR Program. These responsibilities include:

- Providing for natural resource expertise in contingency planning;
- Utilizing natural resource professionals to evaluate impacts of oil and hazardous substance spills and releases and assist in appropriate responses;
- Developing mitigation plans in response to Navy spills and spills on Navy lands;
- Coordinating with other appropriate trustees; and
- Assessing natural resource damages, as appropriate, to mitigate spill impacts to natural resources on Navy lands due to non-Navy PRPs.

5.5 Other Potential Trustees at Navy Facilities

While the Navy is the designated Trustee for natural resources occurring on its sites, a number of other federal or state agencies or Tribal governments may also have Trustee responsibilities for resources on Navy sites. In many cases, the Navy's Trustee responsibilities will overlap with those of other designated Trustees, depending on the nature of the natural resource and the Trustee authorities.

5.5.1 Federal Trustees

The Navy will typically not be the only Federal Trustee at its facilities. For example, the Secretary of Commerce acts as the Federal Trustee for natural resources that are found in or under or that use the navigable waters or the exclusive economic zone of the U.S. and the outer continental shelf. These resources include marine fisheries, anadromous fish, endangered species, marine mammals, and the resources of Marine Sanctuaries and National Estuarine Research Reserves. Alternately, the Secretary of the Interior acts as the Federal Trustee for natural resources managed or controlled by the Department of the Interior, including migratory birds, anadromous fish, endangered species, marine mammals, federally owned minerals, and certain federally managed water resources.

Federal Trustees that may often have Trustee responsibilities at Navy sites include:

- U.S. Department of Agriculture (USDA),
- U.S. Department of Commerce (DOC), and
- U.S. Department of the Interior (DOI).

The National Oceanic and Atmospheric Administration (NOAA) represents the DOC in Trustee activities, while the Fish and Wildlife Service (FWS) provides a similar role for DOI. The U.S. Department of Energy (DOE) is also a Federal Trustee, but its responsibilities are directed exclusively at the natural resources present at DOE-owned or DOE-operated sites.

5.5.2 State and Tribal Natural Resource Trustees

As indicated earlier in Section 5.1, State and Indian tribes may also act as Trustees. State Trustees act on behalf of the public for the natural resources within a State's boundaries or for resources belonging to, controlled by, or appertaining to the State (40 CFR 300.605). The Governor of each State designates a State official (or officials) to act as Trustee for the State's resources. These resources include ground and surface waters, and resources supporting ecosystems. Examples of State resources include:

- State forest land;
- State-owned minerals;
- State parks and monuments;
- State-designated rare, threatened, or endangered biota;
- State-managed fish and wildlife; and
- State wildlife refuges and fish hatcheries.

Typically, the designated State official is the head of the State agency responsible for environmental protection or for fish and wildlife management, although the governor can designate any State entity to carry out the State's Trustee responsibilities. Finally, States may designate more than one Trustee agency.

Heads of governing bodies of Indian tribes or persons designated by tribal officials may act as Tribal Trustees for natural resources belonging to, managed by, controlled by, or appertaining to the Indian tribe; held in trust for the benefit of the tribe; or belonging to a member of a tribe. The Secretary of the Interior may act as Trustee on behalf of a tribe at the tribe's request.

5.5.3 The EPA's Trustee Responsibilities

EPA is not a Trustee, nor is it authorized to act on behalf of Trustees. Rather, its role under CERCLA is one of notification and coordination. Under CERCLA and OPA, EPA shares with the U.S. Coast Guard the general responsibility for investigating and responding to contamination by hazardous substances or oil. The Coast Guard is primarily responsible for spills or releases involving the coastal zone including all U.S. waters subject to the tide, the Great Lakes, and deepwater ports. EPA is primarily responsible for spills or releases on land and inland waters.

The EPA is required to notify Trustees of potential injuries to natural resources at sites where releases or threats of releases are under investigation and is also required to coordinate assessments, investigations, and planning with Trustees (CERCLA Section 104(b)(2)). In addition, the EPA is required to notify Federal Trustees of negotiations with potentially responsible parties (PRPs), and encourage their participation in the negotiations if the release under investigation may potentially injure Trust Resources (CERCLA Section 122(j)(1)). Under the OPA 1990, the EPA is the lead agency in responding to oil spills in inland waters.

5.6 Assessing Injuries and Damages to Natural Resources by Using the Natural Resource Damage Assessment (NRDA) Process

CERCLA directs two types of activities at sites contaminated by hazardous substances: 1) cleanup and 2) NRDA and natural resource restoration. The goal of the CERCLA cleanup is to prevent further contamination and clean up sites to levels protective (i.e., to levels of acceptable risk) of human health and the environment. In contrast, the goal of NRDA and natural resource restoration is to **restore** or **replace** natural resources to the conditions that would have existed without the hazardous substance release (i.e., baseline conditions). *This is a very important difference to keep in mind when dealing with cleanup and NRDA issues; the goal of CERCLA is risk reduction while the goal of NRDA is a return to pre-release conditions.*

The assessment of natural resource injuries and damages is accomplished through the NRDA process. This process provides a procedure by which Trustees can identify injuries incurred from exposure to the spill or release and any subsequent remediation, and determine compensation (i.e., damages) for natural resource injuries that have not been and are not expected to be addressed by response actions. NRDA is a process of collecting, compiling, and analyzing information, statistics, and data to determine the extent of injuries to natural resources from a hazardous substance release or oil discharge and to determine appropriate ways of restoring and compensating for those injuries.

Natural resources may be adversely impacted at sites going through the cleanup process in four ways:

- From exposure to, and subsequent direct effects from, the spill or release;
- From a loss of service (such as use of a fisheries resource for food or a groundwater resource as a drinking water supply) due to spill or release;
- From direct disturbance and loss of the resource or a service resulting from implementation of a remedy; or
- From exposure to residual contamination (left behind) following completion of remediation.

Thus, Trustees may evaluate injuries and estimate damages due to pre- and post-remediation exposure; to construction and operation of a selected remedy; and to lost services resulting from the spill or release. At its IR sites, the Navy *will not implement the NRDA process to evaluate injuries and damages related to releases or spills for which the Navy is the PRP*. The Navy may conduct the NRDA process in instances where spill or releases from non-Navy PRPs have potentially injured natural resources on Navy properties and for which the Navy is thus a Trustee.

Both CERCLA and the OPA direct the President to promulgate regulations for the assessment of natural resource injuries and damages resulting from spills or releases of oil or hazardous substances, pollutants, or contaminants. These regulations have been prepared by the DOI and by NOAA for the DOC. Under these regulatory drivers,

Trustees may sue the PRPs for lost service of their Trust resource, for restoration of the injured resource, and for the costs of any NRDA's they may have conducted. While the Navy cannot be sued by another Federal Trustee (such as the DOI or the DOC), it may be sued by a State or Tribal Trustee.

5.6.1 The DOI Regulations for NRDA

Under CERCLA, the President has delegated NRDA responsibilities to the DOI, which in turn issued its NRDA regulations. These may be found at [43 CFR 11](#). In following these regulations, Trustees:

- Determine whether injuries may have occurred,
- Collect and evaluate information to determine the nature and extent of injury to natural resources resulting from a release,
- Determine whether and which restoration measures may be necessary to bring the injured resources and services back to baseline conditions, and
- Seek to wholly compensate the public for interim lost use of those resources and services.

The regulations define baseline as the condition of the natural resource and services that would have existed had the spill or release not occurred. Services are defined as the physical and/or biological functions performed by the resource for the benefit of another resource or the public. For example, the delivery of oxygen and nutrients to aquatic biota would be services performed by a river.

The DOI regulations identify a phased approach for conducting NRDA's. First, a Preassessment Screen (PAS) (43 CFR 11 Subpart B) is conducted to provide a preliminary identification of resources potentially at risk from a spill or release. This screen uses existing data to identify potential pathways, potentially affected areas, known or expected contaminant concentrations, and potentially affected resources and to determine whether further assessment is necessary.

If further assessment is indicated by the PAS, then an assessment plan (43 CFR 11 Subpart C) is developed to ensure that the assessment is conducted in a planned, systematic, and cost-effective manner. Next, one of two assessment types is implemented. A Type A assessment (43 CFR 11 Subpart D) is conducted for spills or releases in coastal and marine environments. This assessment is relatively straightforward and uses the Natural Resource Damage Assessment Model for Coastal and Marine Environments (NRDA/CME), which is available from the DOI (<http://www.doi.gov/oepc/oepcbb.html>). For inland environments the Type B assessment (43 CFR 11 Subpart E) is more conducted. This assessment utilizes a range of scientific and economic methods; requires the specific collection of specific physical, chemical, and biological data; and thus is much more expensive and time consuming to conduct.

The last phase of the NRDA process is Post-Assessment (43 CFR 11 Subpart F). For this phase a Restoration and Compensation Determination Plan is developed that identifies

alternatives and costs for resource restoration or replacement. A Restoration Plan, based on the Restoration and Compensation Determination Plan, is then prepared to describe how the monies will be used to restore, rehabilitate, replace, and/or acquire equivalent (equal or in-kind) resources. The Navy prefers restoration to compensation.

Note that the Navy would only go through the NRDA process in the event that there was a release or spill onto Navy property by a non-Navy PRP. Under typical IR Program cleanup activities, the RPM *should not* be conducting any of the NRDA phases.

5.6.2 The NOAA Regulations for NRDA

Under the OPA, the President has delegated NRDA responsibilities to the DOC. Within the DOC, NOAA has the NRDA responsibilities, and it issued its NRDA regulations at [15 CFR 90](#). The OPA NRDA regulations identify a 3-phase process for assessing damages and restoring injured resources: the Preassessment Phase, the Restoration Planning Phase, and the Restoration Implementation Phase.

The Preassessment Phase is first conducted to determine if:

- there is jurisdiction to pursue restoration under OPA on the basis of the nature of the release,
- resources have been or are likely to be injured from the spill or release,
- response actions have not or are not expected to address the injuries resulting from the release, and
- feasible restoration actions exist to address potential injuries.

If the results of the preassessment indicate that there is jurisdiction to pursue restoration, then the Restoration Planning Phase is initiated. This phase includes the determination and quantification of the natural resource injury, development and evaluation of restoration alternatives, and development of restoration plans. Natural resource restoration is then implemented via the Restoration Implementation Phase.

5.7 Incorporating Trustee Concerns in the Cleanup Process

A number of regulatory drivers identify the need to incorporate Trustee concerns into the cleanup process to the extent practicable. CERCLA identifies that at sites with multiple Trustees, Trustees should coordinate and cooperate in carrying out their joint responsibilities (40 CFR Section 300.615(a)). The DoD Policy (see the DERP Guidance Manual), the Navy Policy for Conducting ERAs, and the Navy/Marine IR Manual identify the need to consider other Trustee concerns as early as possible into site cleanup activities, and incorporate their concerns and issues into the cleanup process as appropriate.

The goal of this early consideration of Trustee concerns and issues is to minimize potential conflict between the Navy and other Trustees over injuries and restoration, thus minimizing the likelihood of a formal NRDA at the site. When the Navy is the CERCLA lead agency, and there are other Trustees potentially affected by the Navy's releases, it is to the benefit of the Navy to incorporate Trustee concerns and issues into the cleanup

process (specifically the ERA and RD/RA processes) as early as possible and to the extent possible and practicable.

Incorporating other Trustee concerns and issues into site characterization and risk assessment activities may make it possible to collect site-specific data that will satisfy other Trustees that there are no impacts to their Trust resources. Incorporation of Trustee concerns may also lead to the development of remedial alternatives that include measures to protect and/or restore natural resources, thereby addressing Trustee concerns and satisfying Trustee responsibilities without the need to enter into a formal NRDA process.

Although DoD and Navy policy specify that Trustee concerns be incorporated into the cleanup process, Trustee concerns and issues should not be allowed to dominate the cleanup process. It is important to keep in mind that within the Navy cleanup program, it is the Navy that is the lead agency, and it is the Navy (as lead agency) that makes all final decisions regarding cleanup and restoration.

6.0 Assistance with Regulatory Issues

The following resources are available to provide assistance in addressing questions or issues related to the CERCLA, DERP, or other environmental regulatory drivers to natural resources and NRDA.

Navy and Marine Environmental Counsel: [Click here](#) for a listing of Navy and Marine Environmental Counsels and the DoD Regional Environmental Coordinators.

The Navy/Marine Corps Installation Restoration Manual: To view or download the IR manual, go to http://erb.nfesc.navy.mil/erb_a/restoration/irmanual.pdf

EPA Superfund Program: These sites provide national and region-specific information on the EPA Superfund Program, CERCLA, SARA, and the NCP. Information on these sites includes, but is not limited to, regulatory information, guidance, guidelines, tools, and databases.

Headquarters:	http://www.epa.gov/superfund
Region 1:	http://www.epa.gov/region01/remed/superfund/index.html
Region 2:	http://www.epa.gov/region02/superfnd/superfnd.htm
Region 3:	http://www.epa.gov/reg3hwmd/index.htm
Region 4:	http://www.epa.gov/region4/wastepgs/sf/supfnd.htm
Region 5:	http://www.epa.gov/R5Super/
Region 6:	http://www.epa.gov/earth1r6/6sf/6sf.htm
Region 7:	http://www.epa.gov/region07/programs/spfd/spfd.html
Region 8:	http://www.epa.gov/region08/sf/sf_home.html
Region 9:	http://www.epa.gov/region09/waste/
Region 10:	http://www.epa.gov/r10earth/index.htm

EPA National Center for Environmental Assessment: This site includes guidelines and tools for conducting ERAs, information on human health and ERAs, and EPA case studies. <http://www.epa.gov/ncea/>

NRDA-Related Information: These sites provide a range of information regarding Trustees and the NRDA process. When viewing this information, keep in mind that the sites present information from the point of view of the host (e.g., EPA's or NOAA's views on Trustees).

EPA Superfund Program – Natural Resource Damages (NRD)-Specific Information:
<http://www.epa.gov/superfund/programs/nrd/index.htm>

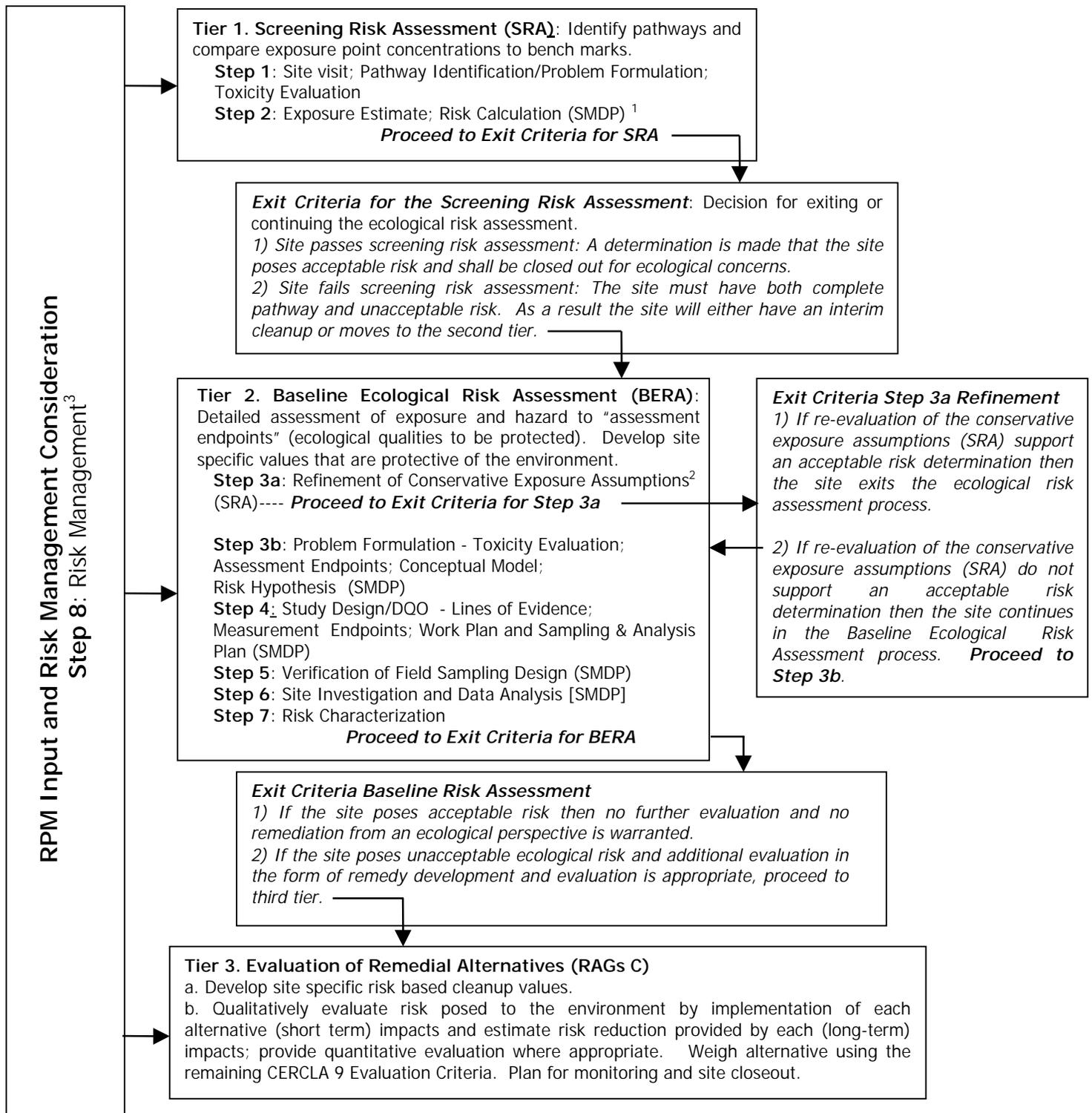
NOAA Damage Assessment and Restoration Program (DARP):
<http://www.darp.noaa.gov/>

National Marine Fisheries Restoration Center:
<http://www.nmfs.gov/habitat/restoration/nspage.html>

U.S. Department of the Interior Fish and Wildlife Service (FWS) Environmental Contaminants Program:
<http://www.fws.gov/r9dec/nrdar/nrdamain.html>

DOI – Natural Resource Damage Assessment Model for Coastal and Marine Environments (NRDA/CME):
<http://www.doi.gov/oepec/oepecbb.html>

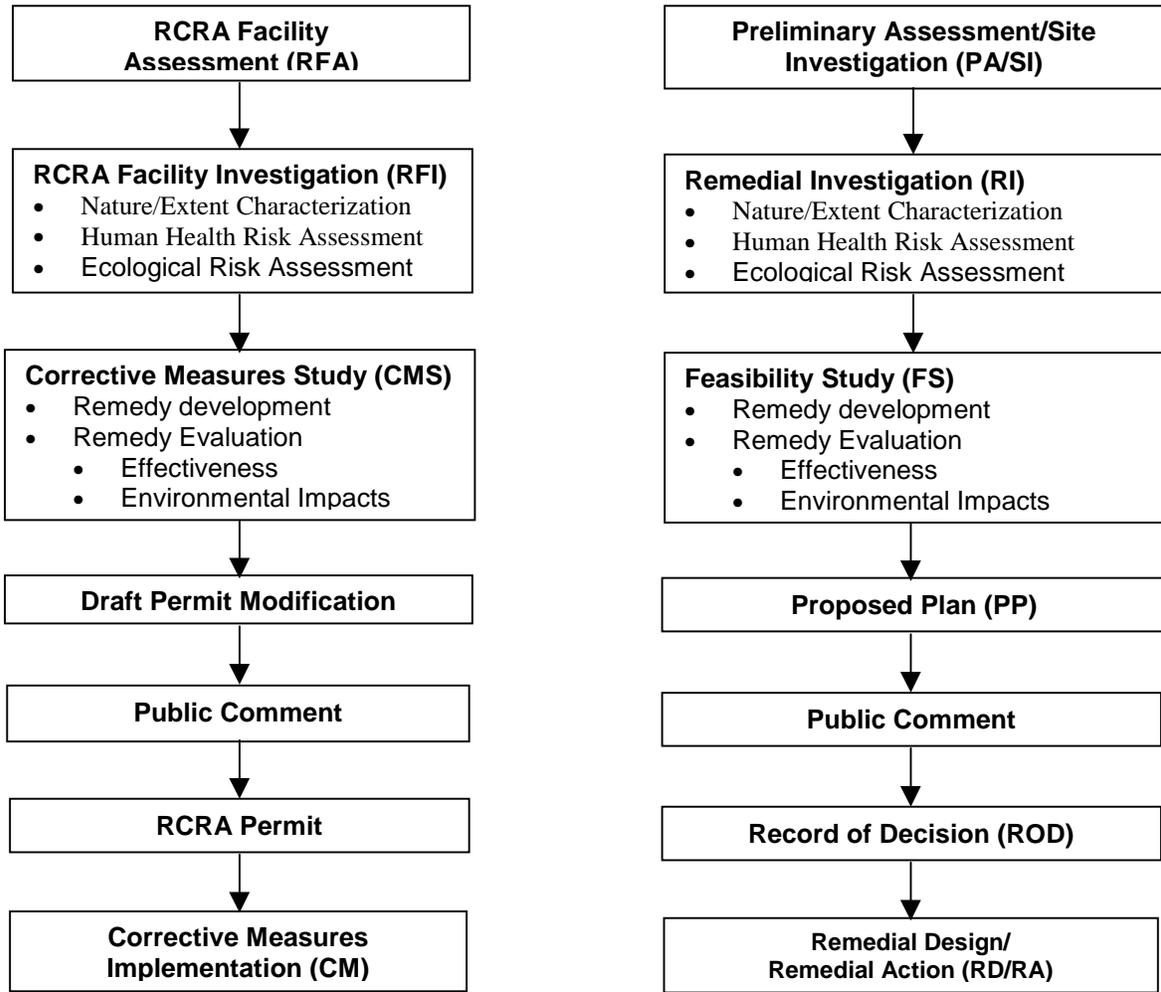
Figure 2.1 Navy Ecological Risk Assessment Tiered Approach



Notes:

- 1) See EPA’s 8 Step ERA Process for requirements for each Scientific Management Decision Point (SMDP).
- 2) Refinement includes but is not limited to background, bioavailability, detection frequency, etc.
- 3) Risk Management is incorporated throughout the tiered approach.

Figure 2.2 Comparison of the RCRA and CERCLA Processes



Note that RCRA addresses releases from operating facilities while CERCLA addresses uncontrolled releases from inactive sites. Both processes require an evaluation of risks to human health and the environment (ecological resources).