

LIFE

CYCLE

ASSET

MANAGEMENT

**GOOD PRACTICE GUIDE
GPG-FM-021**

Environmental Interfaces

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1. INTRODUCTION 1

 1.1 Environmental Resource Structure 2

 1.2 Graded Approach Not Applicable to Environmental Laws 4

2. PRINCIPLES AND PROCESSES 5

 2.1 Environmental Considerations 5

 2.1.1 Governing Laws 5

 2.1.2 Environmental Expertise on Project Teams 6

 2.2 Selection of Environmental Regulations 6

 2.2.1 DOE Facilities with Nuclear or Radioactive Components 7

 2.2.2 Order of Precedence 8

 2.3 Environmental Integration by Project Phase 9

 2.3.1 Pre-conceptual Activities 9

 2.3.2 Conceptual Phase 9

 2.3.3 Execution Phase 11

 2.3.4 Acceptance Phase 12

 2.3.5 Close Out Phase 12

 2.4 Environmental Interfaces 12

 2.4.1 Clean Air Act (CAA) 13

 2.4.2 Clean Water Act (CWA) 13

 2.4.3 Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) 15

 2.4.4 Emergency Planning and Community Right-to-Know Act (EPCRA) ... 16

 2.4.5 Federal Facility Compliance Act (FFCAct) 16

 2.4.6 Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) 17

 2.4.7 National Environmental Policy Act (NEPA) 18

 2.4.8 Occupational Safety and Health Act (OSH Act) 20

 2.4.9 Oil Pollution Act (OPA) 22

 2.4.10 Pollution Prevention Act (PPA) 23

 2.4.11 Resource Conservation and Recovery Act (RCRA) 25

 2.4.12 Safe Drinking Water Act (SDWA) 26

 2.4.13 Toxic Substances Control Act (TSCA) 27

3. MEASURING FOR RESULTS 29

4. SUGGESTED READING AND BIBLIOGRAPHY 31

5. ACRONYMS 39

6. DEFINITIONS 45

7. ASSISTANCE 47

8. RELATED TRAINING 55

Attachment 1: Environmental Worksheet for Project Management 57

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1. INTRODUCTION

DOE Order 430.1 stresses a corporate approach to facilities management to ensure that mission needs and requirements are systematically assessed and met in a "value-added, quality driven, graded approach to life-cycle asset management." In the performance of its principal missions, DOE recognizes its responsibility to understand and comply with applicable environmental requirements as an element of the overall management of its facilities and assets. The objective of this guide is to assist the entry- or mid-level field manager in understanding sound practices in achieving environmental compliance as a part of total facility management strategy.

Environmental requirements, as is the case with all other critical mission requirements, need to be managed in a systemic way to ensure compliance throughout the life-cycle of the project. This guide stresses the need for the facility manager to ensure that environmental management systems and engineering controls are established within their respective program organizational structures to address environmental issues. The environmental organizational component must have defined processes to assess, design for, and implement environmental requirements on a real time basis as the mission of the project/facility is being performed.

Intended for the entry- or mid-level manager within DOE, who is still learning the basics of project management, the intent of this guide is not to make an instant environmental expert of the project manager, but to emphasize that environmental compliance is critical to the successful completion of their projects. Further, project and operations managers must be aware that the possibility of both organizational and individual liability, at both civil and criminal liability levels, exists for every aspect of project management and its interfaces with all regulatory compliance. Although use of this guide is discretionary, it is essential that project managers maintain compliance with environmental regulations, using best management practices.

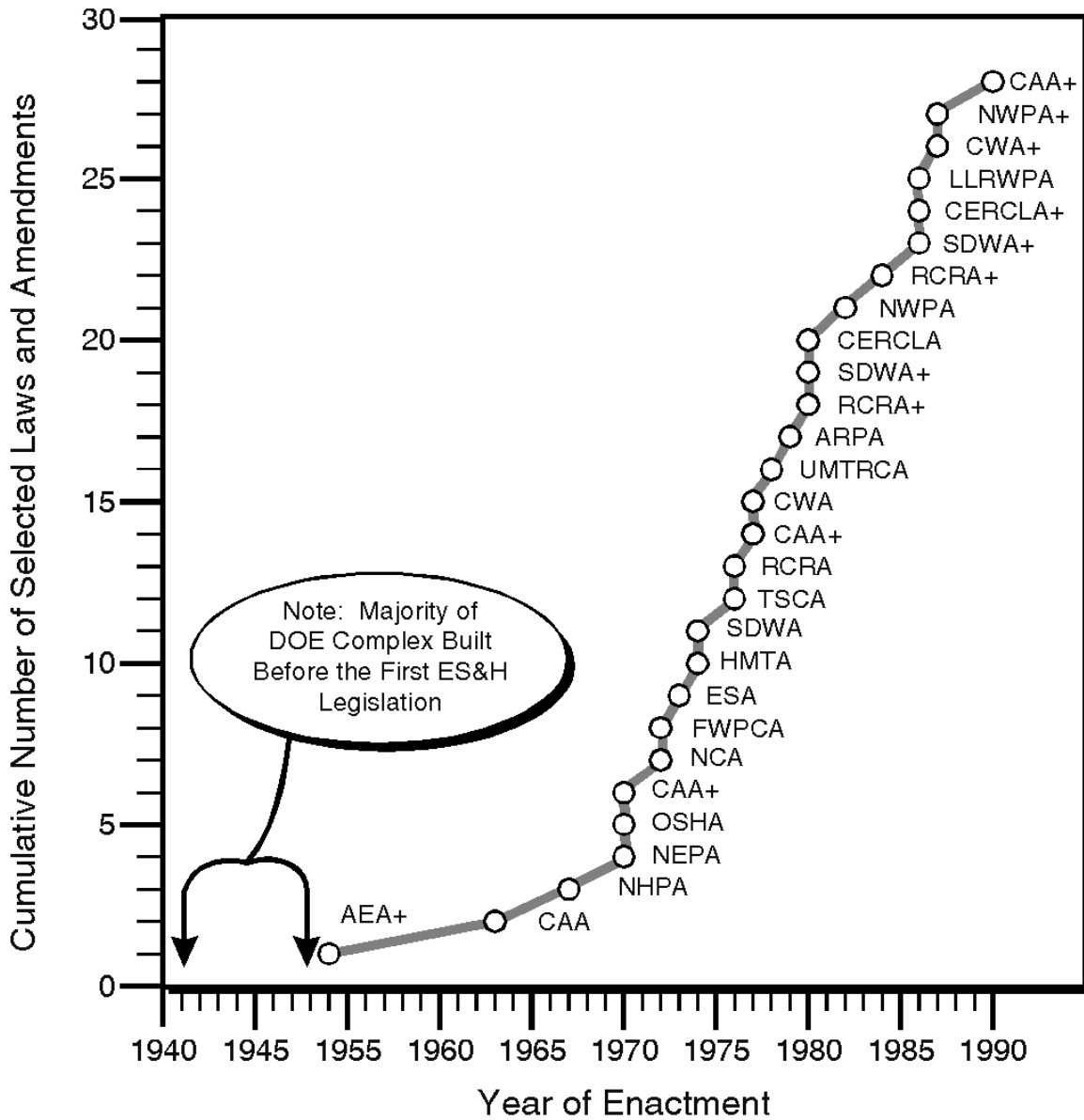
Regulatory environmental requirements can seriously affect a project manager's ability to control project cost and schedule, which includes the requirement to ensure that proper environmental documentation is created and approved over the life of a project. The challenge for project managers is to integrate and coordinate these activities to prevent or minimize adverse effects to the project's cost and schedule. However, project managers' environmental responsibilities should not be focused on generation of environmental documentation. Project managers share the Department's responsibility to integrate the environmental considerations with other project management planning at the earliest possible time to insure that planning and decisions reflect environmental values, and to avert potential conflicts. As an example, the National Environmental Policy Act (NEPA) process can not only influence project management considerations by helping to define alternatives to avoid or minimize adverse environmental effects that could jeopardize mission success, but can also be used as a decision-making tool.

“Necessary and sufficient”, “due diligence”, and “defensible documentation” are terms from environmental laws that project managers should not take lightly. They should cause any project manager attempting to maintain a balance between responsible financial outlay and the avoidance of liability damages (especially environmental) to ask “Have I done enough?” and “Have I missed anything?” How well these questions are answered is determined in large part by how completely and accurately project managers have integrated the relevant environmental requirements and values into a specific project. However, many project managers have little or no training in environmental concerns and issues. Many are simply overwhelmed by the myriad of environmental laws and regulations. Figure 1, adapted from the *Nuclear Weapons Complex Reconfiguration Study*, illustrates the rapid proliferation of environmental, safety, and health legislation. This guide provides project managers with a basic understanding of the environmental laws applicable to project life-cycle management. It also improves the project manager’s awareness of the environmental laws to facilitate more effective and efficient integration into project planning and management.

Accordingly, program or project managers may use this guide when any federal activity may have an impact on the environment or human health and safety. DOE Order 430.1(6)(j) states that DOE elements shall ensure that all applicable Federal, state, and local laws and regulations are followed in the acquisition, operation, maintenance, and disposition of physical assets. This guide is useful in determining which of the many environmental regulations may be applicable to a project under consideration. It applies to any project category such as Strategic Systems, Line Item Projects, operating Expense Funded Projects, or General Plant Projects. This guide would be helpful for new projects that involve construction on a pristine site, continuing activities and maintenance and operations (M&O), cleanup of a contaminated site, or decontamination and decommissioning (D&D) of a facility. If a project involves cleanup of a site prior to construction, however, the process of identifying and coordinating environmental requirements becomes more complex. When doubt about the applicability of environmental statutes and requirements arises, consult with the Office of Environment, Safety and Health. The results of meeting the requirements of appropriate environmental laws should provide the "necessary and sufficient" and "defensible documentation" that will demonstrate "due diligence" in environmental compliance.

1.1 Environmental Resource Structure

No generic guide can provide detailed organizational structures, but two typical organizational structures currently implemented at various locations include:



+	Amendment to An Original Act	LLRWPA	Low Level Radioactive Waste Policy Act
AEA	Atomic Energy Act	NCA	Noise Control Act
ARPA	Archaeological Resources Protection Act	NEPA	National Environmental Policy Act
CAA	Clean Air Act	NHPA	National Historic Preservation Act
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act	NWPA	Nuclear Waste Policy Act
CWA	Clean Water Act	OSHA	Occupational Safety and Health Act
ESA	Endangered Species Act	RCRA	Resource Conservation and Recovery Act
FWPCA	Federal Water Pollution Control Act	SDWA	Safe Drinking Water Act
HMTA	Hazardous Materials Transportation Act	TSCA	Toxic Substances Control Act
		UMTRCA	Uranium Mill Tailings Radiation Control Act

- an environmental division within the technical design authority or department; or
- a separate environmental department with integrating responsibilities.

The project/facility manager an organizational structure designed to achieve compliance with environmental requirements.

1.2 Graded Approach Not Applicable to Environmental Laws

Project elements subject to grading are determined by assessment of the project's technical, safety and health, environmental, schedule, cost, and other risks. Elements specified by law, such as environmental laws, or other binding agreements, however, cannot be graded. One responsibility of the program manager is to identify or develop a set of environmental measures that, when implemented, will provide reasonable assurance that the health and safety of the workers, public, and environment will be protected during the performance of work. This process should begin by assessing the work to be performed on the project, analyzing the environmental risks involved with the work, and then determining the environmental regulations that apply to those risks.

2. PRINCIPLES AND PROCESSES

2.1 Environmental Considerations

2.1.1 Governing Laws

Knowledge of applicable federal, state and local environmental regulations that have an impact on a project is vital if environmental considerations are to be successfully integrated into a project in a cost effective manner. The following is a list of the thirteen federal Acts that are most common to projects in general. Since describing every federal Act and the multitude of specific environmental laws in force at state and local levels is impossible, this guide focuses on the "top 13" as indicated in Table 1.

Table 1. ENVIRONMENTAL ACTS AS APPLIED TO DOE FACILITIES
Clean Air Act (CAA)
Clean Water Act (CWA)
Comprehensive Environmental Response, Compensation and Liability Act (CERCLA)
Emergency Planning and Community Right-to-Know Act (EPCRA)
Federal Facility Compliance Act (FFCA)
Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA)
National Environmental Policy Act (NEPA)
Occupational Safety and Health Act (OSH Act)
Oil Pollution Act (OPA)
Pollution Prevention Act (PPA)
Resource Conservation and Recovery Act (RCRA)
Safe Drinking Water Act (SDWA)
Toxic Substances Control Act (TSCA)

If hazardous or mixed waste or materials are to be transported outside the confines of the site, the special requirements of the Hazardous Materials Transportation Act (HMTA), as well as any applicable state or local regulations, must be considered, also.

2.1.2 Environmental Expertise on Project Teams

Project managers' ability to *manage* the regulatory atmosphere surrounding a project is one key to project success. The word "manage" was chosen carefully, since to control rather than manage this environment is not only futile but extremely risky. To attempt to control or manipulate today's environmentally conscious and sensitive public, for example, is likely to turn a poorly informed project skeptic into an embittered project opponent. Unfortunately, the mere integration of environmental regulations in the project planning is not likely to be sufficient. Each environmental process has elements that may be unpredictable, cause schedule slippage, and impact cost.

At different stages, projects are subject to a variety of laws and regulations at the local, state, and federal level. To a certain extent this is true for virtually any project, large or small, undertaken in the DOE. Compounding the project manager's dilemma is that depending on the complexity of the project, a particular Act may or may not apply at any one specific phase. To minimize adverse impacts on project performance, project managers should include people on the project team who have expertise in environmental matters, as well as individuals who are skilled in legal analysis of environmental laws, public affairs, and public relations. Project managers should take advantage of available environmental expertise, as these persons should be cognizant of current federal, state, or local regulations, and any changes to them.

Selecting and implementing the environmental interfaces within the life cycle of a project requires consistent and open communication, and teamwork between the project manager and the environmental and legal professionals who are most knowledgeable with each of the regulatory options. Ultimately, the project manager bears the responsibility for making certain that the proper environmental documentation is in place. However, environmental professionals should provide the informed recommendations applicable to a specific project, as well as maintaining mandated procedures and records.

2.2 Selection of Environmental Regulations

To assist project managers in determining which environmental statutes are applicable for a specific project, the following information offers guidelines for determining priority. This information is only provided as guidance and is not meant to be comprehensive. Project managers should not exclude any Executive Order (E.O.), federal statute or regulation from consideration on the basis of this information alone, and all applicable state and/or local statutes or regulations must also be considered, as state or local regulations may have primacy.

2.2.1 DOE Facilities with Nuclear or Radioactive Components

Many DOE sites are not considered nuclear; however, project managers should be aware of the "top seven" statutes applicable to DOE nuclear facilities, as determined by the Advisory Committee on External Regulation of DOE Nuclear Safety. Table 2 has been provided to assist project managers in determining which of the federal Acts may be applicable to their specific projects at DOE facilities with nuclear or radioactive components. The table was adapted directly from an Advisory Committee on External Regulation of DOE Nuclear Safety table, and indicates primacy, function, and the hazards covered. It should be noted that this table does not include NEPA, FFCA, or EOs, all of which are applicable to DOE sites.

Table 2 MAJOR STATUTES AS APPLIED TO DOE NUCLEAR FACILITIES			
Statute	Implemented By	Function	Hazard Covered
AEA	DOE	All safety	All hazards
	DNFSB	Defense Facility Safety	Nuclear Hazards
	NRC EPA	Radiation Safety	Radionuclides
OSH Act	DOL/OSHA	Worker health and safety	Occupational hazards
CERCLA	EPA	Cleanup of hazardous substances	Radionuclides and chemicals
RCRA	EPA or State	Management of hazardous wastes	Chemical and natural radionuclides
CAA	EPA or State	Control of air emissions	Radionuclides and chemicals
CWA	EPA or State	Control of effluents to water	Chemical and natural radionuclides
SDWA	EPA or State	Drinking water and groundwater protection	Radionuclides and chemicals

A project manager should be aware that a facility need not contain a nuclear inventory during design and construction to be placed on the nuclear facility list. The key factor for determining the appropriate classification for a facility during design and construction is the facility mission when it goes into service. If the facility will be classified as category 3, 2, or 1 as defined in the DOE standard, or under Quality Assurance requirements, it

should be identified as a nuclear facility and included in the nuclear facility list, subject to the Price-Anderson Amendment Act (PAAA).

2.2.2 Order of Precedence

All environmental laws and regulations are important with regard to compliance. However, the process of determining which of those may be applicable for a particular DOE project is a continuum, ranging from easy to very difficult, depending of the project itself. Integrated compliance should be stressed, as opposed to a series of unrelated or uncoordinated compliance paths, and the following guidelines may be helpful in determining which of those to review first.

NEPA takes precedence because it is a statement of national policy, and is required to be implemented relatively early in the process because an extended period of time may be expended (i.e., the time required to prepare and obtain approval of an environmental impact statement if one is required). DOE must consider the environmental impact(s) of a proposed project and decide if it qualifies for a Categorical Exclusion (CX), or whether it is necessary to prepare an Environmental Assessment (EA) or Environmental Impact Statement (EIS). When preparing the NEPA documentation, the requirements under CAA; CWA; SDWA; EPCRA; PPA; Executive Orders 11988 (floodplain management), 11990 (wetlands), 12114 (environmental effects), 12898 (environmental justice), and threatened and endangered species; *et al.* must also be considered.

Identification of which statutes to include in the NEPA review will depend on the proposed action and alternatives under consideration for a project. For example, this may include construction on pristine site; D&D of a facility; or cleanup of a contaminated site prior to release or sale. Both NEPA and CERCLA are considered as "umbrella" statutes for DOE projects. The 1994 Secretarial Policy on NEPA for DOE essentially names CERCLA the umbrella statute for cleanup at Superfund National Priority List (NPL) sites, with NEPA values incorporated into the CERCLA documents.

Under the construction scenario, the following Acts should be given consideration first: CAA; CWA; SDWA; PPA; Federal OSH Act requirements (E. O. 12196, 60 FR 34851, and 29 CFR § 1960); and EPCRA (under SARA; E. O. 12856); along with the Endangered Species Act (ESA) and the National Historic Preservation Act (NHPA), neither of which are discussed in this document.

Under D&D or cleanup scenario the following should be given consideration first: Federal OSH Act requirements; FFCAct (if mixed waste is an issue); RCRA; CERCLA; TSCA (depending on substances involved). Of secondary consideration are: PPA; CAA; CWA; SDWA.

The project or operations manager is cautioned that the lists of environmental statutes discussed here are not all inclusive, and other requirements crucial for the success of the project should not be ignored. Working with the environmental and regulatory staff available at the site and at headquarters will help ensure that all federal, state, and local regulations are met.

2.3 Environmental Integration by Project Phase

To better control Departmental resources in achieving its goals, DOE organizes its project management activities into pre-conceptual activities, which occur prior to the formal start of a project, and five project phases: conceptual; execution; acceptance; operations; and close-out. Typically, all of these, with the exception of the operations phase, are considered Project management. The operations phase applies only when operations are included as a distinct part of a project in the planning documents, as typified by environmental restoration projects; otherwise, this portion may be turned over to an M&O contractor, and is considered as Operations management. Proper environmental planning is critical to project management. When any project is launched, the legal and regulatory requirements can become very significant. Project and maintenance/operations managers should strive to continuously integrate the environmental considerations into all phases of a project life cycle.

2.3.1 Pre-conceptual Activities

A preliminary environmental strategy should be part of the mission-need documentation. This strategy should address pollution prevention (P2), waste management, and recommendations for NEPA documentation. One of the earliest actions in the planning process is to identify at which points in the project life cycle to perform an environmental analysis. Environmental reviews, revisions, or updates should be performed at least once during each project phase, preferably at the beginning of the phase. *The complexity and size of the project are key factors in determining when to perform the “initial” analysis, how often to review and update the analysis, which elements to review and to what depth.* The development of environmental analyses will greatly depend on the availability of an appropriate level of engineering detail.

2.3.2 Conceptual Phase

This phase presents a unique opportunity to address and resolve environmental impacts in an integrated and proactive manner. The NEPA review should start as soon as possible in the project planning process when a proposed action has been adequately defined. Careful attention to the legal and regulatory requirements during planning will provide the project manager with important data to assure protection of the environment and to identify any

considerations that could significantly impact the project. The NEPA process usually begins with a NEPA determination (e.g., CX, EA, EIS).

Typically, conceptual design documentation is produced during this phase to provide a comprehensive analysis and detailed assessment of the proposed project leading to the project execution. Site selection is generally part of the conceptual design documentation because siting is an especially critical juncture for environmental considerations; environmental constraints could dictate the relocation or cancellation of the project. Alternatives, including alternative sites, must be analyzed in the NEPA document prior to any selection of a site. For instance, a preliminary siting and environmental assessment may discover that the site for the facility under consideration is in a wetlands or contains a population of an endangered or threatened species or in some instances, the critical habitat required by an endangered or threatened species. The project manager may decide that it would be more prudent and cost-effective to re-site the facility. Analysis of alternatives in the NEPA document provide the framework for comparing alternative sites.

Initiation of preliminary environmental or NEPA analysis is essential to determining site viability. The objective of this analysis is to identify applicable federal, state, and local environmental statutes affecting a project. An environmental analyses includes performing an impact study to determine the adverse effects on the environment during the entire life-cycle of the project. In some cases, project managers may not be able to conduct a thorough and comprehensive environmental analyses to identify “all” applicable statutes until a more engineering detail is available (e.g., completion of preliminary design). In such cases, the environmental analysis continues into the execution phase and should be completed before initiating detailed design.

The NEPA process requires consideration of alternative approaches to a proposal and to mitigate any adverse environmental impacts. Projects should not proceed to the execution phase without consideration and resolution of applicable NEPA requirements. As a result, the NEPA determination and strategy should be completed prior to the Critical Decision 2, Approval of Baseline, when DOE actively encourages public involvement by issuing a Notice of Intent (NOI) in the Federal Register to prepare an EIS. If an EA is to be prepared, DOE must notify the affected state(s) and public. DOE may initiate early public involvement by issuing an NOI during the conceptual design stages. Public scoping meetings are held at or near the proposed alternative site to provide interested stakeholders with an opportunity to comment on the proposed action. Additionally, local public meetings and other activities should be set up under the Emergency Planning and Community Right-to-Know Act (EPCRA).

Project managers should treat environmental requirements as project constraints and, as such, carefully integrate these requirements with other project activities. Engineering and

design milestones should be planned in conjunction with the environmental milestones. This should include the sequencing of environmental activities, identification of what needs to be done, when, and by whom. Project planning documentation should describe the applicability of the environmental and regulatory requirements, how to achieve compliance, and the flow of project data and analyses into the regulatory documentation. The resulting plan establishes the project requirements for obtaining applicable federal, state, and local government permits, licenses, and regulatory approvals. The environmental considerations of the plan should be considered during the System Requirements Review (SRR) and System Functional Review (SFR) to verify that environmental activities have been sufficiently integrated into project planning to begin the next phase of the project.

Interim approvals or permits may not be possible during the planning stages of a project, which may delay subsequent project execution activities pending receipt of the necessary approvals. Early discussions with the regulatory authorities may easily avert delays and allow resolution of issues that could affect the facilities and actions within a project. Bringing both the federal and state environmental protection agencies into the early project development stages is not only a good strategy, but a requirement in certain situations.

2.3.3 Execution Phase

The execution phase is one of the most activity-laden phases of project management. During this phase, preliminary design, detailed design, construction, or remedial design and remedial actions take place. At this time, teamwork between the project manager and environmental professionals is particularly important to demonstrate and maintain compliance with the prescribed environmental requirements. A major responsibility of the project manager is to ensure the project team reviews the project designs and plans for compliance to applicable environmental laws; conducts human health and environmental risk analyses; and completes the environmental documentation needed to decide on a proposed project or start construction.

The project manager should carefully integrate the requirements of NEPA with the appropriate stage of the project development and complete a Finding of No Significant Impact (FONSI), an EA, or an EIS with a corresponding Record of Decision (ROD). By law, completion of the required NEPA documentation must occur prior to any alternative selection so subsequent project decisions will reflect the environmental considerations. Compliance with the NEPA process allows public participation and requires consideration of alternatives and mitigating measures.

Previously identified environmental requirements are again scrutinized while reviewing the risk handling approach. The results of these analyses are used in evaluating trade study alternatives and system effectiveness assessments for the project. Any analyses performed as part of a project alternatives evaluation and selection should be integrated with activities that support NEPA documentation. An alternative may not be selected if it has not been analyzed in the NEPA document.

Execution of the environmental activities in accordance with project planning should facilitate the timely compliance with applicable federal, state, and local laws to ensure other project activities occur on schedule. Regulatory compliance activities should facilitate coordination with regulatory agencies to ensure expedient issuance of licenses, permits, etc. A uniform and consistent methodology and program should be implemented to demonstrate compliance with the mandates of the federal environmental laws and regulations, regulatory requirements of the EPA, federal health and safety regulations, applicable DOE orders, and applicable state and local regulations and agreements.

2.3.4 Acceptance Phase

During acceptance (or transition to operations), the M&O organization may accept beneficial occupancy and take ownership of project documentation. Typically, part of the documentation transferred from custody of the project organization to the operating organization is the environmental and safety documentation. The Operational Readiness Review (ORR) may be used to determine that the as-built system conforms with regulatory (operational and environmental) documentation.

2.3.5 Close Out Phase

During close out of the project, the project manager may complete documentation for alternative use studies, decommissioning planning, and permits, licenses, or other environmental documentation. The regional EPA and the various State agencies that have been monitoring compliance for the project throughout will continue to require compliance activities and documentation. Most likely, the project manager handling close out is not the one who began the project. Therefore, the project manager responsible for closeout should quickly establish the environmental and legal teamwork needed to expedite this portion of the life cycle of the project with minimal complications.

Once that project construction has been completed or taken to a point that meets health, safety and environmental conditions and physical and financial close-out activities are complete, project termination is considered complete.

2.4 Environmental Interfaces

Each of the thirteen Acts shown in Table 1 will be addressed briefly. These are arranged alphabetically, and do not imply a hierarchy of importance. While these are federal laws, state or local regulations may assume primacy in enforcement; State (or local) restrictions may be more stringent, but cannot be less stringent, than federal laws to assume primacy. Additionally, applicability of the Act is determined by the specific program/project.

2.4.1 Clean Air Act (CAA)

The project or program manager should be aware that most facilities will be concerned with the CAA under the National Ambient Air Quality Standards (NAAQS), which have been established for six pollutants: sulfur dioxide (SO₂); particulate matter; carbon monoxide (CO); ozone (O₃); nitrogen dioxides (NO₂); and lead (Pb). Air Quality Control Regions, established throughout the United States based on geographic locality, are overseen by the EPA. The State will have State Implementation Plans (SIPs), and has the responsibility to assure that the air quality within its borders is maintained consistent with the NAAQS.

If the facility is to be built, air quality degradation caused by construction activities and equipment must be considered. During operations, air emissions and New Source Performance Standards (NSPS) will probably be the prevailing concerns. If an older facility is modified, NSPS may apply.

Specific pollution problems covered under the CAA include: Hazardous Air Pollutants (HAPs); acid rain; visibility protection for Class I (highest requirements; usually a consideration for places like Los Alamos National Laboratory [LANL] that are adjacent to national monuments or parks); and stratospheric ozone protection, which includes such substances as chlorofluorocarbons (CFCs) and hydrochlorofluorocarbons (HCFCs).

The CAA also requires an Operating Permit Program. Enforcement of the CAA is by the EPA, and both civil and criminal penalties are defined for corporate and individual actions.

2.4.2 Clean Water Act (CWA)

Federal laws governing discharges of wastes to surface waters date back to the 1899 Refuse Act. Several water quality laws were passed in the 1940s and 1950s in response to growing public concern with the condition of lakes and rivers; but the Water Quality Act of 1965 marked the beginning of establishing and enforcing wide water quality standards. In 1972, the Federal Water Pollution Control Act (FWPCA) contained the majority of the tools and enforcement mechanisms embodied in the present-day CWA, but lacked a detailed toxics strategy. This was corrected in 1977, with amendments to the FWPCA and a change of name to Clean Water Act. This Act established "national goals" for water

quality and a "national policy" that the discharge of toxic pollutants in toxic amounts be prohibited.

Both existing DOE sites and new projects, especially those associated with construction and laboratories, are primarily concerned with the National Pollutant Discharge Elimination System (NPDES), spill response, and enforcement portions of the CWA. NPDES mechanisms include (but are not limited to): definition of the State and federal roles; determination of effluent limitations; preventing/ reporting/response to spill; permitting; and enforcement. NPDES permits may be issued by EPA, or by the State, as authorized by the EPA. State Pollutant Discharge Elimination System (SPDES) may also be in effect for a specific site; State programs may be more stringent, but cannot be less stringent, than federal standards. Permitting can be a lengthy process, and the project/operations manager will work with the site's Permitting team to make certain that all the possible pollutants are identified and volumes estimated. A true "good practice" that is often not done is the preparation of a permitting plan.

A permitting plan is done by an environmental specialist early in the project to identify every permit that will have to be completed during the project and when it is to be submitted to the regulatory authority. Manpower requirements can also be added so that the permitting costs can be included in the overall project cost. This plan is then integrated with the overall project schedule and cost estimates.

The project/operations manager should be aware of preventing, reporting, and responding to spills during all phases of the project, but should have an established team (or teams) to deal with these types of problems. Throughout the project life cycle, spill prevention control and counter measures (SPCC) plans should be in place. The environmental team will be aware of all the requirements for the project under the CWA, such as spill notification, reportable quantities, and hazardous substances reporting, and should keep the project/operations manager informed.

Of particular interest to DOE facilities that are concerned with radioactive materials, current CWA law does not address defense-related radionuclides or their discharge to the environment. These discharges are regulated by DOE, under the authority of the AEA and the Price-Anderson Act, and are implemented through DOE Orders 5400.1 and 5400.5. (When promulgated, 10 CFR § 834 will supersede these Orders.)

Enforcement, the third primary CWA concern, is under the aegis of the EPA, but may also be controlled by the State in which the project is located. The CWA also allows for civil and criminal penalties, as well as citizen suits, for violations of the CWA.

2.4.3 Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA)

Designed to address abandoned waste sites and now known as the "Superfund" Act, the acronym "CERCLA" actually encompasses the original CERCLA regulations plus the amendments in the Superfund Amendments and Reauthorization Act (SARA). Portions of the Resource Conservation and Recovery Act (RCRA) are also closely allied with CERCLA (RCRA will be discussed in 2.4.11). CERCLA requires removal from contaminated sites of "hazardous substances", defined by reference to substances that are listed or designated under other environmental statutes, and the remediation of contaminated soils and ground and surface waters. Definitions for "hazardous substances," for example, include "hazardous wastes", "hazardous debris", "characteristic" hazardous wastes, and "listed" hazardous substances, which are found in RCRA (§ 3001); "toxic pollutants" and "hazardous substances" in the CWA (§§ 307 and 311, respectively); and "imminently hazardous chemical substances or mixtures" in section 7 of the Toxic Substances Control Act (TSCA). CERCLA is not intended as a management strategy for hazardous substances and wastes, but as a guideline for remediation, and is frequently applied during cleanup activities, which may precede construction, or may follow when a facility is demolished and the site restored. A vigilant project/operations manager will keep CERCLA in mind during all phases.

In essence, funding for the Hazardous Substance Superfund (or Superfund) was created by taxes imposed upon the petroleum and chemical industries, as well as an environmental tax imposed on corporations. These funds may be used to pay for a number of specified cleanup events, but may not be drawn on for remediation of federal facilities. Degree of contaminant severity and cleanup priority are indicated by placement on the NPL under the National Contingency Plan (NCP). Careful attention to environmental considerations during all phases of the project can help avoid an NPL listing at cleanup time. A Record of Decision (ROD) specifying cleanup standards is determined under CERCLA and risk assessment findings, as are Remedial Investigation / Feasibility Study (RI/FS) activities.

CERCLA defines release reporting requirements and reportable quantities, corporate and individual liability with attendant civil and criminal penalties, and EPA's enforcement role. Requirements for federal facilities stipulate the following:

- Sovereign immunity is waived and citizen suits are allowed.
- Federal facilities must comply with CERCLA to the same extent as any private entity.

- Hazardous waste cleanup at federal facilities are under a federal agency hazardous waste compliance docket.
- Assessment and evaluation is required if the site is listed on the NPL.

Risk assessment for both human health and the environment is often covered under CERCLA, but is also tied closely to other laws. For example, off-site transportation of radioactive materials or wastes may involve, at a minimum, DOT regulations, EPCRA, NEPA, RCRA, and HMTA, as well as CERCLA. Risk assessment, including a Baseline Risk Assessment (BRA), is also performed as part of an RI/FS for cleanup.

Should a site require cleanup prior to beginning a new project, the project manager and environmental and legal team must coordinate closely to meet all Applicable or Relevant and Appropriate Requirements (ARARs) under CERCLA.

2.4.4 Emergency Planning and Community Right-to-Know Act (EPCRA)

EPCRA is found in Title III of the 1986 Superfund Amendments and Reauthorization Act (SARA), and requires States to establish a process for developing local chemical emergency preparedness programs. The four components found in §§ 303, 304, 311, and 312 are emergency planning, emergency release notification, community right-to-know reporting, and toxic chemical release inventory (TRI) reporting. Under the Emergency Planning section, the project manager should be aware of the State Emergency Response Commission (SERC) and the Local Emergency Planning Committee (LEPC), and of certain requirements in this section. For example, comprehensive emergency response plans, which will be reviewed the LEPC, are to be developed by the site using the guidelines in EPCRA § 303. The LEPC, in turn, will use this information to formulate local emergency response systems and lines of communication. Further, any facility that produces, uses, or stores any of the substances on the EPA's List of Extremely Hazardous Substances must notify both the SERC and the LEPC. Should a release occur, the project /operations manager should be aware that the Owner/Operator of a covered facility must provide immediate notification of the release, and written follow-up emergency notice.

DOE also must report releases that occur during transportation, continuous releases, and any change in composition/source of releases, especially if there is an increase in an established continuous release. Toxic Chemical Release Inventory (TRI) under § 313 may also be required for a DOE facility. Federal compliance with EPCRA is specifically addressed in E. O. 12856, and several DOE directives and guidances are available for assistance.

2.4.5 Federal Facility Compliance Act (FFCAct)

Signed into law on 6 October 1992, the Federal Facility Compliance Act of 1992 (FFCA) consists of an amendment to Section 6001 of the Solid Waste Disposal Act to "clarify provisions concerning the application of certain requirements and sanctions to Federal facilities." This Act completely changed the way the Department was able to conduct the operations of its facilities, because all federal immunity was expressly waived, i.e., all federal facilities must conform to environmental laws (including payment of monetary fines, if levied) just as other businesses/individuals must. Federal facilities did, however, have a three-year "grace period" following passage of the FFCA for civil, criminal, and administrative fines; this period expired on 6 October 1995. Specific for DOE, this three-year waiver of sovereign immunity for the storage of mixed waste would not apply, as long as DOE had both: (1) a waste storage plan that was submitted and approved, and was in effect; and (2) an order requiring such compliance. The FFCA contains a provision that the state in which the DOE facility is located can, if the State has an "authorized hazardous waste program", conduct an inspection of the facility to enforce the facility's compliance with the State program. The EPA is required by the FFCA to conduct a comprehensive groundwater monitoring evaluation at the facility, unless such an evaluation had been conducted within the 12 months prior to passage of the FFCA; costs for this evaluation are to be borne by the facility.

Section 105, Mixed Waste Inventory Reports, has had a substantial impact on DOE facilities. Some specifics:

- Requires that the Secretary must submit two inventories (one for all mixed waste; one for all treatment capacities and technologies) to the Administrator and the Governor of each state in which DOE stores or generates mixed waste.
- Allows the States and EPA to request additional information from the Secretary.
- Amends the definition of waste under RCRA to include "the term 'mixed waste' means waste that contains both hazardous waste and source, special nuclear, or by-product material subject to the Atomic Energy Act of 1954."
- Requires the Comptroller General to submit a Government Accounting Office (GAO) report on DOE's progress in compliance with all requirements.
- Enumerates other requirements under § 105.

The Program Manager should enlist the aid of personnel with RCRA/FFCA expertise to assure that all facility-related requirements are met.

2.4.6 Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA)

The Federal Insecticide, Fungicide, and Rodenticide Act of 1972 (FIFRA) and the amendments pertaining to it, are primarily aimed at the manufacture, distribution, sale, storage, and disposal of pesticides. The term "pesticides" includes herbicides, rodenticides, insecticides, algacides, bactericides, and fungicides. These regulations impact DOE activities in that most (if not all) of the various DOE sites regularly employ the use of pesticides, both indoors and out-of-doors. A project/operations manager could conceivably require the use of pesticides during any or all of the phases associated with a project.

Although DOE does not manufacture pesticides, the Department does purchase, store, use, and dispose of pesticides in relatively large quantities. Some pesticides are also covered under RCRA; for example, 2,4-D (herbicide) is listed as D016, and 2,4,5-TP (Silvex®, a woody brush and tree herbicide) is D017. Project managers should be aware of their use in all phases of the project, and of release or disposal actions/alternatives.

2.4.7 National Environmental Policy Act (NEPA)

Aimed exclusively at Federal agencies, the National Environmental Policy Act of 1969 (NEPA) has four major purposes: "(1) to declare a national policy which will encourage productive and enjoyable harmony between man and his environment; (2) to promote efforts which will prevent or eliminate damage to the environment and biosphere and stimulate the health and welfare of man; (3) to enrich the understanding of the ecological systems and natural resources important to the Nation: and (4) to establish a Council on Environmental Quality" (CEQ). NEPA compels every Federal agency to ensure that environmental factors are considered in the decision-making process, and that environmental matters are considered as carefully as all other matters over which the agency or department has control.

For the project manager, a site, office, or Program NEPA Compliance Officer (NCO) and knowledgeable support personnel will be invaluable. Some of the DOE documents intended to assist with NEPA compliance include the CEQ Regulations Implementing the Procedural Provisions of NEPA. (It should be noted that these are changing; the Final Rule is anticipated to be out in June 1996.) DOE NEPA implementation procedures, DOE Order 451.1, and the NEPA Compliance Guide. The project manager should be familiar with NEPA terminology.

Categorical Exclusions (CXs) may be applicable to a number of DOE actions, negating the need to prepare an EA or EIS. A CX is defined as "a category of actions which do not individually or cumulatively have a significant effect on the human environment", and, thus, no EA or EIS is normally required. There is also no public comment period required. Helpful documents here include a number of DOE guides. Appendices A and B

to Subpart D to 10 CFR § 1021 lists CXs for general and specific Agency actions. Appendices A and B to Subpart D to 10 CFR § 1021 lists CXs for general and specific DOE actions.

Directions for when to prepare an EA are given in the CEQ's regulations, 40 CFR § 1501.3; an EA is not necessary if it is known that an EIS will be prepared. However, "Agencies may prepare" an EA "on any action at any time . . . to assist . . . planning and decisionmaking". Appendix C to Subpart D of DOE's NEPA regulations (10 CFR § 1021) lists types of actions that normally require EAs, but not necessarily EISs. An EA is used to determine whether to prepare an EIS or if a Finding of No Significant Impact (FONSI) can be issued. Requirements for a FONSI are found at 10 CFR § 1021.322. If a FONSI cannot be issued, an EIS must be prepared. Help with preparing EAs and EISs is readily available from your NEPA Document Manager and NEPA Compliance Officer.

An EIS is defined at 40 CFR § 1508.11 as a "detailed written statement", which documents a federal agency's analysis of the environmental consequences resulting from major federal actions. An NOI to prepare an EIS must be published in the Federal Register (FR) by DOE, and made available to the public, e.g., for the Los Alamos National Laboratory (LANL) site-wide EIS.

Scoping for an EIS requires input not only from DOE HQ and the site involved, but more importantly from the public. It is a process to determine "the scope of issues to be addressed and for identifying the significant issues related to the proposed action". Scoping should occur early in the process to determine the real issues; stakeholders and the general public are usually invited via published notices (newspapers, television and radio advertisements). Several sources for assistance with the scoping process are available.

Several documents are generated during the EIS process: an Implementation Plan (IP), which closes the scoping process; a Draft EIS, where a Notice of Availability (NOA) of the Draft is required to be published in the FR by the U.S. EPA, and a minimum of 45 days allowed for public comment on the Draft; a Final EIS, for which EPA publishes an NOA; and a Record of Decision (ROD), which is rendered and subsequently published by DOE in the FR. As an option, DOE may publish its own NOA of the Draft and Final EIS. If necessary, a Mitigation Action Plan (MAP), a "document that describes the plan for implementing commitments made in a DOE EIS and its associated ROD, or, when appropriate, an EA or FONSI, to mitigate adverse environmental impacts associated with an action" (§ 1021.104).

Classified material is sometimes included in an EIS, as a classified appendix, available for inspection only by individuals who have a "need to know", with a security clearance of the appropriate level.

The time frame for completed EA and EIS actions depends on the complexity of the project, the amount of public concern for (or against) a particular proposed action, and other factors. The Secretarial Policy on NEPA directs DOE to plan to complete EISs within 15 months.

Enforcement of NEPA is via self-enforcement; and although no outside Agency (such as EPA) is mandated to be responsible for enforcement, EPA does rate the quality of the EIS. If the rating is not high enough, it is most likely that the agency would redraft and reissue a Draft EIS. If DOE does not meet all the mandated requirements of 10 CFR § 1021 and 40 CFR §§ 1500-1508 (or if it is perceived that DOE does not or has not), DOE can and has been sued over the adequacy of an EA or EIS or a procedural error, etc.

2.4.8 Occupational Safety and Health Act (OSH Act)

The Occupational Safety and Health Act (OSH Act) was written to "assure safe and healthful working conditions", and is overseen in the commercial world by the Occupational Safety and Health Administration (OSHA). Although not considered an "environmental law", *per se*, the OSH Act regulates conditions and substances that directly affect workers' environments, and the regulation of toxic substances that also fall under RCRA, TSCA, and others.

Section 19 of the OSH Act, E. O. 12196, E. O. 12291, and 29 CFR § 1960 require Agency heads to implement occupational safety and health programs consistent with standards promulgated under section 6 of the OSH Act. Originally, 29 CFR § 1910.120 outlined training requirements for working at various types of industrial/manufacturing sites, and was addressed to the private sector only, excluding federal facilities/Agencies. On July 5, 1995, OSHA issued a final rule on Basic Program Elements for Federal Employee Occupational Safety and Health Programs (60 FR 34851), sometimes referred to as "FedOSH", amending 29 CFR § 1960 to allow the multi-employer worksite policy to be extended to the federal sector, and to incorporate into the federal program medical access provisions (29 CFR § 1910.20) and hazardous waste operations worker provisions (29 CFR § 1910.120) that previously had applied only to the private sector. Under § 1910.120, for example, workers who deal with chemicals and/or waste at DOE facilities have received, at a minimum, the initial 40-hour OSHA training, followed by annual 8-hour refresher courses. DOE Order 5483.1A, and DOE Order 231.1 which supersedes specific paragraphs in 5483.1A, are concerned with occupational safety and health programs and reporting for DOE Contractor employees at government-owned facilities.

Health standards are defined in 29 CFR § 1910 as those affecting the health or life of a worker. OSHA recognizes 25 hazard classes, divided into physical hazards and health hazards. Among the physical hazard categories are: combustible liquid; compressed gas; explosives; oxidizers; unstable (reactive) compounds; and flammable aerosols, gasses, liquids, and solids. Within the health hazards are: carcinogens; corrosives; toxic and highly toxic chemicals; target organ effects of chemicals; and toxins specific to the liver, central nervous system (CNS), blood, brain, lung, skin, eyes, and reproductive system. Cost-benefit calculations cannot be used when determining what should be incorporated into the working environment to protect workers' health and functional capacity.

Safety standards, also defined in 29 CFR § 1910, are those affecting conditions which can lead to traumatic injury or death. Examples include situations requiring Personal Protective Equipment (PPE), unsafe working and walking surfaces, use of scaffolding and temporary supports, and entry into confined spaces. A cost-benefit calculation may be made when determining what safety standards will be implemented at a particular site. Under § 1960, compliance with the applicable sections of the OSH Act is delegated to the Agency head. DOE incorporates the majority of the OSH Act regulations in many DOE Orders, Secretarial Orders, and guidance documents. DOE sites and facilities are expected to be aware of, and follow, these directives, which also provide recordkeeping requirements for occupational safety and health.

In general, no federal agency inspects another federal agency, so OSHA does not inspect DOE sites or facilities. In extreme circumstances, the Inspector General (IG) or a federal judge could order OSHA to perform an inspection at a DOE site, but this has never occurred. Inspections for compliance are the responsibility of the projects and operational managers, supervisors, and the EH and/or ES&H team members involved in the project.

Workers can refuse to work for many reasons, such as observing unsafe conditions, or feeling that they have had insufficient information and/or training to perform a particular activity. As in many other cases supporting whistleblowing, a worker is allowed to bring to the attention of others, without repercussion, such issues as unsafe conditions, insufficient training, and lack of project management support to correct reported insufficiencies.

The National Institute for Occupational Safety and Health (NIOSH) joined OSHA in 1974 to develop a series of complete occupational health standards for nearly 400 substances, primarily chemical and metallic compounds, which are presented in convenient tabular form in the NIOSH Pocket Guide to Chemical Hazards (46). This guide is used in conjunction with the 40-hour hazardous materials training under § 1910.120.

Enforcement for FedOSHA, ultimately, is the responsibility of the Secretary. Generally, at the project level, enforcement of the DOE Orders and other guidance, supporting the OSHA Act requirements is the responsibility of project management. At each of the subelements within a project, enforcement should be supported by those charged with implementing occupational safety and health standards.

2.4.9 Oil Pollution Act (OPA)

The Oil Pollution Act of 1990 (OPA) may not seem applicable to DOE sites and facilities; however, language in the OPA in concert with the Natural Resource Damage Assessment (NRDA), Natural Resource Trusteeship under CERCLA § 107(f)(2), E. O. 12580, E. O. 12777, and the National Contingency Plan (NCP) has involved DOE and other federal agencies.

The grounding of the Exxon Valdez in Prince William Sound, Alaska, in March 1989, accelerated the passage of the OPA after nearly 20 years of Congressional debate on oil pollution liability and tanker safety. Aimed primarily at spills from vessels and facilities handling petroleum and petroleum products, the OPA imposes strict liability to the federal government for clean up and removal costs. To avoid overlap between the liability provision of CERCLA, the definition of oil in OPA specifically excludes any part of oil which has been defined as a "hazardous substance" under CERCLA.

Natural resource damage liability. Although DOE is primarily concerned with the protection of the environment and the natural resources under its trusteeship, compensatory damages provisions under OPA for harm caused to natural resources, real or personal property, subsistence use, revenues, and public services must also be considered by DOE project and operations managers. Of these named categories, natural resources is the most relevant to the majority of DOE sites, and the only one that will be discussed briefly here.

Natural resources are defined at OPA § 101(2) to include "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, local government, or any foreign government, any Indian tribe . . ." This very broad definition encompasses DOE at several junctures. Under CERCLA, private individuals cannot recover damages for personal injury, property damage, or economic loss related to natural resource injuries; only natural resource trustees (such as DOE) may do so. However, the citizen-suit provision in Section 310(a) of CERCLA allows private parties to sue to enforce CERCLA requirements and/or compel federal officials to perform their duties under the law. This provision has been used to force natural resource trustees to fulfill their NRDA obligations.

Executive Order 12580 and the NCP designate the Secretaries of Defense, the Interior, Agriculture, Commerce, and Energy as Trustees, with the responsibility to assess damages for injury to, destruction of, or loss of natural resources under their trusteeship. DOE, therefore, is the Trustee for all natural resources that are on, over, or under land under its jurisdiction. In many instances, DOE is a co-Trustee with other federal Agencies; for some projects, the lead agency may be designated. Should harm occur to any of the natural resources under any Agency's trusteeship, the Department of the Interior (DOI) is charged with responsibility to assess natural resource damages under 43 CFR § 111 (59 FR 14262). "Damages", in this case, specifically means monetary fines levied against the Trustee(s), and not injury to the natural resource(s).

The Department may be affected by events occurring outside its control and jurisdiction, also, under the OPA. Should an "imminent and substantial threat" exist in an inland zone under the control of any federal Agency (including DOE), Section 6 of E. O. 12777 states that the "functions vested in the President by Section 311(e)" of the FWPCA (or CWA) "are delegated to the Administrator for the inland zone and to the Secretary of the Department in which the Coast Guard is operating for the coastal zone." For example, if an oil or gasoline spill occurs on or near the Savannah River Site, the Secretary of Energy may be expected to act in directing the necessary actions. In the event of such a spill, Section 7 states that "Federal trustees shall allocate" funds to "assess natural resources damages under Section 1006 of OPA." All "litigation arising under the Oil Pollution Act of 1990 shall be the responsibility of the Attorney General" (Section 10), although Secretaries of Departments may request that the Attorney General commence litigation.

In essence, then, the OPA does not affect DOE in many areas, since DOE is not a manufacturer/supplier/transporter of oil and oil products, such as gasoline. DOE's major concern with the OPA is that, should harm occur to any natural resources under its trusteeship, citizen suit may be brought under NRDA provisions. An important point to remember is that, as defined within NRDA, "damage" refers to monetary compensation (fines) assessed for harm caused to the natural resource(s), and is not synonymous to "harm" or "injury." Given the DOE emphasis on life-cycle asset management, natural resource damage liability is potentially a major issue for the Department.

2.4.10 Pollution Prevention Act (PPA)

Major environmental requirements for pollution prevention at federal facilities fall under four categories:

- Compliance, as outlined under the FFCA.
- Pollution prevention.

- Reporting, under SARA Title III.
- Affirmative procurement, under both Section 6002 of RCRA and E. O. 12873.

Pollution prevention and waste minimization at federal facilities is mandated by Executive Orders 12088, 12856, 12873, and the Pollution Prevention Act of 1990 (PPA).

In *Tools for Compliance* (1994), EPA defined pollution prevention as "(a)ny practice which reduces the amount of any hazardous substance, pollutant, or contaminant entering the waste stream or otherwise releases to the environment (including fugitive emission) prior to recycling, treatment, or disposal; and reduces the hazards to public health and the environment associated with the release of such substances, pollutants, or contaminant." However, several States are not satisfied with this definition, and are actively working to re-define it to include recycling.

The International Organization for Standardization (ISO), now known for the ISO 9000 and ISO 14000 series which are being implemented world-wide, agreed to change their definition of P2, which now reflects "the fact that treatment and recycling are pollution prevention options, waste can be a legitimate nonpolluting product, energy can be an input or an output, and controlling pollution is a legitimate aspect of prevention" . DOE is actively considering ISO 14001 registration (for environment management), when it becomes available, and DOE's Voluntary Protection Prevention (VPP) plan is already in effect throughout the Department.

Several States also have pollution prevention programs, definitions, and standards in place, some of which are more stringent than those in the federal regulations. Project and operations managers, therefore, should be aware that both States' and FFCA definitions of pollution prevention may be applicable, and may be different from that of the EPA.

Pollution prevention is a national policy (similar to NEPA) under the PPA, for "Congress hereby declares it to be the national policy of the United States that pollution should be prevented or reduced at the source whenever feasible; pollution that cannot be prevented should be recycled in an environmentally safe manner whenever feasible; pollution that cannot be prevented or recycled should be treated in an environmentally safe manner whenever feasible; and disposal or other release into the environment should be employed only as a last resort and should be conducted in an environmentally safe manner." This established the hierarchy of: (1) source reduction; (2) recycling; (3) treatment; and (4) disposal.

Specific Secretarial and other DOE guidance on pollution prevention/waste minimization exists, as do several highly specific pollution prevention strategies for DOE special nuclear

materials and non-nuclear weapon components. Other areas of regulation affected by pollution prevention efforts include, but are not limited to, air quality management (CAA), wastewater discharge (NPDES permits, CWA, SDWA), hazardous waste (RCRA, CERCLA), and municipal solid waste at DOE sites (all federal, state, and local requirements).

2.4.11 Resource Conservation and Recovery Act (RCRA)

The Resource Conservation and Recovery Act of 1976, the Hazardous and Solid Wastes Amendments (HSWA) to RCRA, and the voluminous hazardous and radioactive waste mandates have had a great deal of impact on DOE sites and facilities. Designed to provide "cradle-to-grave" control of hazardous waste (or hazwaste), RCRA declares that the generation of hazardous waste is to be reduced or eliminated as a matter of national policy, and imposes management requirements on owner /operators of treatment, storage and disposal (TSD) facilities, as well as generators/ transporters of hazardous waste. Of the ten subtitles, Subtitle C is the most significant, for it establishes the national hazardous waste management program. Under Subtitle C (§§ 300- 3020) are covered identification of hazardous wastes, notification procedures, generator and transporter (who must also conform to federal and state DOT regulations) responsibilities and requirements, and permitting of TSD facilities. Implementation of the RCRA hazardous waste program, including inspections and enforcement, is primarily a State responsibility, once the State program has been officially authorized by EPA. Most State programs have been so authorized.

Project managers for proposed projects that will involve mixed or radioactive wastes must also be cognizant of the many mandates and guidance documents that exist to provide assistance in dealing with these special wastes. Many of these are concerned with specific TSD issues, such as Spent Nuclear Fuel (SNF), Low-Level Waste (LLW), High-Level Waste (HLW), and transuranic (TRU) wastes.

RCRA has an extremely broad scope. For example, "solid waste" is defined both in verbiage and in regulation. Section 1004 states: "The term 'solid waste' means any garbage, refuse, sludge from a waste treatment plant, water supply treatment plant or air pollution control facility and other discarded material, including solid, liquid, semisolid, or contained gaseous materials resulting from industrial, commercial, mining and agriculture activities and from community activities but does not include solid or dissolved material in domestic sewage, or solid or dissolved materials in irrigation return flows or industrial discharges which are point sources subject to permits under section 402 of the Federal Water Pollution Control Act, as amended, or source, special nuclear, or byproduct material as defined by the Atomic Energy Act of 1954, as amended (68 Stat. 923)." Defined by regulation, solid waste is placed on one (or more) of EPA's hazardous waste

lists (40 CFR § 261): hazwaste from non-specific sources ("F" list); hazwaste from a specific source ("K" list); acute hazardous wastes (hazard code "H"); exhibiting the characteristic of toxicity ("D" list); and commercial chemical products ("P" and "U" lists). If not listed as hazardous, waste is still covered by RCRA if it exhibits any one of four characteristics: ignitability; corrosivity; reactivity; or toxicity. A project / operations manager must also be aware of the "mixture", "derived-from", and "contained-in" rules, as well as coverage under "used, reused, recycled, or reclaimed" definitions and regulatory options.

A program manager will also be aware that for a new or proposed project, a RCRA Part A permit may be required; for a working facility, a RCRA Part B permit is required. Especially important for all DOE field sites under RCRA are Subtitle D, for non-hazardous waste landfills; Subtitle I, underground storage tank management; and RCRA Corrective Action regulations, similar to those for CERCLA RI/FS activities. Because RCRA is so important and broadly encompassing, the project/operations manager and the ES&H team will need to work closely together at all phases of the project.

2.4.12 Safe Drinking Water Act (SDWA)

The 1974 passage of the Safe Drinking Water Act (SDWA) radically increased federal government control over the regulation of drinking water, and gave the EPA responsibility for its administration and enforcement. SDWA has two major purposes: (1) to ensure that tapwater in the United States is safe to drink, by setting standards that must be met by the water supplier; and (2) to prevent the contamination of underground sources of drinking water through well injection of liquids, including RCRA hazardous wastes and radioactive wastes. Groundwater protection is not limited to SDWA, as both RCRA and CERCLA also contain major portions intended to protect groundwater.

The 1986 amendments require EPA to: (1) set maximum levels for contaminants in public water systems (health-based standards); and (2) require water supply system operators to attain these standards via the Best Available Technology (BAT).

The safety of tapwater, the first purpose of the SDWA, is applicable primarily to public water systems. For this concern, then, DOE program managers need only be aware of the source(s) of drinking water for the proposed project, as it is up to the supplier of the tapwater to comply with the primary and secondary Maximum Contaminant Levels (MCLs) requirements.

The second purpose, the protection of underground sources of drinking water, is of more direct concern to the DOE program manager. In 1984, a Congressional Office of Technology Assessment report identified >200 contaminants in groundwater, many of

which were carcinogenic and/or caused central nervous system, liver, and/or kidney damage. This report stressed that pesticides, landfill leachates, and wastes previously disposed in injection wells were primarily responsible for the presence of these contaminants. DOE program managers need to be aware that the proposed project must consider groundwater issues under SDWA, CWA, RCRA, and CERCLA, and to remember that NPDES permits are issued under the CWA. A *Guide for Groundwater Protection Management Programs* for groundwater protection is being developed, which is expected to be released in mid-1997.

Responsibility for compliance, as for all the environmental laws, ultimately rests with the Secretary; however, the program manager is responsible for ensuring that all SDWA (and other groundwater protection laws) compliance measures are in place. Enforcement of the SDWA is an EPA responsibility, unless it has been granted to the State in which the proposed project will be located.

2.4.13 Toxic Substances Control Act (TSCA)

Passed in 1976, the Toxic Substances Control Act (TSCA) has been amended three times, with each amendment resulting in an additional title. TSCA's four titles are: Title I - Control of Toxic Substances; Title II - Asbestos Hazard Emergency Response Act; Title III - Indoor Radon Abatement Act; and Title IV - Lead-Based Paint Exposure Reduction Act. Title IV falls under both EPA and OSHA. Intended to apply to persons and companies that manufacture, process, distribute, use, or dispose of TSCA-regulated chemicals, TSCA primarily applies to DOE sites and facilities that are engaged in cleanup activities that have any of the six EPA specifically-regulated chemical substances: (1) asbestos; (2) chlorofluorocarbons (CFCs); (3) dioxins; (4) hexavalent chromium; (5) certain metal-working fluids; and (6) polychlorinated biphenyls (PCBs).

- Asbestos could be found at older facilities that are undergoing D&D in preparation for renovation or cleanup, in insulated pipes and in wall or ceiling insulation.
- The manufacture of CFCs has been banned (December 31, 1995) under the Montreal Protocol, and the use of CFCs in refrigeration is being phased out. DOE has taken a very proactive stance from the earliest knowledge of the ban and phaseout, and CFC management plans are in effect at all sites and facilities. CFCs are also regulated under the CAA and E. O. 12873.
- Hexavalent chromium and metal-working fluids are (and have been) in use at some DOE facilities; additionally, chromium is listed as D022 under RCRA.

- Polychlorinated biphenyls (PCBs) were used in dielectric fluids, primarily in transformers, in the past, and may be found on some DOE sites or facilities. Most (if not all) of these have been (or are in the process of being) cleaned up.

Laboratory sites or proposed Laboratory facilities that may be performing experiments using TSCA-regulated chemicals or compounds, or that are manufacturing experimental chemicals or compounds are beyond the scope of this document, and are not included in the discussion.

The project manager, therefore, will realize that there may be need to consider TSCA regulations, and continue to work closely with the team of environmental and legal professionals.

3. MEASURING FOR RESULTS

Success of a project is measured by the number of successfully completed milestones. It is difficult, however, to measure the success of environmental compliance before the completion and final closeout of the project, which may be many years ahead. One indication of success would be little or no litigation filed against the project. Another might be a high level of public acceptance. It cannot be stressed too strongly that the program managers and the environmental and legal professionals on the team must cooperate to make certain that all of the environmental interfaces within a particular project are identified, included in the program at the appropriate junctures, performed, and meticulously documented.

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- 40 § 262, EPA Regulations for Hazardous Waste Generators (May 11, 1995).
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- 10 CFR § 961, Standard Contract for Disposal of Spent Nuclear Fuel and/or High-Level Radioactive Waste, 48 FR 16599 (April 18, 1983).
- 40 CFR § 191, EPA Radiation Protection Standards for Managing and Disposing of Spent Nuclear Fuel, High-Level and Transuranic Radioactive Waste, as amended at 58 FR 66414 (December 20, 1993).
- EPA/ NRC Guidance on Identification of Low-Level Radioactive and Hazardous Waste, 52 FR 11147 (April 7, 1987).
- EPA/ DOE MOU on Responsibilities for Hazardous and Radioactive Mixed Waste Management (February 22, 1984).

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- 40 CFR § 260, EPA General Regulations for Hazardous Waste Management (May 11, 1995).
- 40 CFR § 261, EPA Regulations for Identifying Hazardous Waste (October 23, 1995).
- 40 CFR § 262, EPA Regulations for Hazardous Waste Generators (May 11, 1995).
- 40 CFR § 263, EPA Regulations for Hazardous Waste Transporters (July 1, 1991).
- 40 CFR § 264, EPA Regulations for Owners and Operators of Permitted Hazardous Waste Facilities (November 12, 1995; effective June 6, 1996).

- 40 CFR § 265, EPA Interim Status Standards for Owners and Operators of Hazardous Waste Facilities (November 13, 1995; effective June 6, 1996).
- 40 CFR § 268, EPA Regulations on Land Disposal Restrictions (May 11, 1995).
- 40 CFR § 270, EPA Administered Permit Programs: The Hazardous Waste Permit Program, under Subtitle C of Solid Waste Disposal Act, as amended by RCRA.
- 40 CFR § 271, EPA Requirements for Authorization of State Hazardous Waste Programs (November 13, 1995; effective June 6, 1996).
- 40 CFR § 279, EPA Standards for Managing Used Oil (October 30, 1995).
- 40 CFR § 300, National Oil and Hazardous Substances Pollution Contingency Plan (EPA).
- 40 CFR § 302, Designation, reportable quantities, and notification (EPA).
- 40 CFR § 307, Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) Claims Procedures, 58 FR 5475 (January 21, 1993).
- 49 CFR § 171, General Information, Regulations, and Definitions (Title 49 Transportation, Chapter 1, Subchapter C - Hazardous Materials Regulations).

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- 40 CFR § 704, Reporting and recordkeeping requirements (EPA), 53 FR 5175 (December 22, 1988) and 60 FR 31920 (June 19, 1995).
- 40 CFR § 707, Chemical imports and exports (EPA), 45 CFR § 82850 (December 16, 1980).
- 40 CFR § 710, Inventory reporting regulations (EPA), 42 FR 64572 (December 23, 1977) and 60 FR 31921 (June 19, 1995).
- 40 CFR § 712, Chemical information rules (EPA), 47 FR 26998 (June 22, 1982).
- 40 CFR § 716, Health and safety data reporting (EPA), 51 FR 32726 (September 15, 1986).
- 40 CFR § 717, Records and reports of allegations that chemical substances cause significant adverse reactions to health or the environment (EPA), 48 FR 38187 (August 22, 1983).

- 40 CFR § 720, Premanufacture notification (EPA), 48 FR 21742 (May 13, 1983).
- 40 CFR § 721, Significant new uses of chemical substances (EPA), 53 FR 28358 (July 27, 1988).
- 40 CFR § 723, Premanufacture notifications exemptions (EPA), 60 FR 16346 (March 29, 1995).
- 40 CFR § 747, Metalworking fluids (EPA), 49 FR 36855 (September 20, 1984).
- 40 CFR § 749, Water treatment chemicals (EPA), 55 FR 240 (January 3, 1990) and 59 FR 42773 (August 19, 1994).
- 40 CFR § 750, Procedures for rulemaking under section 6 of the Toxic Substances Control Act (EPA), 42 FR 61259 (December 2, 1977).
- 40 CFR § 761, Polychlorinated biphenyls (PCBs) manufacturing, processing, distribution in commerce, and use prohibitions, Section 6, P.L. 94-469.
- 40 CFR § 763, Asbestos, 52 FR 41846 (October 30, 1987).

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USEPA/NRC. 1987. Joint EPA/NRC Guidance of the Definition and Identification of Commercial Mixed Low-Level Radioactive and Hazardous Waste, 52 FR 11147, April 7, 1987.

5. ACRONYMS

AEA	Atomic Energy Act of 1954; placed production and control of nuclear materials within a civilian agency, originally the Atomic Energy Commission, now the Department of Energy, and authorizes DOE to regulate radioactive material operations at many government-owned facilities
ARARs	Applicable or Relevant and Appropriate Requirements (CERCLA)
BAT	Best Available Technology
BRA	Baseline Risk Assessment (CERCLA); an evaluation of human health impacts caused by uncontrolled (i.e., no remedial action undertaken) CERCLA site
CAA	Clean Air Act
CX	Categorical Exclusion (NEPA)
CERCLA	Comprehensive Emergency Response, Compensation and Liability Act
CERFA	Community Environmental Response Facilitation Act; enacted October 1992, CERFA amended Section 120(h) of CERCLA to require identification of uncontaminated parcels of land on federal facilities slated for closure; intended to facilitate the transfer and redevelopment of government property deemed unpolluted
CEQ	Council for Environmental Quality, an Executive office mandated by NEPA
CFC	Chlorofluorocarbons; used in refrigerant systems and as propellants
CFR	Code of Federal Regulations; all Federal regulations in force are published annually in codified form in the CFR
CNS	Central nervous system
CO	Carbon monoxide
CWA	Clean Water Act
D&D	Decontamination and Decommissioning

DNFSB	Defense Nuclear Facilities Safety Board
DoD	U.S. Department of Defense
DOE	U. S. Department of Energy
DOI	U. S. Department of the Interior
DOL	U. S. Department of Labor
EA	Environmental Assessment; written environmental analysis prepared under NEPA to determine if a federal action would significantly affect the quality of the human environment and thus require preparation of a more detailed environmental impact statement
EIS	Environmental Impact Statement; document required of Federal Agencies by NEPA for major federal actions or legislative proposals significantly affecting the quality of the human environment; used for decision making, describes positive and negative impacts of proposed action and alternatives
EPA	U. S. Environmental Protection Agency; see USEPA
EPCRA	Emergency Planning and Community Right-to-Know Act
FedOSH	Those portions of OSH Act and OSHA regulations with which federal agencies now comply
FFCAct	Federal Facilities Compliance Act
FIFRA	Federal Insecticide, Fungicide and Rodenticide Act
FONSI	Finding Of No Significant Impact (NEPA)
FR	Federal Register; published each federal working day by Government Printing Office; contains Presidential proclamations and Executive Orders, federal agency regulations, proposed agency rules, etc.
FWPCA	Federal Water Pollution Control Act
GAO	General Accounting Office

HAP	Hazardous Air Pollutant; a substance anticipated to cause either mortality or serious illness when released; regulated under CAA; the eight HAPs listed at 40 CFR § 61.01(a) are asbestos, benzene, beryllium, coke oven emission, inorganic arsenic, mercury, radionuclides, and vinyl chloride
HCFCs	Hydrochlorofluorocarbons
HLW	High-Level Waste; radioactive
H.R.	House Resolution, as issued by the House portion of the U. S. Congress
HSWA	Hazardous and Solid Waste Amendments to RCRA, 1984; added land disposal restrictions, minimum technology requirements, and expanded corrective action authorities to the RCRA statute
HMTA	Hazardous Materials Transportation Act
IG	Inspector General (of the United States)
IP	Implementation Plan (part of NEPA documentation)
LANL	Los Alamos National Laboratory, Los Alamos, New Mexico
LDRs	Land Disposal Restrictions (RCRA)
LEPC	Local Emergency Planning Committee (EPCRA)
LLW	Low-Level Waste; radioactive waste not classified as high-level waste, transuranic waste, spent nuclear fuel, or byproduct material as defined in section 11e.2 of AEA
M&O	Maintenance and Operations
MAP	Mitigation Action Plan (NEPA)
MCLs	Maximum Contaminant Levels (SDWA)
NAAQS	National Ambient Air Quality Standards (CAA)
NCO	NEPA Compliance Officer (DOE terminology)
NCP	National Contingency Plan, 40 CFR § 300

NEPA	National Environmental Policy Act
NESHAPs	National Emission Standards for Hazardous Air Pollutants, defined in CAA section 112(a)
NIOSH	National Institute for Occupational Safety and Health
NO ₂	Nitrogen dioxide
NPDES	National Pollution Discharge Elimination System (CWA)
NRC	Nuclear Regulatory Commission
NOA	Notice of Availability (of documents, published in Federal Register)
NOI	Notice of Intent
NPL	National Priority List; compiled by EPA under CERCLA Section 105, of uncontrolled hazardous substance releases in U.S.; sets priorities for long-term remedial evaluation and cleanup
NRDA	Natural Resource Damage Assessment; conducted under 43 CFR § 11, based on results of Natural Resource Damage Preassessment Screen of a release, that (1) establishes whether natural resource injury has occurred, and resulted from the release; (2) quantifies effects of the release on injury; and (3) determine financial compensation appropriate for the injury; composed of 4 phases: preassessment screen; assessment plan; assessment; and post-assessment (see DOE 5400.4); process defined by DOI at 43 CFR § 11
NSPS	New Source Performance Standards (CAA)
O ₃	Ozone
OM	Operations Manager
ONPA	Office of NEPA Policy Assistance
OPA	Oil Pollution Act
ORR	Operational Readiness Review

OSHA	Occupational Safety and Health Agency
OSH Act	Occupational Safety and Health Act
OSWER	USEPA's Office of Solid Waste and Emergency Response
P2	Pollution Prevention
PAAA	Price-Anderson Amendment Act of 1988
PEIS	Programmatic Environmental Impact Statement (as used by DOE)
P.L.	Public Law
PM	Project Manager
PPA	Pollution Prevention Act
PPE	Personal protective equipment
RCRA	Resource Conservation and Recovery Act
RI/FS	Remedial Investigation/Feasibility Study (CERCLA); <u>remedial investigation</u> is series of investigative and analytical studies usually performed simultaneously, intended to gather data, establish cleanup criteria, identify and screen cleanup alternatives, and analyze available technology and costs of alternatives; <u>feasibility study</u> undertaken by lead agency to develop and evaluate options for remedial action; also refers to a report that describes the results of the study
ROD	Record of Decision; described at 40 CFR § 1505.2; public document that explains which cleanup alternative(s) will be used at NPL sites; based on information and technical analysis generated during the RI/FS and consideration of public comments and community concerns
SARA	Superfund Amendments and Reauthorization Act
SDWA	Safe Drinking Water Act
SERC	State Emergency Response Commission (EPCRA)
SFR	System Functional Review

SIPs	State Implementation Plans (CAA)
SNF	Spent Nuclear Fuel; spent material covered under RCRA; any material that has been used and because of contamination can no longer serve the purpose for which it was produced without processing
SO ₂	Sulfur dioxide
SPCC	Spill Prevention Control and Counter measures (CWA)
SPDES	State Pollutant Discharge Elimination System (State water program)
SRR	System Requirements Review
Stat.	Statute
TRI	Toxic chemical Release Inventory (EPCRA)
TRU	Transuranic; transuranic elements are heavier than uranium, with atomic number greater than 92, e.g., neptunium, plutonium, americium, and curium
TSCA	Toxic Substance Control Act
TSD	Treatment, Storage, and/or Disposal
U.S.C.	United States Code
USEPA	U. S. Environmental Protection Agency
VPP	Voluntary Protection Program (DOE's pollution prevention program)

6. DEFINITIONS

Asbestos	Asbestiform varieties of: chrysotile (serpentine); crocidolite (riebeckite); amosite (cummingtonitegrunerite); athophyllite; tremolite; and actinolite (TSCA)
Damages	Damages for injury or loss of natural resources, under Section 107(a) or 111(b) of CERCLA; damages (legal terminology) refer to fines/monetary assessments imposed, rather than to "harm" or "injury"; see also NRDA
Groundwater	Water below the land surface in a zone of saturation; all water which occurs below the land surface; subsurface water that is in the pore spaces of soil and geologic units (SDWA, CWA, CERCLA, RCRA)
hazmat	Hazardous material; defined in section 1802 of HMTA as "a substance or material in a quantity and form which may pose an unreasonable risk to health and safety or property when transported in commerce"; hazardous materials table with more than 16,000 entries at 49 CFR § 172.101
impact	Any observable or measurable change in the environment, either positive or negative
Type A Assessment	Under NRDA; purpose of Type A assessment for environmental damages to "provide standard methodologies for conducting simplified natural resource damage assessments" (43 CFR § 11.40); decision for which type (A or B) made under 43 CFR § 11.33
Type B Assessment	Under NRDA; purpose of Type B assessment for environmental damages to "provide alternative methodologies for conducting natural resource damage assessments in individual cases"
Part A permit	Under RCRA; first part of a RCRA permit application that identifies treatment, storage, and disposal units within a to-be-permitted facility; see 40 CFR § 270, EPA Regulations for Federally Administered Hazardous Waste Permit Programs (December 11, 1995; effective June 11, 1996), especially § 270.10 - 13)
Part B permit	Under RCRA; detailed second part of a RCRA permit application that describes wastes managed, quantities, and facilities; see 40 CFR § 270, especially Subpart B

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7. ASSISTANCE

This is not an exhaustive listing, and is intended only as suggestions on where to start looking for specific help or courses. Departmental division numerals, telephone numbers, and Internet addresses listed, of course, are subject to change/cancellation.

- DOE/HQ EH-1, Assistant Secretary for Environment, Safety and Health (phone 202/586-615)
- DOE/HQ EH-4, Deputy Assistant Secretary for Environment, phone 202/586-5680
- DOE/HQ EH-10, Deputy Assistant Secretary for Nuclear Safety (phone 202/586-2407)
- DOE/HQ EH-14, Office of Nuclear Safety Field Programs (phone 202/586-0065)
- DOE/HQ EH-15, Office of Technical Support and System Management (phone 301/903-3033)
- DOE/HQ EH-16, Office of Radiological Oversight (phone 301/903-0124)
- DOE/HQ EH-41, Office of Environmental Compliance and Guidance, phone 202/586-2113
- DOE/HQ EH-42, Office of NEPA Policy and Assistance (phone 202/586-4600)
- DOE/HQ EH-221, Compliance Strategies Division (phone 202/586-5358)
- DOE/HQ EH-222, Facility Compliance Division, phone 202/586-4440
- DOE/HQ EH-412, Air, Water, and Radiation Division (phone 202/586-49960)
- DOE/HQ EH-413, RCRA/CERCLA Division (phone 202/586-6374)
- DOE/HQ EH-421, Waste Management Division (phone 202/586-4610)
- DOE/HQ EH-422, Project Activities Division (phone 202/586-2410)
- DOE/HQ EM-1, Assistant Secretary for Environmental Management (phone 202/586-7710)
- DOE/HQ EM-5, Office of Public Accountability (phone 202/586-9335)
- DOE/HQ EM-6, Office of Integrated Risk Management (phone 202/586-5042)

- DOE/HQ EM-20, Deputy Assistant Secretary for Compliance and Program Coordination (phone 202/586-8754)
- DOE/HQ EM-22, Office of Environmental Activities (phone 202/586-0338)
- DOE/HQ EM-23, Office of Safety and Health (phone 202/586-0338)
- DOE/HQ DP-34, Office of Environmental Support (phone 301/903-0470)
- DOE's Environmental Health (EH) Homepage (Internet) <<http://www.eh.doe.gov/>>
- DOE's Environmental Management (EM) Homepage (Internet) <<http://www.em.doe.gov/>>
- DOE's Science Education and Technical Information (SETI) (Internet) <<http://www.doe.gov/html/home2.html>>
- Environmental Protection Agency (EPA) (Internet) <<http://www.epa.gov/>>
- For federal laws, regulations (some searchable): Links to Federal Environmental Laws (Internet) <<http://www.aimnet.com/~ils/envIRON.htm#laws>>
- ABA Section of Natural Resources, Energy, and Environmental Law (Internet) <<http://grover.abanet.org/sonree/home.html>>
- Environmental laws at Charles Taylor's Links (Internet) <<http://www.rpi.edu/~tayloc5/>>
- National Technology Information Services (NTIS) <<http://fedworld.gov/ntis/ntishome.html>>
- Environmental Resources Information Network (ERIN), <<http://www.kaos.erin.gov.au:70/1>>
- U.S. Federal Government Agencies (list) <<http://www.lib.Isu.edu/gov/fedgov.html>>
- For various State laws: WWW Virtual Library: Law: State Government Sources <<http://www.law.indiana.edu/law/states.html>>

General DOE Environmental Directives and Assistance

- DOE Order 225.1, ACCIDENT INVESTIGATIONS (October 26, 1995)
- DOE Order 490, GENERAL ENVIRONMENTAL PROTECTION (DRAFT 03-29-95)

- DOE Policy 450.1, ENVIRONMENT, SAFETY AND HEALTH POLICY FOR THE DOE COMPLEX (June 15, 1995)
- DOE Policy 450.2, IDENTIFICATION, IMPLEMENTATION, AND COMPLIANCE WITH ENVIRONMENT, SAFETY AND HEALTH REQUIREMENTS (October 6, 1995)
- DOE. 1995. Interim Implementation Guidance on Authorization Basis. DP. (DRAFT Rev. 1 03-10-95)

CAA

- E. O. 12843 Procurement Requirements and Policies for Federal Agencies for Ozone-Depleting Substances. (04-21-93)

CERCLA

- DOE. 1993. Glossary of CERCLA, RCRA, and TSCA Related Terms and Acronyms. Office of Environmental Guidance, RCRA/CERCLA Division, EH-231. DOE/EH-0347. October 1993.

EPCRA

- E. O. 12856 Federal Compliance with Right-to-Know Laws and Pollution Prevention Requirements. 58 FR 150 (08-06-93)
- DOE Order 151.1, COMPREHENSIVE EMERGENCY MANAGEMENT SYSTEM (September 25, 1995)
- Emergency Planning and Right-to-Know (Internet)
<<http://www.econet.apc.org/hotspots/bhopal/epcra.html>>
- Federal Emergency Management Agency (FEMA), (Internet) <<http://www.fema.gov/>>

HMTA

- DOE Order 460.1, PACKAGING AND TRANSPORTATION SAFETY (October 25, 1995)
- DOE Order 560.2, DEPARTMENTAL MATERIALS TRANSPORTATION AND PACKAGING MANAGEMENT (October 26, 1995)

NEPA

- E. O. 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, 59 FR 7629 (February 16, 1994)
- CEQ. 40 CFR §§ 1500-1508, Regulations Implementing the Procedural Provisions of NEPA, 43 FR 55990 (November 28, 1978). Revised through July 1, 1991.
- CEQ. Implementation Procedures, 49 FR 49750 (December 21, 1984)
- CEQ. Guidance Regarding NEPA Regulations, 48 FR 34263 (July 28, 1983)
- CEQ. Analysis of Impacts on Prime or Unique Agricultural Lands in Implementing the National Environmental Policy Act, 45 FR 59189 (September 8, 1980)
- DOE Order 451.1, NATIONAL ENVIRONMENTAL POLICY ACT COMPLIANCE PROGRAM (October 26, 1995)
- DOE Policy 1210.1, PUBLIC PARTICIPATION (July 29, 1995)
- DOE. 1995. Application of Categorical Exclusions. ONPA. (August 8, 1995)
- DOE. 1995. US DOE Environmental Justice Strategy for Executive Order 12898. (April 1995)
- DOE. 1994. Frequently Asked Questions on DOE NEPA Regulations. ONPA. (September 1994)
- DOE. 1994. Questions and Answers on the Secretarial Policy on NEPA. (July 1994)
- DOE. 1994. Secretarial Policy on NEPA. (June 13, 1994)
- DOE. 1994. Recommendations for the Preparation of EAs and EISs. ONPA. (May 1993)
- DOE's NEPA Website (Internet) <<http://www.eh.doe.gov/nepa/index.htm>>
- Roadmap of DOE NEPA Process (Internet) <<http://www2.dp.doe.gov/MAPServe/Nepa/nepa1.html>>
- CEQ regulations for DOE, at CEQ Website (Internet) <<http://ceq.eh.doe.gov>>

- NEPA, CEQ Regulations, Endangered Species Act (ESA), and other Environmental Regulations (Internet) <<http://www.law.indiana.edu/envdec.html>>
- Environmental Impact Analysis Data Links (Internet) <http://h2o.usgs.gov/public/eap/env_data.html>

OSH Act

- DOE Order 440.1, WORKER PROTECTION MANAGEMENT FOR DOE FEDERAL AND CONTRACTOR EMPLOYEES, including Change 1 (October 26, 1995)
- DOE Notice 441.1, RADIOLOGICAL PROTECTION FOR DOE ACTIVITIES (September 30, 1995); DOE/EH-0256T, Radiation Control Manual, remains as guidance
- DOE Order 5483.1A OCCUPATIONAL SAFETY AND HEALTH PROGRAMS FOR DEPARTMENT OF ENERGY CONTRACTOR EMPLOYEES AT GOVERNMENT-OWNED FACILITIES (June 22, 1983)
- OSHA (Internet) <<http://www.osha.gov/>>
- NIOSH (Internet) <<http://www.cdc.gov/niosh.htm>>

OPA

- For NRDA information, the Natural Resources Defense Council (Internet)<<http://www.sun-angel.com/nrdc/>>
- Natural Resource Trusteeship and Ecological Evaluation for Environmental Restoration at Department of Energy Facilities. DOE/EH-092 (June 1991)

PPA

- E. O. 12856, Federal Compliance with Right-to-Know Laws and Pollution Prevention Requirements, 58 FR 150 (August 6, 1993)
- E. O. 12873, Federal Acquisition, Recycling, and Waste Prevention (October 20, 1993)
- EPA. 1994. Federal Facility Pollution Prevention: Tools for Compliance. DPA/600/R-94/154 (September 1994)

- For ISO 14000 information: ISO 14000 Links Information (Internet) <http://www.dep.state.pa.us/dep/deputate/pollprev/ISO14000/isa_links.htm>
- EPA P2 Information (Internet) <<http://wastenot.inel.gov/envirosense>>
- General P2 information (Internet) <<http://www.umich.edu/~nppcpub/general.html>>
- For P2 software, see the DOE Design for Environment (DfE)(Internet) <<http://w3.pnl.gov:2080/DFE/home.html>>

RCRA

- E. O. 12088, Federal compliance with pollution control standards, 43 FR 47707 (October 13, 1979)
- DOE Notice 441.1, RADIOLOGICAL PROTECTION FOR DOE ACTIVITIES (September 30, 1995)
- DOE. 1993. Glossary of CERCLA, RCRA, and TSCA Related Terms and Acronyms. Office of Environmental Guidance, RCRA/CERCLA Division, EH-231. DOE/EH-0347 (October 1993)
- EPA. 1994. Federal Facility Pollution Prevention Planning Guide. Office of Enforcement and Compliance Assurance. EPA/300/B-94/013 (September 1994)
- EPA. 1993. RCRA Public Involvement Manual. EPA/530/R-93/006 (September 1993)
- NRC. 1995. Joint NRC / EPA Guidance on the Storage of Mixed Radioactive and Hazardous Waste. 60 FR 40204 (August 7, 1995)
- For nuclear safety: Advisory Committee on External Regulation of DOE Nuclear Safety (Internet) <<http://www.em.doe.gov/acd/index.html>>
- Defense Nuclear Facilities Safety Board (DNFSB) (Internet) <<http://www.dnfsb.gov>>
- Nuclear Regulatory Commission (NRC) (Internet) <<http://www.nrc.gov/>>
- DOE's Civilian Radioactive Waste Management (Internet) <<http://www.rw.doe.gov>>
- DOE's Fissile Material Disposition (Internet) <<http://web.fie.com/web/fed/doe/fisl/index.htm>>

- EPA's Toxic Release Inventory (TRI), on the Internet <http://www.epa.gov/TRI_Cover93/>
- DOE/DP's course: Guide for Resource Conservation and recovery Act (RCRA): Hazardous Waste Training for Defense Programs Personnel and Contractors.

TSCA

- DOE. 1993. Glossary of CERCLA, RCRA, and TSCA Related Terms and Acronyms. Office of Environmental Guidance, RCRA/CERCLA Division, EH-231. DOE/EH-0347 (October 1993)

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8. RELATED TRAINING

Although training to meet the environmental interfaces within a proposed project has not been developed, specific courses relating to many of the environmental aspects of (completed) project management and operations have been developed and are available. Contact the DOE Area Office for the site and/or Headquarters Training personnel. At HQ, this is DOE/HQ EH-4.32 Training and Certification Division, phone 301/903-6457, located in the Germantown, Maryland, building.

- DOE Order 360.1, TRAINING (May 31, 1995)
- DOE/HQ Training Bulletin Board, accessed through cc-mail
- DOE Clearinghouse for Training, Education and Development Home Page (Internet)
<<http://cted.inel.gov/cted/>>
- DOE's EM Training and Education Network (Internet)
<<http://www.em.doe.gov/emtrain/index.html>>

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Attachment 1: Environmental Worksheet for Project Management

ENVIRONMENTAL WORKSHEET FOR PROJECT MANAGEMENT					
Environmental Statutes	Project Phases				
Major Considerations	Pre-Conceptual Activities	Conceptual Phase	Execution Phase		
			Implementation	Acceptance	Closeout
CAA					
CWA					
CERCLA					
EPCRA					
NEPA					
OSH Act					
PPA					
RCRA					
SDWA					
TSCA					
Secondary					
FFCA					
FIFRA					
OPA					

Abbreviations:

- CAA - Clean Air Act
- CWA - Clean Water Act
- CERCLA - Comprehensive Environmental Response, Compensation and Liability Act
- EPCRA - Emergency Planning and Community Right-to-Know Act
- FFCA - Federal Facility Compliance Act
- FIFRA - Federal Insecticide, Fungicide, and Rodenticide Act)
- NEPA - National Environmental Policy Act
- OSH Act - Occupational Safety and Health Act
- OPA - Oil Pollution Act
- PPA - Pollution Prevention Act
- RCRA - Resource Conservation and Recovery Act
- SDWA - Safe Drinking Water Act
- TSCA - Toxic Substances Control Act