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ENVIRONMENTAL PROGRAM OVERVIEW

FOR A

HIGH-LEVEL RADIOACTIVE WASTE REPOSITORY

AT YUCCA MOUNTAIN

December 1988

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1. INTRODUCTION

1.1 HISTORY

The United States plans to begin operating the first repository for the permanent disposal of high-level nuclear waste early in the next century. The Nuclear Waste Policy Act of 1982 (NWPA), Public Law 97-425, as amended by the Nuclear Waste Policy Amendments Act of 1987 (NWPAA), specifies the process for siting, constructing, operating, closing, and decommissioning a repository.

In February 1983, the U.S. Department of Energy (DOE) identified Yucca Mountain, in Nevada, as one of nine potentially acceptable sites for a repository. To determine its suitability, the DOE evaluated the Yucca Mountain site, along with eight other potentially acceptable sites, in accordance with the DOE's General Guidelines for the Recommendation of Sites for the Nuclear Waste Repositories (10 CFR Part 960). These evaluations were reported in nine draft Environmental Assessments (EAs), prepared pursuant to the NWPA (Section 112). The draft EAs were issued for public review and comment in December 1984. Of the nine sites evaluated, five were nominated as suitable for site characterization. Final EAs to accompany the nominations were published in May 1986. The Secretary of Energy recommended three sites, including Yucca Mountain, for site characterization. On May 28, 1986, the President approved for site characterization the Yucca Mountain site in Nevada, the Hanford site in Washington; and the Deaf Smith County site in Texas.

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On December 22, 1987, the President signed the NWPAA into law. This legislation authorized the DOE to characterize only the Yucca Mountain site for possible development of the first nuclear waste repository. During characterization, the DOE will construct deep exploratory shafts for underground testing to determine whether geologic and hydrologic conditions at the site will safely support construction and operation of a repository.

1.2 PURPOSE AND SCOPE

The purpose of the Environmental Program Overview (EPO) for the Yucca Mountain site is to provide an overview of the overall, comprehensive approach being used to satisfy the environmental requirements applicable to siting a repository at Yucca Mountain. It is important that the public, Nevada State officials, and other government officials have a clear understanding of the DOE's environmental protection policies and obligations, and of the DOE's program to meet these obligations. Because of the complexity of the regulatory framework affecting this program, the EPO will attempt to provide these interested parties with a better understanding of the basis and integrated approach of DOE's environmental program for Yucca Mountain. In an effort to provide this understanding, the EPO presents the environmental requirements applicable to the program, describes the methodology to be used to ensure that these requirements will be satisfied, and details the products or documents to be developed in the process of satisfying those requirements.

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The EPO contains the following information:

1. The DOE approach for complying with environmental program requirements (Chapter 2).
2. The environmental requirements that the Program must satisfy based on applicable statutes, regulations, and DOE Orders (Chapter 3).
3. A summary of the planning documents needed to organize and manage specific portions of the environmental program (Chapter 4).
4. A summary of the major environmental programmatic documents (Chapter 5).
5. An overview of the DOE approach towards compliance with the DOE Quality Assurance program (Chapter 6).

The EPO states how the DOE will address the following environmental areas: aesthetics, air quality, cultural resources (archaeological and Native American components), noise, radiological studies, soils, terrestrial ecosystems, and water resources. Socioeconomic and transportation programs will be identified and addressed in the Socioeconomic Program Overview, the Transportation Business Plan, and the Transportation Institutional Plan.

This EPO describes the environmental program being developed for the siting of a repository at Yucca Mountain. The environmental program for the

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Yucca Mountain site will be integrated with the preparation of the Site Characterization Plan (SCP) and other activities leading to preparation of the License Application (LA) to be submitted to the Nuclear Regulatory Commission (NRC). The SCP is scheduled for release in December 1988. Key environmental documents (such as the Environmental Monitoring and Mitigation Plan (EMMP) and the Environmental Regulatory Compliance Plan (ERCP) will be released at that time. Following completion of appropriate scoping hearings, work on the Environmental Impact Statement (EIS) will begin. The draft EIS is expected in 1993 and the final EIS in 1994. The licensing, construction authorization, construction, operation, closure and decommissioning phases of the program will be scheduled and incorporated into the DOE's environmental program as requirements related to these phases are identified. Detailed schedules will be developed for each individual part of the environmental program as program elements are defined.

1.3 SYSTEMS ENGINEERING

DOE Order 4700.1 directs the DOE to utilize systems engineering methodology in all projects. Accordingly, the DOE has adopted systems engineering methodology into all aspects of the Yucca Mountain Project, including the environmental program, through development and implementation of a Systems Engineering Management Plan (SEMP). The SEMP describes the way in which DOE will implement systems engineering to manage, integrate, interface, and document all technical activities, including the environmental activities.

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Systems engineering methodology, as defined by the SEMP, provides a structured approach to conduct technical and environmental investigations. The SEMP controls investigations such that resultant data may be used to produce a repository that adequately satisfies pertinent technical, regulatory, siting, and licensing requirements. The SEMP process for identifying and satisfying environmental requirements contains four steps, the first of which is defining the Mined Geologic Disposal System (MGDS) description. The MGDS is comprised of four components: the Yucca Mountain site, the exploratory shaft facility, the repository (including surface and subsurface facilities), and the waste package.

From the MGDS definition, environmental requirements may be defined followed by a determination of the data needed to demonstrate compliance with the identified requirements. The third step involves the implementation of environmental field investigations and site characterization activities to obtain necessary data. The information gathered in this step will be included in the Reference Information Base (RIB). The final step utilizes the data and analyses obtained in the third step to satisfy the technical and regulatory requirements.

Appropriate documentation plays a critical role in conducting environmental activities by defining what activities will be done and how the work will be organized. Documentation provides the controls for the performance of the work, and it records the products of the work. Documentation pertinent to the environmental program includes:

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- o Reference Information Base - The Reference Information Base (RIB) contains the reference environmental information relative to the MGDS. The information will be used by many Project participants to support the various analyses necessary for site characterization, environmental evaluation, and design assessment. The RIB will provide Project investigators with internally consistent data for use in their various activities.
- o Repository, Waste Package, and Exploratory Facility (ESF) Design Requirements - to describe and define the functions of each of these components, define the design requirements, and define the environment in which each must function. Design requirements will be reviewed for environmental compliance and will be important components of the EIS.
- o Planning Documents - address environmental requirements stemming from regulatory concerns. These will include the Environmental Field Activity Plans (EFAPs), Environmental Monitoring and Mitigation Plan (EMMP), and the Environmental Regulatory Compliance Plan (ERCP).
- o Topical Data Reports - Topical Data Reports will be prepared to record the results of data collection for environmental field investigations as described in the Environmental Field Activities Plans (EFAPs) and will become part of the RIB. Topical Data Reports are further discussed in Chapter 5.

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Integration of the environmental program is demonstrated by the relationship between identifying the need for data and the collection, documentation, and management of that data once the need has been established. Initially, the environmental data collection will be driven by the EMMP and the ERCP. Later, following scoping hearings for the Environmental Impact Statement (EIS), the EFAPs may be updated to respond to any EIS- driven data needs. All environmental data will be controlled by the systems engineering management process.

Following the collection of environmental data, as outlined in the EFAPs, analyses will be performed. Data and resultant analyses will be documented in data acquisition reports and Topical Data Reports. As previously described, Topical Data Reports will become part of the RIB, and therefore, a component of the technical baseline controlled by the SEMP. Since the SEMP manages and integrates all technical activities of the Project, environmental data and related analyses will become part of a comprehensive data base to be used by all Project participants. Systems engineering will ensure that data prepared for Project participants will meet their specifications and will adequately support technical analyses and regulatory evaluations. For example, specification of data needs by the EMMP and the ERCP will ensure that Project participants will be able to use the RIB to complete a variety of reports requiring environmental information. As the information requirements and data base are further developed, the RIB will support the preparation of National Environmental Policy Act (NEPA) compliance documents, design reports, and eventually the LA.

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1.4 EXISTING INFORMATION

DOE must collect information to satisfy the regulatory requirements identified in the NWPA, the NWPAA, and other legislation governing this program as discussed in Chapter 3. Most information will come from the collection of new data and data analyses, but a certain amount of information already exists about the Yucca Mountain site. Much of this information has been summarized in the EA published in 1986. The Consultation Draft of the Site Characterization Plan (SCP/CD), released in January 1988, contains additional geotechnical information that was not available at the time of the EA and updated plans for the site characterization program.

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2. ENVIRONMENTAL PROGRAM OVERVIEW

The DOE is committed to performing its activities in an environmentally safe and sound manner and will comply with applicable environmental statutes and regulations. To accomplish this commitment, the DOE has established an environmental program for the Yucca Mountain site that plans and performs the activities necessary to satisfy applicable environmental regulatory and programmatic requirements. The environmental program is structured to satisfy the statutory requirements of the Nuclear Waste Policy Act (NWPA) as amended, the National Environmental Policy Act (NEPA), the Atomic Energy Act (AEA), other applicable statutes, regulations, and DOE Orders. The environmental program is integrated with other programs under the direction of the DOE Office of Civilian Radioactive Waste Management (OCRWM) to evaluate the Yucca Mountain site as a candidate site for a repository. OCRWM environmental programmatic policy requirements (as described in the Mission Plan and Mission Plan Amendment) have also been incorporated into the environmental program.

The environmental program was developed as follows:

1. Defining the function of the Mined Geologic Disposal System (MGDS) utilizing systems engineering methodology.
2. Identifying the statutory and regulatory requirements to be satisfied by the program based on the system definition.

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3. Planning the activities to be performed and final documents to be prepared that demonstrate satisfaction of those requirements.
4. Performing the activities as planned, including activities such as data collection and analysis, impact assessment, site monitoring, and site impact mitigation and reclamation; reporting the results of activities performed; and preparing documents specified during planning that satisfy the identified requirements.

Figure 2-1 illustrates the organization of the environmental program. Figure 2-1 should not, however, be interpreted as depicting a time-phased or step-by-step program, but as a dynamic program whereby portions of the program are conducted as dictated by the requirements. The left side of the figure presents the following: definition of the system, identification and definition of environmental requirements, plans for the specific activities necessary to satisfy those requirements, data collection, reporting of information, and documented satisfaction of identified environmental requirements. The remainder of the figure presents the major components of the environmental program. Each component is subsequently described in this Environmental Program Overview (EPO).

2.1 ENVIRONMENTAL STATUTORY REQUIREMENTS

The first phase in development of the environmental program is identification of the requirements that the program must satisfy. Environmental program requirements, described in more detail in Chapter 3, were

DEFINE THE
SYSTEM

DEFINE MINED GEOLOGIC
DISPOSAL SYSTEM (MGDS)
DESCRIPTION

IDENTIFY AND
DEFINE
ENVIRONMENTAL
REQUIREMENTS

NUCLEAR WASTE POLICY
ACT AND NUCLEAR
WASTE POLICY
AMENDMENTS ACT

10 CFR 960

10 CFR 60

40 CFR 191

NEPA
AND CEQ
REGULATIONS

ENVIRONMENTAL
STATUTES AND
REGULATIONS

DOE
ORDERS

IDENTIFY
INFORMATION
NEEDED

ENVIRONMENTAL
MONITORING AND
MITIGATION PLAN

ENVIRONMENTAL
REGULATORY COMPLIANCE
PLAN

RECLAMATION PROGRAM
AND IMPLEMENTATION
PLANS

ENVIRONMENTAL
IMPACT STATEMENT
IMPLEMENTATION PLAN

COLLECT
INFORMATION

ENVIRONMENTAL FIELD
ACTIVITY PLANS

RECLAMATION
FEASIBILITY
PLAN

REPORT
INFORMATION

TOPICAL REPORTS

EMMP PROGRESS
REPORTS

DOCUMENT
SATISFACTION
OF
ENVIRONMENTAL
REQUIREMENTS

ENVIRONMENTAL IMPACT
STATEMENT

PERMITS AND REGULATORY
COMPLIANCE
DOCUMENTATION

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Fig. 2-1 Environmental Planning Process

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identified by reviewing the NWPAA and the NWPAA, and the corresponding NWPAA implementing regulations, the NEPA, and other potentially applicable environmental statutes, such as the Clean Air Act, and the corresponding implementing regulations for each statute.

Additional environmental program issues will be identified by agency review of other DOE planning documents, such as the Consultation Draft of the Site Characterization Plan (SCP/CD), and by issues raised by other Federal agencies, State of Nevada agencies, and the public. These issues have been and will continue to be identified in forums such as the Scoping Hearings for the Environmental Assessment, held in 1983, and will be identified in future scoping meetings for the EIS.

2.2 ENVIRONMENTAL PROGRAM PLANNING

As illustrated in Figure 2-1, after program requirements are identified, the next phase in developing the environmental program is the formulation of comprehensive plans for performing needed parts of the program. A hierarchical planning approach has been utilized by the Yucca Mountain Project to establish an overall environmental program that may be divided into smaller, more manageable plans to conduct specific portions of the program. Together, these plans present the general requirements to be satisfied and identify the disciplines which will contribute to the collection of specific information needed to satisfy those requirements. Planning documents that delineate portions of the overall program include:

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- o Environmental Monitoring and Mitigation Plan (EMMP) to plan how the DOE will conduct environmental monitoring and implement mitigation for site characterization activities identified as having the potential for causing significant adverse environmental impacts.
- o Environmental Regulatory Compliance Plan (ERCP) to plan how the DOE will address regulatory compliance for site characterization.
- o Reclamation Program and Implementation Plans (RPP, RIP) to plan and implement reclamation at the Yucca Mountain site. The RIP will be responsive to the policy specified in the Reclamation Program Plan (RPP).
- o EIS Implementation Plan (EIS IP) to record the results of the scoping process, to plan what technical information is required to complete the EIS, to plan how the DOE will manage and produce the EIS, and to plan how the DOE will demonstrate environmental site suitability under the 10 CFR 960 guidelines.

Figure 2-1 identifies the final tier of planning documents, the Environmental Field Activity Plans (EFAPs) and the Reclamation Feasibility Plan (RFP). The EFAPs and the RFP are integrated technical plans that describe the discipline-specific field activities necessary to satisfy the data collection requirements of each of the environmental planning documents, discussed above. The EFAPs will be modified over time to meet all Project environmental requirements. Thus, in the current site characterization phase, the EFAPs describe the field activities necessary to meet the EMMP and

ERCP environmental data requirements. Future requirements, such as those associated with the EIS IP, will later be added to these EFAPs.

Two important elements of both the EFAPs and the RFP are descriptions of the collective data requirements of the above environmental plans, and a description of the organization and approach to actual data collection. Elements of the EFAPs and the RFP are described in more detail in Chapter 4.

2.3 PERFORMANCE OF PLANNED ACTIVITIES

Execution of the environmental program as detailed in the various plans, requires a cohesive, integrated series of events. Formal monitoring and documenting of these events are required to ensure proper communication, management control, and satisfactory completion of the work.

The DOE will document work performed, thereby demonstrating satisfaction of the environmental requirements pertinent to the various parts of the environmental program through a variety of reports. Figure 2-1 illustrates necessary reporting and documentation including; topical data and progress reports, permits and regulatory compliance documentation, and the EIS required by NEPA and NWPA. The reports and documentation that are currently planned are discussed in Chapter 5. Other reports may be needed as the environmental program progresses.

The reports and documentation presently identified, as required by the above plans, include the following:

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- o Topical Data Reports - to report data collected and analyzed as required by the EFAPs and the RFP. These reports will feed into the EIS and environmental regulatory compliance documentation.
- o EMMP Progress Reports - to report environmental monitoring and mitigation activities performed over a period of time as required by the EMMP.
- o Environmental Regulatory Compliance Documentation - to submit permit applications with supporting documentation and compliance reports as described in the ERCP.
- o Environmental Impact Statement Documentation - issuance of draft and final EIS documents required by NEPA (for major federal actions), the NWPA, and the NWPAA. Specific details of the EIS will be described in the EIS IP.

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3. ENVIRONMENTAL REGULATORY REQUIREMENTS AND DOE ORDERS

The environmental program for the Yucca Mountain site was developed by first identifying the statutory environmental requirements that must be satisfied by the program. The primary sources for identifying these environmental requirements are the Nuclear Waste Policy Act, the Nuclear Waste Policy Amendments Act, implementing regulations pursuant to the NWPA and the NWPAA, the National Environmental Policy Act (NEPA), other Federal and State statutes and regulations, and DOE Orders. Environmental program requirements were also identified by reviewing issues raised by other Federal agencies, State of Nevada agencies, and the public.

3.1 NUCLEAR WASTE POLICY ACT (NWPA), AS AMENDED BY THE NUCLEAR WASTE POLICY AMENDMENTS ACT (NWPAA)

The NWPA has specific environmental requirements listed directly in the text of the Act. These requirements are summarized below.

NWPA Section 112(a) requires the issuance of general guidelines for the recommendation of sites for repositories. Pursuant to the NWPA, the DOE has issued general guidelines (10 CFR 960) which are discussed in Section 3.1.1.

Section 112(b) (1) (D) of the NWPA, as amended by the NWPAA, requires that for site characterization each nomination of a site shall be accompanied by

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an Environmental Assessment (EA), which shall include a detailed statement of the basis for such recommendation and of the probable impacts of the site characterization activities planned for the site, and a discussion of alternative activities relating to site characterization that may be undertaken to avoid environmental impacts.

Section 113(a) of NWPA, as amended by the NWPAA, requires that the DOE consider fully the comments received under subsection 113(b) (2) (SCP Hearings) and subsection 112(b) (2) (EA Hearings) and to the maximum extent practicable and in consultation with the Governor of Nevada, conduct site characterization activities in a manner that minimizes any significant adverse environmental impacts identified in such comments or the EA. The EMMP (discussed in Chapter 5) describes monitoring and mitigation studies that correspond to planned site characterization activities, as presented in the current consultation draft of the Site Characterization Plan (SCP).

Section 113(b) (1) (A) (iii) of NWPA, as amended by the NWPAA, requires that plans be prepared for the decontamination and decommissioning of the site and for the mitigation of any significant adverse environmental impacts caused by site characterization activities if it is determined unsuitable for development of a repository. Also Section 113(c) (3) (D) requires that reasonable and necessary steps be taken to reclaim the site and to mitigate any significant adverse environmental impacts caused by site characterization activities. Environmental aspects of the decontamination, decommissioning, and reclamation activities which will be closely coordinated with the SCP and EMMP program are currently under development and are described further in Chapter 5.

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Section 113(b) (1) (A) (iv) requires that the criteria to be used to determine the suitability of the Yucca Mountain candidate site for the location of a repository shall be included in a general plan for site characterization activities. Current planning calls for such suitability determinations be associated with the EIS process, which is discussed further in Chapter 5.

Section 114(f) requires that an Environmental Impact Statement prepared pursuant to the National Environmental Policy Act (NEPA) accompany any recommendation (to the President) of a site for the development of a repository. In addition, Section 114(f) (4) requires that any EIS prepared in connection with a repository proposed to be constructed shall, to the extent practicable, be adopted by the Nuclear Regulatory Commission for a construction authorization and license. Section 114(f) (2) requires that "compliance with the procedures and requirements of this Act shall be deemed adequate consideration of the need for a repository, the time of the initial availability of a repository and all alternatives to the isolation of high-level radioactive waste and spent nuclear fuel in a repository."

Section 117(b) of NWPA requires the DOE to "consult and cooperate...in an effort to resolve the concerns of such state and any affected Indian Tribe regarding the public health and safety, environmental, and economic impacts of any such repository."

In December 1987, Congress amended the Nuclear Waste Policy Act (NWPA) through passage of the Nuclear Waste Policy Amendments Act (NWPAA). NWPAA

Subsection 960.3-4 requires that site environmental impacts be considered by the DOE throughout the site characterization, site selection, and repository development process; and that the DOE mitigate significant adverse environmental impacts, to the extent practicable, during site characterization and repository construction, operation, closure and decommissioning.

Subsection 960.5-2-3 requires that the site shall be located such that expected meteorological conditions during repository operation and closure will not be likely to lead to radionuclide releases to an unrestricted area greater than those allowable under Section 960.5-1(a)(1).

Subsection 960.5-2-5 requires that the site shall be located such that the quality of the environment in the affected area during this and future generations will be adequately protected and projected environmental impacts in the affected area can be mitigated to an acceptable degree. Furthermore, the site shall be disqualified, if during repository siting, construction, operation, closure, or decommissioning the quality of the environment in the affected area could not be adequately protected or if projected environmental impacts in the affected area could not be mitigated to an acceptable degree.

3.1.2 Nuclear Regulatory Commission (NRC) Regulations (10 CFR 60)

As required by the NWSA Section 121(b), the Nuclear Regulatory Commission (NRC) has promulgated regulations for the licensing of repositories for the disposal of high-level radioactive waste. The NRC will authorize construction of the repository only upon a finding that such a repository will

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reasonably assure protection of public health and safety (see EPA, 40 CFR 191 below). 10 CFR 60 contains the procedural and technical requirements that must be met to make this finding. The regulations contain siting and design criteria, as well as performance objectives, which define measures for overall system performance and subsystem performance. 10 CFR 51 contains NRC's NEPA implementation regulations which address the process and criteria NRC will use to adopt the DOE repository EIS.

3.1.3 Environmental Protection Agency (EPA) Regulations (40 CFR 191)

The EPA has promulgated the "Environmental Standards for the Management and Disposal of Spent Nuclear Fuel, High-Level and Transuranic Radioactive Wastes" (40 CFR 191) pursuant to the Agency's authorities and responsibilities under the Nuclear Waste Policy Act of 1982. These include acceptable limits of radiation exposure to the public from the management and storage of spent fuel or high-level or transuranic waste prior to disposal. The Radiological Monitoring Plan for the Yucca Mountain Project (RMP) (DOE/NV-10576-6) addresses those rules, regulations, and orders that could affect the data collection and evaluation activities needed to ensure radiological regulatory compliance at the Yucca Mountain site.¹

¹A decision on July 17, 1987, by the U.S. Court of Appeals for the First Circuit has vacated and remanded to the EPA, for further proceedings, the post-closure standards (Subpart B) in 40 CFR 191.

3.2 THE NATIONAL ENVIRONMENTAL POLICY ACT (NEPA)

The National Environmental Policy Act (NEPA) of 1969 established a national policy toward the environment by recognizing the importance of restoring and maintaining environmental quality. Section 102(2) (A) of the NEPA provides that all Federal agencies shall "utilize a systematic, interdisciplinary approach, which will ensure the integrated use of natural and social sciences and environmental design arts in planning and decisionmaking activities which may have an impact on the human environment." Furthermore, Section 102(2) (B) requires Federal agencies to develop methods and procedures in consultation with the Council on Environmental Quality (CEQ) to ensure that environmental amenities will be given adequate consideration in decisionmaking. As part of that decisionmaking process, Section 102(2) (C) provides that proposals for legislation and other major Federal actions significantly affecting the quality of the human environment, shall include a detailed statement on: The environmental impact of the proposed action; any adverse environmental impacts which cannot be avoided should the proposal be implemented; alternatives to the proposed action; the relationship between the local short-term uses of the environment and the maintenance and enhancement of long-term productivity, and; any irreversible and irretrievable commitments of resources which would be involved in the proposed action, should it be implemented. Title II of NEPA established the CEQ and delegated to it the authority to implement the dictates of the Act. The NWPA, as amended by the NWPAA, specifically addresses the pertinence of NEPA requirements to the repository in Sections 112(d), 113(c) (1), 113(d), 114(a) (1), and 114(f).

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Furthermore, the CEQ has promulgated guidance regulations (40 CFR 1500-1508) that delineate the EIS development process, beginning with the initial planning phase through adoption of the Final EIS. The DOE adopted CEQ guidelines in 10 CFR Part 1021. The DOE also has published NEPA compliance guidelines (45 FR 20694, as amended at 52 FR 47662) that provide the supplemental implementing procedures required of Federal agencies by the CEQ guidelines. These DOE guidelines state that, among other things, the DOE will prepare, and use, an Environmental Impact Statement Implementation Plan (EIS IP) that will record the results of the scoping process and guide the preparation of the Environmental Impact Statement. The EIS IP, and its role in overall environmental program planning, are discussed in Chapter 5.

3.3 OTHER FEDERAL AND STATE STATUTES AND REGULATIONS

The basis for determining the applicability of environmental statutes and regulations to the repository program at the Yucca Mountain site was a three-part process. The first part was to develop an understanding of what the high-level radioactive waste program would entail. The second part was to gain an understanding of the purpose of specific environmental regulations, the type of activities that they regulate, and the methods by which the regulations are implemented. Of specific interest, in the context of their legal applicability to the repository program, is whether Congress has directed Federal agencies to comply with particular statutes and regulations. Finally, the third part requires an analysis of each proposed site-specific

activity in terms of whether it falls within the regulatory scope of the various applicable environmental statutes and regulations.

The Environmental Protection Agency (EPA) has promulgated regulations pursuant to environmental statutes such as the Clean Air Act, the Federal Water Pollution Control Act (The Clean Water Act), the Safe Drinking Water Act, the Resource Conservation and Recovery Act, and the Comprehensive Environmental Response, Compensation, and Liability Act. These regulations were reviewed for their applicability to the repository program, and summarized in the Environmental Assessment (EA). They were further addressed in the Environmental Regulatory Compliance Plan (ERCP).

Table 3-1 lists the Federal and federally delegated environmental regulatory requirements that are believed to be applicable to the repository program at Yucca Mountain. The table was compiled from information contained in (1) the Environmental Assessment for the Yucca Mountain Site in Nevada (U.S. DOE, 1986), (2) DOE Order 5480.4 ("Environmental Protection, Safety, and Health Protection Standards"), (3) a guidebook titled "Permit Requirements for Development of Energy and Other Selected Natural Resources for the State of Nevada" (U.S. Geological Survey, 1981, with updates; available from the Nevada Department of Conservation and Natural Resources in Carson City, NV), and (4) the draft Environmental Regulatory Compliance Plan for Site Characterization of the Yucca Mountain Site (U.S. DOE, 1988). While the EA identified regulatory requirements for all phases of repository development, the ERCP identified only those requirements applicable to the site characterization phase. The purpose of this EPO, however, is to provide an over-

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view of the comprehensive approach that will be used to satisfy the environmental requirements applicable to siting and licensing a repository at Yucca Mountain. Table 3-1, therefore, identifies the applicable and potentially applicable requirements for the repository program as a starting point for environmental compliance.

Table 3-1. Environmental Regulatory Overview

Authority	Applicability
Antiquities Act of 1906 (16 USC 431, 432, 433; 25 CFR 261, 36 CFR 296, 43 CFR 3 and 7)	Applicable
American Indian Religious Freedom Act (P.L. 95-341; 42 USC 1996, 36 CFR 296, 43 CFR 7)	Applicable
Archaeological and Historic Preservation Act (16 USC 469-469c)	Applicable
Archaeological Resources Pro- tection Act of 1979 (16 USC 470AA et seq.)	Applicable
Bald and Golden Eagle Protection Act (16 USC 668-668d, Nevada Revised Statutes 503.610)	There are no explicit permits or approvals associated with this Act, but its intent is appli- cable. In the unlikely event that eagles, their nests, or their eggs are found at the site, the DOE will contact the U.S. Fish and Wildlife Service to discuss appropriate actions to be taken.
Clean Air Act of 1977, as amended (P.L. 95-95; 42 USC 7401- 7642; 40 CFR 50-53, 60-61, 81.300-81.400, 124; Executive Order 11738; Executive Order 12088; Nevada Administrative Code 445.430-445.995)	Applicable
Clean Water Act	See Federal Water Pollution Control Act.
Coastal Barrier Resources Act (16 USC 3501-3510) and The Coastal Zone Management Act of 1972 (16 USC 1451-1464; 15 CFR 930)	Both are inapplicable because site characterization will not affect coastal areas.

Table 3-1. Environmental Regulatory Overview (cont.)

Authority	Applicability
Comprehensive Environmental Response Compensation and Liability Act of 1980 (CERCLA) as amended by the Superfund Amendments and Reauthorization Act of 1986 (SARA) (42 USC 9601 et seq.; 40 CFR 300, 302, 355, 370, 372, Executive Orders 12580)	There are no explicit permits or approvals associated with this Act (and EO) but there are applicable notification requirements in the event of an accidental spill of hazardous materials during site characterization. Also, if certain amounts of hazardous substances are used, then information on those substances must be provided to local communities and the Nevada Division of Environmental Protection. DOE has developed a plan of action in the event of a spill of hazardous material.
Department of Transportation Acts (49 USC 303; 23 USC 138)	Applicable
Endangered Species Act of 1973, as amended (P.L. 93-205; 16 USC 1531 et seq.; 50 CFR 13,17, 222, 226, 227, 402, 424, 450-453)	Applicable
Farmland Protection Policy Act of 1981 (P.L. 97-98; 7 USC 4201-4209; 7 CFR 658)	Applicable
Federal Aviation Act (49 USC 1347 et seq.)	Applicable if a structure at Yucca Mountain will exceed height of 200 feet above the ground.
Federal Cave Resources Protection Act of 1988 (P.L. 100-691)	Applicability will be assessed before any activity is conducted in a cave on DOI or DOA lands.
Federal Insecticide, Fungicide, and Rodenticide Act (7 USC 35 et seq; 40 CFR 2.307, 40 CFR 22)	Inapplicable because insecticides, fungicides, or rodenticides not registered by the U.S. Environmental Protection Agency will not be used.
Federal Land Policy and Management Act of 1976 (P.L. 94-579; 43 USC 1701-1784)	Applicable

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Table 3-1. Environmental Regulatory Overview (cont.)

Authority	Applicability
Federal Water Pollution Control Act, as amended by the Clean Water Act of 1977 and the Water Quality Act of 1987 (commonly referred to as "The Clean Water Act") (P.L. 92-500, as amended; 33 USC 1251 et seq.; 33 CFR 209, 320, 323, 330; 40 CFR 110, 112, 116, 117, 121, 122-125, 129, 133, 136, 230, 401, and 403; Executive Order 12088; Nevada Administrative Code 445.140-445.182)	Applicable
Fish and Wildlife Coordination Act (P.L. 85-624, as amended; 16 USC 661-666c; 50 CFR 403)	Inapplicable because water-related habitat does not exist at Yucca Mountain.
General Bridge Act of 1946 (33 USC 3401; 33 CFR 323)	Inapplicable because no bridge will be constructed over navigable waters, nor will existing bridges that span navigable waters be modified.
Hazardous Materials Transportation Act (49 USC 1801-1812; 49 CFR 171-178)	Applicable
Historic Sites, Buildings, and Antiquities Act (16 USC 461-469)	Applicable
Marine Protection, Research, and Sanctuaries Act (33 USC 1401-1444, 10 CFR 220-228)	Inapplicable because ocean dumping will not be required.
Materials Act of 1947 (30 USC 601-604; 43 CFR 3600 et seq.)	Applicable
Migratory Bird Treaty Act (16 USC 703-710; 50 CFR 10.13; Nevada Revised Statutes 503.620)	There are no explicit permits or approvals associated with this Act, but the intent of the Act is applicable. In the unlikely event that migratory birds, their nests or eggs are found at the site, the DOE will contact the U.S. Fish and Wildlife Service to discuss appropriate actions to be taken.

Table 3-1. Environmental Regulatory Overview (cont.)

Authority	Applicability
Multiple Use Sustained Yield Act (16 USC 528-531)	Inapplicable because current plans do not require the use or traverse of lands administered by the National Forest Service.
National Environmental Policy Act 1969 (P.L. 91-190; 42 USC 4321 et seq.; 40 CFR 1500-1508, 10 CFR 1021; Executive Order 11514 amended by Executive Order 11991)	Applicable
National Forest Organic Legislation (16 USC 475)	Inapplicable because current plans do not require the use or traverse of lands administered by the National Forest Service.
National Historic Preservation Act of 1966, as amended (16 USC 470 et seq.; 36 CFR 60 and 800; Executive Order 11593)	Applicable
National Park Service Organic Act (16 USC 1, 2-4)	Applicable if regional field studies extend into National Park areas.
National Park System Mining Regulation Act (16 USC 1901-1912; 36 CFR 9)	Applicable if regional field studies extend into National Park area.
National Trails System Act (16 USC 1241 et seq.)	Inapplicable because current plans do not require construction on or near designated historic trails.
National Wildlife Refuge System Administration Act (P.L. 89-669; 16 USC 668dd-668ee; 50 CFR 25, 27, 28, and 29)	Inapplicable because current plans do not require the use or traverse of designated Wildlife Refuges.
Noise Control Act of 1972, as amended by the Quiet Communities Act of 1978 (42 USC 4901-4918; Executive Order 12088)	Applicable
Nuclear Waste Policy Act, as amended (P.L. 97-425; 96 Stat 2201; 42 USC 10101 et seq.; 10 CFR 960)	Applicable

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Table 3-1. Environmental Regulatory Overview (cont.)

Authority	Applicability
Resource Conservation and Recovery Act of 1976, as amended (P.L. 94-580; 42 USC 6901-6987; 40 CFR 124, 240-247, 260-264, 266, 270, 271, and 280; Nevada Administrative Code 444.8500-444.960; 444.570-444.748)	Applicable
Rivers and Harbors Act (33 USC 401-413; 33 CFR 323)	Inapplicable because no navigable waters, or channels of these waters, will be affected.
Safe Drinking Water Act of 1974, as amended (P.L. 93-523; 42 USC 300f-300j-10; 40 CFR 124, 141-147; Executive Order 12088; Nevada Administrative Code 445.244-455.420)	Applicable
Sikes Act (P.L. 93-452; 16 USC 697 et seq.)	Applicable, although no permits are required. The purpose of the Sikes Act is to develop conservation and rehabilitation programs involving the protection and enhancement of wildlife, fish, and game resources on certain federal lands. The Department of the Interior is responsible for developing, with prior approval of the DOE, comprehensive plans for conservation and rehabilitation programs to be implemented on DOE lands (Section 670g of the Act). DOE consultation with the U.S. Fish and Wildlife Service and the Bureau of Land Management serve to comply with this Act.
Taylor Grazing Act (43 USC 315-316; 43 CFR 4100)	Inapplicable because current plans do not require activities on grazing districts designated by the Bureau of Land Management.

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Table 3-1. Environmental Regulatory Overview (cont.)

Authority	Applicability
Toxic Substances Control Act (15 USC 2601 et seq.)	Inapplicable because electrical equipment containing PCBs will not be used.
Underground Injection Control Program of the Safe Drinking Water Act of 1974 (P.L. 93-523; 42 USC 300h; 40 CFR Part 124, 144, 149; Nevada Administrative Code 445.1-96.1; NRS 445.131-445.354	Applicable
Wild and Scenic Rivers Act (16 USC 1271-1287)	Inapplicable because no designated or soon-to-be designated wild and scenic rivers will be affected.
Wilderness Act (16 USC 1131-1136)	Inapplicable because no designated or soon-to-be designated wilderness areas will be affected.
Wild Free-Roaming Horses and Wild Burros Act (16 USC 1331-1340; 43 CFR 4700-4760; Nevada Revised Statutes 504.430-504.490)	There are no explicit permits or approvals associated with this Act, but the intent of the Act--to protect wild horses and burros, is applicable.
Executive Order 11987; Exotic Organisms	Inapplicable because no exotic organisms will be used.
Executive Order 11988; Floodplain Management (1977; as amended by EO 12148) (10 CFR Part 1022)	Applicable
Executive Order 11990; Protection of Wetlands (1977) (10 CFR Part 1022)	Applicable

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Table 3-1. Environmental Regulatory Overview (cont.)

Authority	Applicability
Executive Order 12088; Federal Compliance with Pollution Control Standards: Executive Order 12612; Federalism	There are no explicit permits or approvals associated with these EOs, although their intent to comply with pollution control standards will be followed.
Executive Order 12342; Environmental Safeguards for Animal Damage Control on Federal Lands	Repeal of Executive Order 11643 which restricted the use of chemical toxicants on Federal lands. Inapplicable because no chemical toxicants will be used and their use is no longer restricted.

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Table 3-2 lists regulatory requirements of the State of Nevada for which there are no Federal laws that mandate compliance by Federal agencies. The DOE will, as a matter of comity, address the concerns evidenced by State and local laws that are not legally applicable to Federal agencies to the extent that these regulations are not inconsistent with the DOE's responsibilities under the NWPA, the NWPAA, the Atomic Energy Act (AEA), and other Federal statutes.

Table 3-2. State Environmental Regulatory Overview

Authority	Applicability
Nevada Revised Statute 618 "Permit to Operate a Boiler or Pressure Vessel"	Inapplicable because designs of the exploratory shaft facility and the repository do not specify the use of such boilers or pressure vessels.
Nevada Revised Statute 618 "Construction and Operating Permit for New Elevators, Dumbwaiters, and Moving Walks"	Inapplicable because the require- ments do not apply to facilities such as the exploratory shafts and the repository.
Nevada Revised Statute 322 "Land Easement"	Inapplicable because current plans do not call for the lease of state lands.
Nevada Revised Statute 512.160 "Notification of the Opening and Closing of Mines"	Inapplicable because the State of Nevada considers the construc- tion of a mine to be for extrac- ting minerals of economic value. Thus, the exploratory shaft and the repository are not mines on the basis of the state's defini- tion. This will be verified with the State of Nevada.
Nevada Revised Statutes 533 and 534 "Permit to Appropriate Public Waters"	Applicable
Nevada Revised Statute 278, 439.200, 444, 445, and 446 "Permit to Construct a Campsite"	This permit is related to con- struction and is therefore out- side the scope of this document.
Nevada Revised Statute 535 "Permit to Construct a Tailings Dam"	Inapplicable because a 10-foot- high tailings dam is not required nor will 10-acre-feet of fresh water be stored behind a dam.
Nevada Administrative Code 504.510-504.550 "Special Permit-- Modification of Habitat"	Applicable

Table 3-2. State Environmental Regulatory Overview (cont.)

Authority	Applicability
Nevada Administrative Code 445.179 through 445.182 "Approval of Plans to Construct Sanitary and Sewage-Collection System and Permit to Operate System."	Applicable
Nevada Revised Statute 459.010- 459.290 "Radioactive Material License"	Inapplicable because the DOE is excluded from such a requirement under the terms of the Atomic Energy Act, and on the basis of explicit state regulations that preclude permit requirements on lands under the exclusive juris- diction of a federal agency (all lands at Yucca Mountain are controlled by the Federal Govern- ment).
Nevada Revised Statute 444.440- 444.620 "Solid Waste Management System Permit"	Inapplicable because current plans call for disposing of all solid waste at a landfill on the Nevada Test Site.
Nevada Revised Statute 445.131- 445.354 "Water Pollution Control Law"	Applicable
Nevada Revised Statute 501.105- 501.110; Nevada Administrative Code 503.010-503.080 "Nevada State Wildlife Statutes and Regulations"	Applicable
Nevada Revised Statute 501.105, 504.520, 527.050; 527.100, 527.105, 527.260, 527.270 "Nevada State Vegetation Statutes"	Applicable

3.4 U.S. DEPARTMENT OF ENERGY (DOE) ORDERS

It is DOE policy to conduct its operations in an environmentally safe and sound manner, and to comply with applicable environmental statutes, regulations, and standards. This policy is contained in draft DOE Order 5400.1, "General Environmental Protection Program Requirements." This Order contains specific program requirements that address Federal laws, regulations, Executive Orders, and State and local laws that are applicable to Federal agencies.²

DOE Orders that relate to environmental protection, safety, and health are listed in Table 3-3, and must also be considered when determining the environmental requirements that apply to the environmental program. In most instances, by complying with the Federal, State, and local regulations, the DOE will be in compliance with these Orders. However, the Orders must be periodically reviewed to determine whether additional DOE self-imposed standards, requirements, or procedures apply to the Yucca Mountain site.

Those Orders addressing occupational radiological protection, occupational health and safety, fire protection, building and safety codes, contractor licensing and bonding, and other registration requirements, are addressed in the Office of Civilian Radioactive Waste Management's Safety Plan (DOE/RW-0119) and the health and safety plans for the Yucca Mountain site.

²Anticipated issuance by late 1988.

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Table 3-3. DOE Orders that apply to Environmental Protection

Number	Date	<u>DOE ORDERS</u>	
		Subject	
1. DOE 5000.3	11-07-84	Unusual Occurrence Reporting (Environment and Safety) System	
2. DOE 5400.2	08-13-87	Environmental Compliance (Environment) Issue Coordination	
3. DOE 5480.1	05-05-80	Environmental Protection, Safety, and Health Protection Program for (Both) DOE Operations	
4. DOE 5480.1B	09-23-86	Environmental Protection, Safety, and Health Protection Program for (Both) DOE Operations	
5. DOE 5440.1C	04-09-85	Implementation of National (Environment) Environmental Policy Act	
6. DOE 5480.3	07-09-85	Safety Requirements for the (Safety) Packaging and Transportation of Hazardous Materials, Hazardous Substances and Hazardous Wastes	
7. DOE 5480.4	05-15-84	Environmental Protection, (Safety) Safety, and Health Protection Standards	
8. DOE 5481.1B	09-23-86	Safety Analyses and Review (Safety) System	
9. DOE 5482.1B	09-23-86	Environmental, Safety, and (Both) Health Appraisal Program	

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Table 3-3. DOE Orders that apply to Environmental Protection (cont.)

<u>DOE ORDERS</u>			
Number	Date	Subject	
10. DOE 5480.17	10-05-88	Site Safety Representatives	(Safety)
11. DOE 5484.1	02-24-81	Environmental Protection, Safety, and Health Protection Information	(Both)
12. DOE 5500.1A	02-06-87	DOE Emergency Management System	(Both)
13. DOE 5820.2A	09-26-88	Radioactive Waste Management	(Both)

Note: Environmental protection orders are undergoing revisions and are scheduled to be issued by 1989. The following list represents proposed revisions to the environmental protection section of the DOE directives system. Until these revisions are formally implemented, the DOE Orders previously cited are in effect. The proposed list is as follows:

5400.1	General Environmental Protection Program
5400.3	Radiation Protection of the Public and Environment
5400.yy	Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA)
5400.zz	Hazardous and Mixed Radioactive Waste Requirements
5400.xy	Radiological Effluent Moni- toring and Environmental Surveillance

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4. ENVIRONMENTAL PLANNING DOCUMENTS

Once the environmental programmatic requirements are identified, the next step in developing the environmental program is to plan the numerous activities necessary to fulfill these requirements. The DOE uses a systematic approach to planning, whereby the overall environmental program, presented in the Environmental Program Overview (EPO), is subdivided and described in detailed management plans. These plans provide the breakdown, requirements, and descriptions of activities to be performed, including necessary reports, in order to accomplish the environmental program. A detailed discussion of the individual plans is presented below.

4.1 ENVIRONMENTAL MONITORING AND MITIGATION PLAN (EMMP)

Section 113(a) of the Nuclear Waste Policy Act (NWPA) requires the DOE to conduct its site characterization activities in a manner that minimizes any significant adverse environmental impacts to the maximum extent practicable. To document its compliance with this Section 113(a) requirement, the DOE has developed an Environmental Monitoring and Mitigation Plan (EMMP). The document describes DOE's monitoring and mitigation programs for site characterization and focuses only on site characterization activities with a potential for causing significant adverse environmental impacts. The Environmental Assessment (EA) addressed the DOE's proposed site characterization activities and their potential impacts as understood at the time of issuance. The final EA documents that no significant adverse environmental impacts were expected from site characterization activities. In preparing the EMMP,

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updated site characterization activities are being considered, as well as information acquired since issuance of the EA. This information primarily concerns modification and additional detail on the scope and schedule of planned site characterization activities. The DOE will monitor those activities for which a sufficient degree of uncertainty in a single or combination of activities exists, along with the resultant potential for significant adverse impact. Data collection required by the EMMP will be planned and performed as described in the Environmental Field Activity Plans (EFAPs).

Potential for significant adverse impacts can be established in one of two ways: (1) identification in Chapter 4 of the EA or (2) a determination by DOE that a single activity or combination of activities conducted during site characterization has a sufficient degree of uncertainty associated with it that the potential for significant adverse impact exists. Such a determination may come as a result of DOE's review of the comments on the EA and the Site Characterization Plan (SCP) or after discussions with affected parties. Where an activity has a potential for a significant adverse impact, the EMMP describes the monitoring that is to be conducted. Any significant adverse impacts that may be identified in the future through monitoring, through the SCP hearing and public comment process, or in discussions with affected parties will be described and procedures for developing mitigative action (i.e., adjustments in DOE's site characterization activities) will be addressed in subsequent semiannual EMMP Progress Reports (see Section 5.2).

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4.2 ENVIRONMENTAL REGULATORY COMPLIANCE PLAN (ERCP)

The DOE is committed to conducting its operations in an environmentally safe and sound manner, and will comply with applicable environmental statutes, regulations, and standards. These objectives are stated in draft DOE Order 5400.1 (General Environmental Protection Program).

The Environmental Regulatory Compliance Plan (ERCP) for site characterization of the Yucca Mountain site is one aspect of implementing environmental policy. The ERCP identifies applicable environmental statutes and regulations and describes the plan by which the DOE will comply with them. The ERCP also addresses, as a matter of comity, State and local environmental statutes and regulations for which Congress has not waived Federal sovereign immunity.

The ERCP is being developed in two phases. The first phase represents the DOE's current understanding of environmental regulatory requirements for the site characterization phase of Yucca Mountain. This first phase ERCP will be updated and re-released subsequent to SCP hearings. The second phase will identify the environmental regulatory requirements for repository construction and operation and will be coordinated with the analysis developed for the Environmental Impact Statement (EIS). After consultation with appropriate Federal and State agencies, the ERCP will be updated to reflect the results of these consultations.

The ERCP contains the following: a description of all Federal environmental laws, regulations, Executive Orders, and DOE Orders for which

compliance will be required for characterization of the Yucca Mountain site; a description of all State and local environmental laws and regulations for which Federal law mandates compliance; a description of related State and local laws for which Congress has not waived sovereign immunity; a description of planned activities during site characterization that may trigger applicable Federal, State, and local laws and regulations; and identification of Federal, State, and local agencies and affected Indian Tribes that should be consulted to assure compliance with all applicable laws and regulations. The ERCP also describes the permit applications and supporting documentation that will be necessary to satisfy the regulatory requirements. Data required for permit applications will be collected as described in the EFAPs.

4.3 RECLAMATION PROGRAM AND IMPLEMENTATION PLANS (RPP, RIP)

The NWPA (Section 113(b)(1)(A)) requires the DOE to prepare decontamination and decommissioning plans and plans for reclamation of the site. The DOE will need site-specific environmental data, described in the EFAPs and Reclamation Feasibility Plan, to prepare detailed reclamation plans for site characterization. Reclamation plans will describe how disturbed areas will be stabilized and revegetated once an activity warranting reclamation is completed and will be described in the Yucca Mountain Project Reclamation Implementation Plan (RIP). The RIP is responsive to the Reclamation Program Plan, which will establish an overall reclamation policy for the Yucca Mountain Project.

The RIP will describe how results from applicable soils-handling and revegetation studies conducted in the site area will contribute to the reclamation commitment. These studies are outlined in the soils EFAP and habitat Reclamation Feasibility Plan (discussed later in this chapter). The RIP will also reference, where appropriate, standard practices used for similar soils and terrains. In some cases, the summaries may refer primarily to published information. Field trials of revegetation species will be conducted in control plots since revegetation may be one practice used to reclaim disturbed areas. The evaluation of reclamation success will be incorporated as part of the reclamation Topical Data Reports.

4.4 ENVIRONMENTAL IMPACT STATEMENT IMPLEMENTATION PLAN (EIS IP)

The NWPAA as amended by the NWPAA requires that an Environmental Impact Statement (EIS) accompany any recommendation by the Secretary of Energy to the President to approve a site for a repository. Thus, the EIS is one part of the DOE's overall strategy to comply with the requirements of both the NWPAA and the National Environmental Policy Act (NEPA), as described in Chapter 3. The EIS Implementation Plan (EIS IP) is prepared to provide guidance to the DOE for the preparation of the EIS and to record the results of the scoping process.

Additional guidance for preparation of the EIS IP is derived from the DOE Guidelines for Compliance with the National Environmental Policy Act (45 FR 20694, as amended by 52 FR 47662). These guidelines are pursuant to CEQ regulations at 40 CFR 1500-1508. Public input will be solicited as part

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of the overall EIS preparation process. Scoping provides a forum for members of the public to learn about the proposed action and to provide input to the DOE on issues that concerned individuals feel should be addressed in the EIS. To implement this requirement, the DOE will: publish in the Federal Register a Notice of Intent (NOI) to prepare an EIS in accordance with 40 CFR 1501.7; provide for additional dissemination of the NOI in accordance with 40 CFR 1506.6; invite comments and suggestions on the proposed scope of the EIS including environmental issues and alternatives (not precluded by NWPA or NWPA) for consideration in preparing the draft EIS and further invite public participation in the NEPA process; provide notice of public meetings; and prepare and use an EIS IP.

According to the DOE NEPA guidelines, the EIS IP will contain information to address provisions of the CEQ regulations at 40 CFR 1501.7, which include: determining the scope and the significant issues to be analyzed in depth in the EIS; identifying and eliminating from detailed study the issues which are not significant or which have been covered by previous review; noting any EA or EIS which is being or has been prepared that is related to but is not part of the scope of the EIS under consideration; identifying other environmental review and consultation requirements; and indicating the relationship between the timing of the preparation of environmental analyses and the Agency's tentative planning and decisionmaking schedule. Additionally, the EIS IP will contain: a detailed outline of the EIS; a description of the means by which the EIS will be prepared, including the nature of any contractor assistance to be used. The EIS IP may also contain: target page limits for EIS; target time limits for EIS preparation;

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and an allocation of assignments among the DOE and cooperating agencies. The DOE will prepare the EIS IP as soon as practicable after the close of the public comment period on the NOI. Furthermore, the DOE may revise the EIS IP during EIS preparation, as necessary.

4.5 ENVIRONMENTAL FIELD ACTIVITY PLANS (EFAPs)

Environmental Field Activity Plans (EFAPs) describe the environmental field activities that will be conducted to collect the environmental data required for the ERCP, EMMP, EIS IP, and other documents. To ensure that the environmental field program addresses all environmental requirements, EFAPs will be prepared for the following environmental categories (additional EFAPs will be prepared if appropriate):

o Aesthetics	o Radiological Studies
o Air Quality	o Soils
o Cultural Resources:	o Terrestrial Ecosystems
--Archaeological Component	o Water Resources
--Native American Component	
o Noise	

Each EFAP will describe the specific environmental field studies to be conducted during the site characterization phase and following phases. The EFAPs will initially concentrate on requirements driven by commitments made in the EMMP, other requirements identified in the ERCP, or both. At

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intervals throughout the site-characterization phase and future repository development effort, the EFAPs will be updated to be responsive to requirements that drive the environmental program.

The EFAPs are written to implement the environmental data collection programs. They provide: (1) a description of the field work to take place, concentrating on the near-term; (2) a rationale for studies proposed; (3) field techniques and methods; (4) equipment and materials required; and (5) quality assurance requirements. Technical Procedures will be prepared for the specific data collection techniques to be used in the field and for the subsequent analysis of the data.

An important aspect of the EFAPs is that they provide a common integration place for environmental program data requirements. This integration provides for common data requirements to be satisfied without duplication of efforts and minimizes the potential that some data requirements might be omitted. Common EFAPs also allow present data collection to change in a structured timely fashion to satisfy future requirements.

4.6 RECLAMATION FEASIBILITY PLAN (RFP)

The RFP describes the site-specific field activities that will be conducted to collect the environmental data required for the Reclamation Implementation Plan (RIP) and other documents.

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To implement the reclamation data collection program, the RFP contains (1) a description of field data work to take place during site characterization; (2) a rationale for studies; (3) field techniques and methods; (4) required equipment and materials; and (5) quality assurance requirements.

The purpose of the RFP is to describe the studies that will be conducted at the Yucca Mountain Site to fulfill regulatory and programmatic reclamation requirements, as identified in the RIP.

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5. PERFORMANCE OF PLANNED ACTIVITIES

The DOE will document work performed, thereby documenting completion of the environmental requirements pertinent to the various parts of the environmental program through a variety of reports or documents. Chapter 5 presents the plans of work that will be developed and the reports that will contain required documentation including topical and progress reports, regulatory compliance permit documents, and the Environmental Impact Statement (EIS) required by the National Environmental Policy Act (NEPA) and the Nuclear Waste Policy Act (NWPA). 10 CFR Part 51 contains NRC's NEPA implementing regulations that address the process and criteria NRC will use to adopt DOE's repository EIS. Other reports may be needed as the environmental program progresses.

The documents and reports described herein will ultimately contribute to the production of a License Application (LA) to be submitted from the DOE to the U.S. Nuclear Regulatory Commission (NRC). The LA, consisting of a Safety Analysis Report (SAR) and an Environmental Report (ER), must be submitted to the NRC before the DOE may construct, operate, or permanently close the repository. The NRC will authorize such construction, operation, or closure upon a finding of reasonable surety that the repository will protect public health and safety. The content of the SAR and the strategy for integrating the related technical information have not yet been finalized. However, current licensing strategy includes production of a licensing management plan that will provide a comprehensive framework for production of the SAR. This management plan will provide the proper forum for

discussion of the LA. The environmental portion of the licensing strategy will be incorporated into the DOE's environmental program as requirements related to licensing are finalized.

5.1 TOPICAL DATA REPORTS

The Environmental Field Activity Plans (EFAPs) call for the collection of data for noise, aesthetics, terrestrial ecosystems, radiological studies, cultural resources (both archaeological and Native American components) air quality, soils, and water resources. The habitat Reclamation Feasibility Plan calls for the collection of data to determine appropriate reclamation measures. Data collected by these studies will be reported in data acquisition reports and Topical Data Reports. The timing and content of these reports may be quite different depending on the discipline. For example, the air quality data will be reported quarterly, and terrestrial ecosystems data will be reported as pre- and post-construction survey reports and annual progress reports. Reclamation, however, is expected to occur at the Yucca Mountain site during and after site characterization, and after closure of the repository (if construction of a repository is authorized at Yucca Mountain). Therefore, reclamation Topical Data Reports may be issued at varying intervals. The Topical Data Reports will provide most of the site-specific technical data for use in various parts of the environmental program, including the preparation of the Environmental Monitoring and Mitigation Plan (EMMP) Progress Reports, EIS, and permitting and regulatory compliance documentation.

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The Topical Data Reports will also be used to input data into the Reference Information Base (RIB) described in the Systems Engineering Management Plan (SEMP). The RIB will contain reference site, design performance, socioeconomic, and environmental information related to the MGDS. The RIB will be used to support the various analyses necessary for site characterization, environmental evaluation, design and performance assessment. The RIB will provide investigators with internally consistent values for use in their various activities. The data in the RIB will be incorporated and revised following strict change control procedures.

5.2 EMMP PROGRESS REPORTS

At the time of its release, the EMMP contained the most current information available regarding activities to be conducted during site characterization. As site characterization activities proceed, however, DOE may modify the EMMP in response to changes in the site characterization program. Such changes may include changes in the schedule or scope of site characterization activities; changes in site characterization activities warranted by the collection of environmental monitoring data; and acquisition of new environmental information on the site. EMMP Progress Reports would be issued to reflect these modifications.

DOE will periodically issue Site Characterization Plan Progress Reports that will document completed and planned site characterization activities and describe revisions to previously planned activities. If any of these changes

result in the potential for significant adverse environmental impacts, appropriate monitoring strategies will be developed and documented in EMMP Progress Reports that will be issued subsequent to each SCP Progress Report. If the potential for significant adverse impacts necessitates change in the technique or scope of environmental data collection, these changes will be reflected in the EFAPs via updates. The EMMP Progress Reports will also address concerns raised by affected parties. Similarly, evaluation of monitoring data may reveal the need to modify the existing techniques for gathering monitoring data. In the event that this occurs, DOE will expand or reduce the monitoring effort and document this revision in EMMP Progress Reports. Factors other than those discussed above, such as inclement weather and the destruction and/or malfunction of monitoring equipment, may also require changes in the monitoring program that would be documented in EMMP Progress Reports.

5.3 ENVIRONMENTAL IMPACT STATEMENT

Title I, Subtitle A, Sec. 114(a) (1) of the NWPA as amended by the NWPAA requires that a Final EIS (FEIS) be prepared for the Yucca Mountain site pursuant to Subsection (f) of the same and the NEPA of 1969 (42 USC 4321 et seq.). It also requires that the EIS be made available to the public and be transmitted to the President, together with comments made concerning such environmental impact statements by the Secretary of the Interior, the Council on Environmental Quality (CEQ), the Administrator (of the EPA), and the

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(Nuclear Regulatory) Commission. The Secretary shall not be required by any such EIS to consider the need for a repository, the alternatives to geologic disposal, or alternative sites to the Yucca Mountain site.

The schedule for preparation of the EIS in the Mission Plan Amendment calls for issuance of the Draft EIS and the FEIS in late 1993 and late 1994, respectively. The EIS will be prepared pursuant to requirements of the NWPA of 1982 (as amended by the NWPAA of 1987) and the NEPA of 1969. EIS contents are discussed in Section 3.2.

Title I, Section 102(2)(C) NEPA requires each environmental impact statement to address: the environmental impact of the proposed action; any adverse environmental effects which cannot be avoided should the proposal be implemented; alternatives to the proposed action; the relationship between local short-term uses of man's environment and the maintenance and enhancement of long-term productivity; and any irreversible and irretrievable commitments of resources which would be involved in the proposed action should it be implemented. The CEQ, created by Title II of NEPA, has promulgated regulations for implementing the procedural provisions of the NEPA, which recommends a format for the EIS that is in compliance with NEPA.

In accordance with requirements of the Nuclear Waste Policy Act, the DOE promulgated "General Guidelines for the Recommendation of Sites for the Nuclear Waste Repositories," contained in 10 CFR 960. The guidelines establish performance objectives for a repository system and define the basic technical requirements that a site must meet. The necessary environmental

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findings for identifying the site as potentially acceptable and suitable for a repository will be described in detail in the EIS.

5.4 PERMITS AND STATUTORY COMPLIANCE REPORTS

Environmental permits, consultations, and other environmental regulatory actions required for site characterization are described in the Environmental Regulatory Compliance Plan for Yucca Mountain (DOE/RW-0177). If it is determined that Yucca Mountain is a suitable site for a repository, additional environmental permits will be required to construct and operate the repository. Identification of the specific permits that may be required for a repository will be completed during the next several years and the ERCP will be updated to include these new requirements. Such necessary changes to the ERCP will be documented in the form of yearly compliance updates. Requirements for site-specific data that may be necessary to obtain repository permits will be incorporated into the appropriate Environmental Field Activity Plans described previously.

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6. QUALITY ASSURANCE

The DOE Quality Assurance (QA) program is committed to ensuring that the structures, systems, and components important to safety and the barriers important to waste isolation, as well as supporting engineering and technological data, including the collection of certain environmental data, are subjected to appropriate QA methods and procedures during the siting, designing, licensing, construction and operating of waste-management facilities. The QA program consists of systematic actions that provide demonstrable evidence that the environment and public health and safety are protected.

Quality assurance requirements for the program have their origin in, and comply with, DOE directives, NRC licensing regulations, and national consensus standards. The QA program is consistent with the applicable QA criteria of DOE Order 5700.6A (Quality Assurance); the NRC's 10 CFR Part 50, Appendix B (Quality Assurance for Nuclear Power/Fuel Reprocessing Plants); and the national consensus standard ANSI/ASME NQA-1 (Quality Assurance Program Requirements for Nuclear Facilities), which has been developed by the American National Standards Institute and the American Society of Mechanical Engineers. The criteria cover the following QA program elements:

1. Organization
2. Quality-assurance program
3. Design control
4. Procurement-document control

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5. Instructions, procedures, and drawings
6. Document control
7. Control of purchased material, equipment, and services
8. Identification of materials, parts, and components
9. Control of special processes
10. Inspection
11. Test control
12. Control of measuring and test equipment
13. Handling, storage, and shipping
14. Inspection, test, and operating status
15. Nonconforming materials, parts, or components
16. Corrective action
17. Quality assurance records
18. Audits

The Yucca Mountain Project QA activities will be conducted in accordance with the Yucca Mountain Project QA Plan (NVO-196-17), which includes the QA requirements identified for use on the Yucca Mountain Project. All participating organizations, including the Nevada Test Site support contractors, have developed and are implementing their own QA Program Plans (QAPP) and procedures in conformance with NVO-196-17. These documents identify the requirements that apply to their organization and the measures to satisfy these requirements. OCRWM activities will be conducted in accordance with the OCRWM QA Plan.

The Yucca Mountain Project Systems Engineering Management Plan (SEMP) incorporates by reference the QA requirements established by NVO-196-17.

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These requirements include provisions for the control of program planning; scientific investigations; including certain environmental and transportation activities; design input; review and approval of design documents; change control; and design interface control. Where applicable, the Environmental Program Overview (EPO) and subordinate plans and activities will be developed and controlled in accordance with the Yucca Mountain Project QAPP and applicable supporting Quality Procedures (QPs). QA controls are implemented by QA auditing. Audits verify that work is being performed as planned.