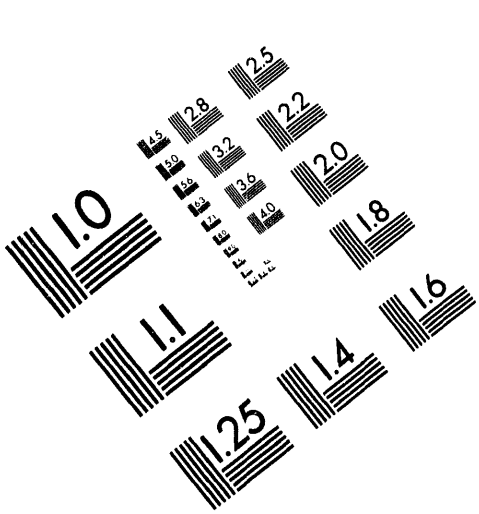

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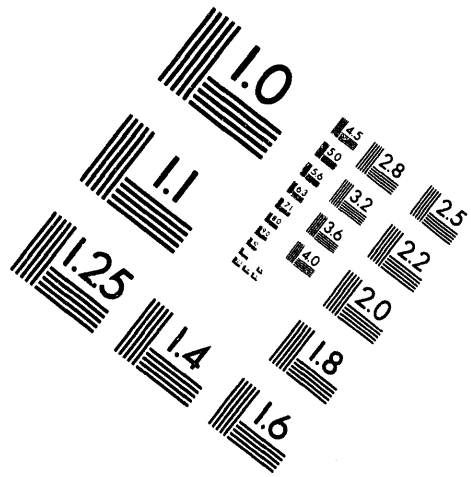

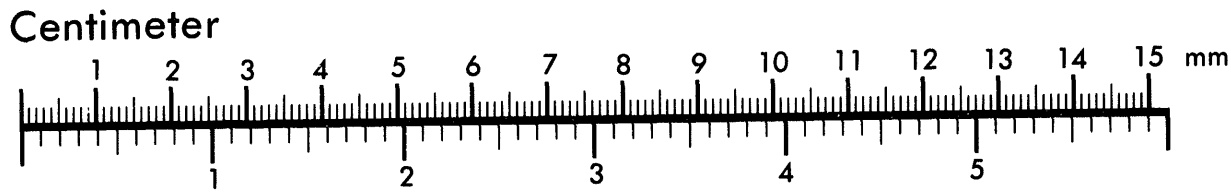

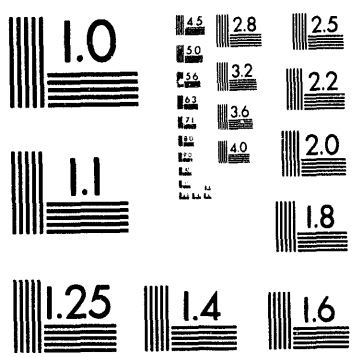

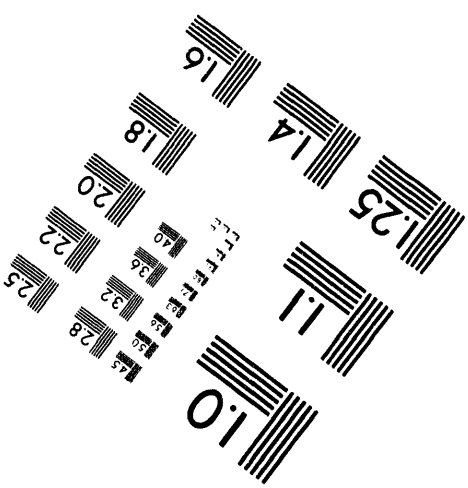

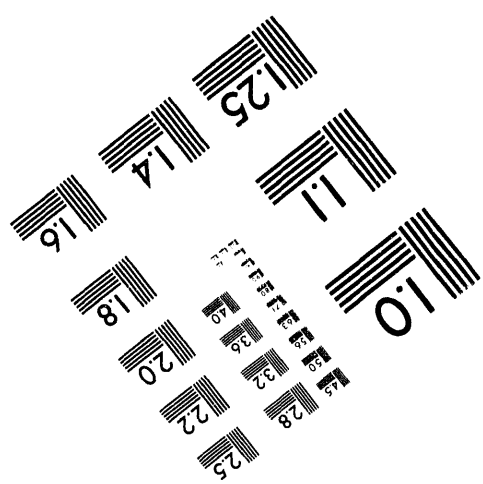

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1 of 2

DOE/RW-0441

Office of Civilian Radioactive Waste Management

Regulatory Guidance Document

Revision 0

(A00000000-01717-5600-00001)

May 1994

U.S. Department of Energy
Office of Civilian Radioactive Waste Management
Washington, DC 20585

Office of Civilian Radioactive Waste Management

WBS: 9.2.2
QA: N/A
Page: 1 Of: 1

BCCB CHANGE DISPOSITION SUMMARY RECORD

1. BCP NUMBER / REV.	3. ORIGINATOR'S NAME	5. CHANGE LEVEL	6. PRIORITY LEVEL	7. DISPOSITION DATE
BCP-00-93-0003	G. J. Parker	☐ 0 ☑ 1 ☐ 2 ☐ 3	☑ ROUTINE ☐ FIELD ☐ PRIORITY ☐ EMERGENCY ☐ URGENT	
2. DATE REC'D	4. ORIGINATOR'S ORGANIZATION			8. BCP TYPE
	RW-332			☐ TECHNICAL ☑ MANAGEMENT ☐ DEVIATION ☐ ADMINISTRATIVE

9. BCP DESCRIPTION/TITLE

Regulatory Guidance Document (RGD), Revision 0

10. DISPOSITION RECOMMENDATION: ☐ ESAAB ☑ PROGRAM ☐ PO YMP ☐ PO MRS PROJECT ☐ FIELD ☐ CONTRACTOR

BOARD MEMBER SIGNATURE	RECOMMENDATIONS (See Block 10 Instructions)
L. Barrett, RW-2 (See Attached Request for Disposition)	Approve with conditions [RESOLVED]
D. Horton, RW-3 (See Attached Request for Disposition)	Approve with conditions [RESOLVED]
J. Saltzman, RW-4 (See Attached Request for Disposition)	Approve
J. Saltzman, RW-5 (See Attached Request for Disposition)	Approve with conditions [RESOLVED]
S. Rousso, RW-10 (See Attached Request for Disposition)	Approve with conditions [RESOLVED]
R. Nelson, RW-20 (See Attached Request for Disposition)	Approve with conditions [RESOLVED]
D. Shelor, RW-30 (See Attached Request for Disposition)	Approve
R. Milner, RW-40 (See Attached Request for Disposition)	Approve with conditions [RESOLVED]
S. Rousso, RW-50 (See Attached Request for Disposition)	Approve

DIRECTIVE

11. CHANGE DISPOSITION: * SEE BLOCK 13
☑ APPROVE ☐ DEFER* ☐ APPROVE WITH CONDITIONS* ☐ DISAPPROVE* ☐ CANCEL*

12. BCCB CHAIRMAN SIGNOFF:
PRINT Daniel A. Dreyfus
SIGN _____ DATE 5/26/94

13. CHAIRMAN'S JUSTIFICATION/CONDITIONS/LIMITATIONS

☐ See Continuation Page

14. BCCB DIRECTIVE/IMPLEMENTING INSTRUCTIONS FOR DOCUMENT(s)

1. The PBCCB Executive Secretary shall print and distribute the Regulatory Guidance Document (RGD) to all Program Level Controlled Document Holders.

2. The RGD shall be used as the basis for development of the Project-level Regulatory Compliance Plan.

☐ See Continuation Page

15. BCCB DIRECTIVE/IMPLEMENTING INSTRUCTIONS FOR AFFECTED CONFIGURATION ITEM(s)

N/A

☐ See Continuation Page

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FOREWORD

The Office of Civilian Radioactive Waste Management (OCRWM) Program Management System Manual requires preparation of the OCRWM Regulatory Guidance Document (RGD) that addresses licensing, environmental compliance, and safety and health compliance. The document provides: regulatory compliance policy; guidance to OCRWM organizational elements to ensure a consistent approach when complying with regulatory requirements; strategies to achieve policy objectives; organizational responsibilities for regulatory compliance; guidance with regard to Program compliance oversight; and guidance on the contents of a project-level Regulatory Compliance Plan.

This document will be revised as necessary to reflect changes in DOE policy, OCRWM mission, or the regulatory framework. Revisions to this document will be managed through the Program configuration management process.

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1. INTRODUCTION

The Nuclear Waste Policy Act of 1982 and the Nuclear Waste Policy Amendments Act of 1987 (hereinafter referred to as NWPA, as amended), assigned to the Department of Energy (DOE) the responsibility for managing the disposal of spent nuclear fuel and high-level radioactive waste. The NWPA, as amended, also established the Office of Civilian Radioactive Waste Management (OCRWM) for that purpose. The NWPA, as amended, and the recently enacted Energy Policy Act of 1992 provide the statutory framework for implementation of the basic technical and procedural aspects of such disposal. The current draft Amendment to the Mission Plan for the Civilian Radioactive Waste Management Program (henceforth referred to as CRWM Program or "Program") sets forth Program plans and strategies for accomplishing the mission assigned to OCRWM (DOE, 1991b). OCRWM has developed a program management system (PMS), as described in the PMS Manual (DOE, 1993b), to assist in organizing, planning, directing and controlling the Program. The PMS Manual is OCRWM's top-level Program management directive. It describes the hierarchy of documents required to develop and maintain the Program's technical, cost, and schedule baseline, and the management policies and procedures to be used in Program implementation. Section 2.5 of the PMS Manual states that the structure for implementing the Program consists of two existing Major System Acquisitions (MSAs): the Yucca Mountain Project (YMP), and the Monitored Retrievable Storage (MRS) Project. The Yucca Mountain Project and the MRS Project are referred to as "Projects" throughout the remainder of this document. The Yucca Mountain Site Characterization Project is a part of the YMP MSA.

The description of the activities and the documentation of the Program are related through the document hierarchy delineated in the PMS Manual. The current OCRWM document hierarchy is presented in Figure 1-1.

With regard to regulatory compliance, as indicated in Figure 1-1, the PMS Manual requires the development of the following documents: a Program-level Regulatory Guidance Document (RGD) to provide regulatory policy and guidance for all projects within OCRWM, namely Yucca Mountain Project (YMP) and Monitored Retrievable Storage (MRS), and Project-level Regulatory Compliance Plans (RCPs) to provide each project's detailed plans for implementing the policy and guidance that is provided in the RGD. The RGD is developed and issued by the Associate Director, Office of Systems and Compliance (ADSC). The abbreviations and acronyms used in this document are listed in Appendix C.

1.1 PURPOSE

The regulatory policy of OCRWM as stated in Section 4.6.2 of the PMS Manual is as follows: *Each Program participant shall protect worker and public health and safety and the environment in accordance with requirements of the governing regulations and shall demonstrate compliance therewith. Compliance shall be verified through audits, surveillance, self-assessments, and reviews.* To facilitate implementation of that policy, the purpose of the RGD is to outline OCRWM's regulatory compliance policy; provide guidance to OCRWM organizational elements to ensure that a consistent approach is used when complying with

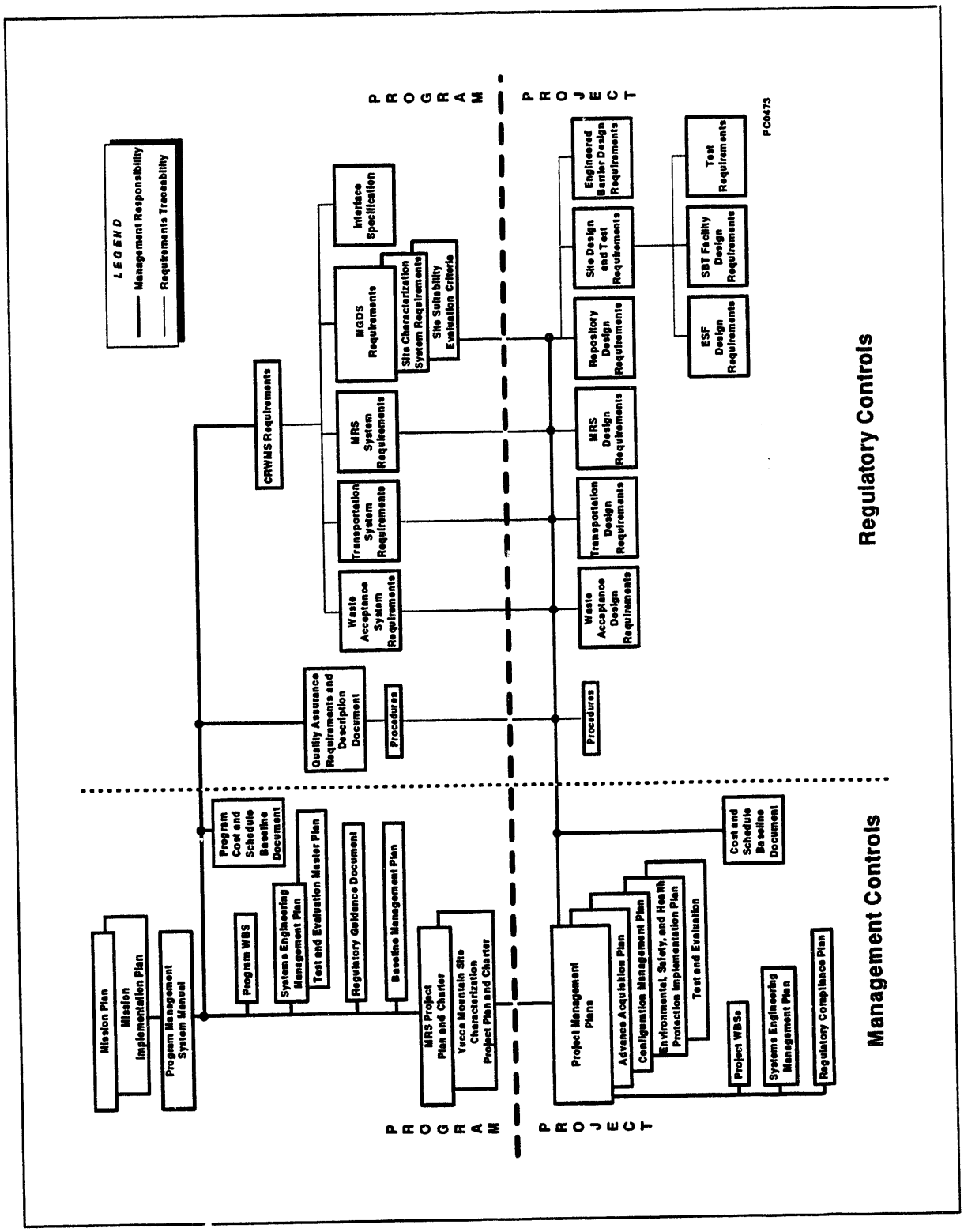

Figure 1-1. OCRWM Document Hierarchy
[Source: PMS Manual, Rev. 5, DOE/RW-0043]

regulatory requirements; describe the strategies to be followed to achieve policy objectives; identify organizational responsibilities for regulatory compliance; and describe how the program exercises compliance oversight. The RGD also discusses the site suitability evaluation process, strategy, and implementation guidance for the MGDS and MRS MSAs. The RGD serves as a pointer to other documents, for example, the Safeguards and Security Plan.

The RGD also provides guidance regarding the contents of the RCP, by including a suggested generic annotated outline. A schematic of the RGD and its relationship to the RCP and its elements is presented in Figure 1-2.

1.2 SCOPE

The scope of the RGD includes site suitability evaluation, licensing, environmental compliance, and safety and health compliance, in accordance with the direction provided by Section 4.6.3 of the PMS Manual. Site suitability evaluation and regulatory compliance during site characterization are significant activities, particularly with regard to the YMP MSA. OCRWM's evaluation of whether the Yucca Mountain site is suitable for repository development must precede its submittal of a license application to the Nuclear Regulatory Commission (NRC). Accordingly, site suitability evaluation is discussed in Chapter 4, and the general statements of policy regarding site suitability evaluation are discussed in Section 2.1. Although much of the data and analyses may initially be similar, the licensing process is discussed separately in Chapter 5. Environmental compliance is discussed in Chapter 6. Safety and Health compliance is discussed in Chapter 7.

The RGD is a program-level policy and guidance document. It provides policy and guidance regarding regulatory compliance for MGDS, MRS, and Transportation in the areas of site suitability, licensing, environmental compliance, and safety and health compliance. It serves as a management tool for the ADSC to provide policy and guidance with regard to regulatory matters and compliance oversight. In the RGD the word "should" is used consciously to imply guidance. In the context of the systems engineering process, the RGD allocates the regulatory requirements at a macro level by identifying principal laws and regulations that must be complied with as applicable. Accordingly, it does not contain detailed information about laws, regulations, and requirements. Those details are expected to be covered in the project-level RCPs, either by inclusion in the RCP or by making reference to appropriate documents where such requirements have already been delineated. The intent is to capture and identify all applicable regulatory requirements through the combination of the RGD, RCP, and the documents referenced therein.

The primary focus of the strategies and activities in the RGD, at this time, will be limited to the period starting with the present and ending with the issuance by NRC to DOE of an "operating license" for the MGDS, and receipt of a combined license to construct and operate for the MRS. Strategies and activities associated with the periods of operation, decommissioning and permanent closure, and eventual termination of the license will be addressed in future revisions to the RGD.

By way of clarification, just because guidance is provided extending through the receipt of the operating license stage does not mean that the RGD requires that the technical baseline be carried out through the receipt of operating license, at this time. The RGD does not impose any such

requirement. In addition, the Projects have flexibility to define their planning horizon in the RCPs.

Guidance for the preparation of RCPs and a suggested generic outline for the RCP with brief annotations are presented in Chapter 8 and Appendix A, respectively. Figure 1-2 indicates the elements to be included in an RCP. Whether these elements are included in one document or in separate documents is left to the discretion of the Projects.

1.3 REVISIONS TO RGD

The RGD will be revised as needed to incorporate changes such as: changes in DOE policy, the CRWM program or the regulatory framework, organizational changes, state of the practice changes, improvements resulting from experience gained in working with the RGD, or changes resulting from maturation of the initiatives such as Interim Storage and Multipurpose Canister.

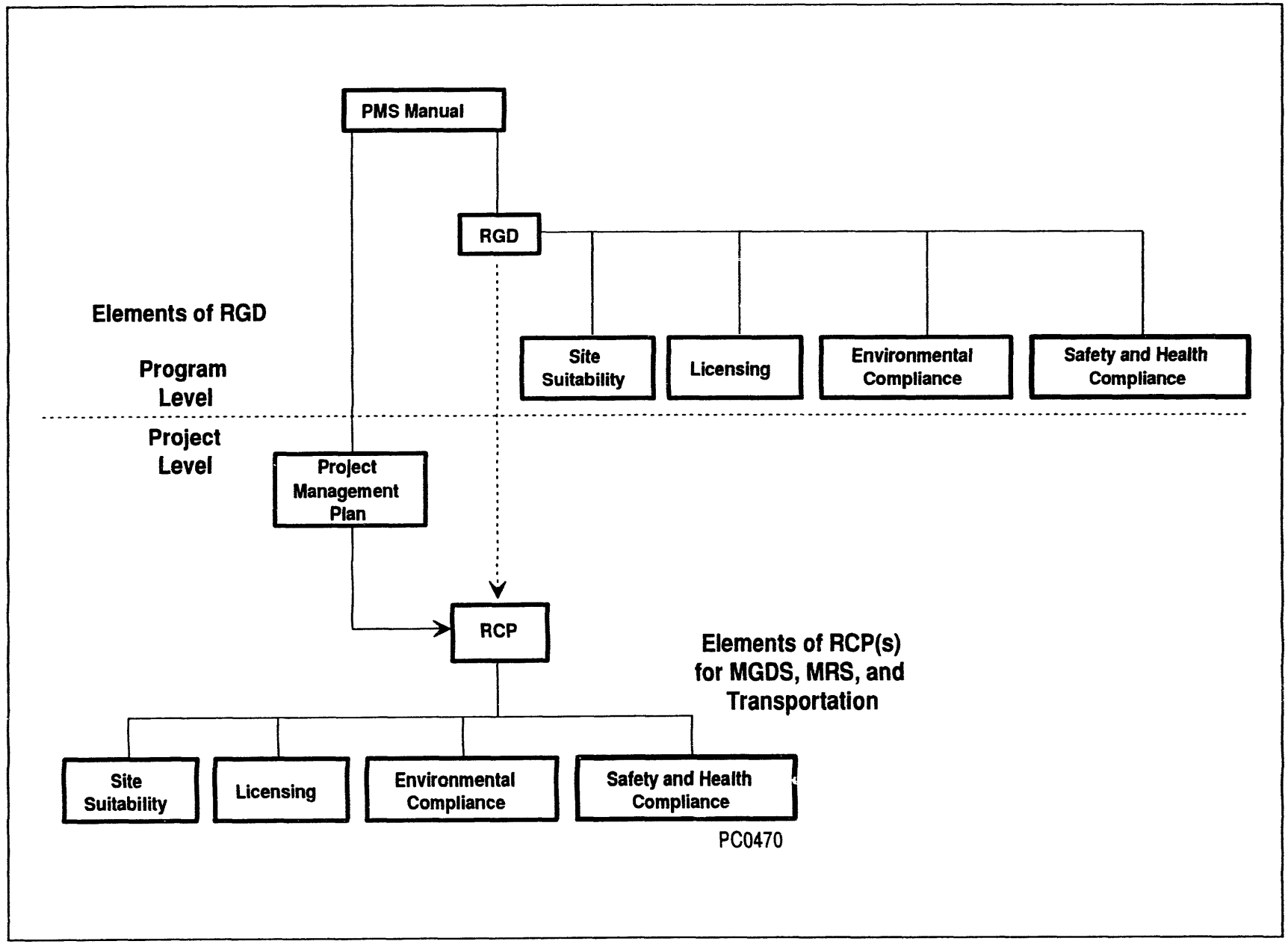

Figure 1-2. Relationship Between RGD and RCP

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2. POLICY

General statements of DOE and OCRWM policy with regard to regulatory compliance are discussed in this chapter. Such policy statements are derived from documents such as the Secretary's safety initiative (DOE, 1993d), the Draft Mission Plan Amendment (DOE, 1991b), DOE Orders, previous briefings to other agencies [such as the Nuclear Regulatory Commission (NRC)], and other Program directives. These general policy statements together with specific policies or objectives derived from the general policy statements are further discussed in the individual chapters related to site suitability (Chapter 4), licensing (Chapter 5), environmental compliance (Chapter 6), and safety and health compliance (Chapter 7).

On May 5, 1993, the Secretary announced a comprehensive nuclear and occupational safety initiative to emphasize the Department's strong commitment to health and safety issues. The immediate goals of this initiative are to:

- *Develop a Comprehensive Departmental Safety and Health Policy*
- *Establish the authority of the Assistant Secretary for Environment, Safety and Health to force cessation of unsafe operations*
- *Rescind the 60-day Notice Requirement for Environment, Safety and Health assessment*
- *Develop a Departmental "Fatality Policy" with strengthened investigation procedures*
- *Establish Employee-Management Health and Safety Committees for ALL department sites*
- *Seek to accelerate issuance of the Price-Anderson Nuclear Safety Rules*
- *Call to initiate consultation with the Occupational Safety and Health Administration with the aim of establishing regulation for all department sites.*

The basic policies under which the OCRWM program is conducted as described in the current Mission Plan Amendment are as follows: (DOE, 1991b)

- *The protection of the health and safety of the public and of workers and the quality of the environment is of paramount importance.*
- *The program must be conducted such that public confidence is warranted, with opportunities and means provided for meaningful participation by affected governments and interested parties.*

- *The program must be distinguished by its technical integrity and excellence and directed at reaching scientific consensus and public understanding.*

- *The program must be conducted in an efficient and cost-effective manner.*

General policies related to site suitability evaluation, licensing, environmental compliance, and safety and health compliance are presented in the following sections.

2.1 SITE SUITABILITY EVALUATION

The determination of the suitability of candidate sites under consideration for development as a repository, as reflected in Section 112, 113, etc. of the Nuclear Waste Policy Act, as amended, has been and continues to be a primary focus of the CRWM program. Current program initiatives are being implemented to ensure that such suitability determinations are made as early as possible and are iterated throughout the site characterization process. The general policies related to site suitability evaluation are discussed below.

- In a statement before the Subcommittee on Energy and Water Development of the Committee on Appropriations, the Director, OCRWM proposed a program and the supporting FY 1995 budget request to address two major issues. He stated that *the first major issue is assuring efficient progress toward determination of the suitability of the Yucca Mountain site for a permanent repository and, if it is suitable, proceeding with licensing and construction of a repository.* He also stated that *based on the new funding approach, we are proposing to realign our site characterization activities at Yucca Mountain. The testing and design elements will place priority on those activities in the Site Characterization Plan that address the issue of site suitability. As the Nuclear Waste Policy Act intended, we will continue to carry forward the associated activities necessary to proceed immediately with a license application when and if the site is found suitable.* (DOE 94)

- In a presentation to the U.S. Nuclear Regulatory Commission, the Director, OCRWM stated: *The key to determining the suitability of the Yucca Mountain site lies in the investigation of the site's geology through tunnel exploration. Therefore, the Secretary has ordered the excavation and tunneling activities for the Exploratory Studies Facility (ESF) to continue as planned.* (DOE 1993g)

- The suitability evaluations of the Yucca Mountain site will be performed using the Department's 10 CFR Part 960 as the guideline. Regarding DOE's General Guidelines for the Recommendation of Sites for Nuclear Waste Repositories, 10 CFR 960.1 states: *These guidelines were developed in accordance with the requirements of Section 112 (a) of the Nuclear Waste Policy Act of 1982 for use by the Secretary of Energy in Evaluating the suitability of sites for the development of repositories. The guidelines will be used for suitability evaluations and determinations made pursuant to Section 112 (b) and any determinations required by Section 114 (f).*

- The relationship between the Department's siting guidelines and the requirements of 10 CFR Part 60 is discussed in 10 CFR 960.1 as follows: *The guidelines set forth in this*

Part (960) are intended to complement the requirements set forth in the Act, 10 CFR Part 60, and 40 CFR Part 191 (prior to its being remanded). The DOE recognizes NRC jurisdiction for the resolution of differences between the guidelines and 10 CFR Part 60. The guidelines have received the concurrence of the NRC. The DOE contemplates revising the guidelines from time to time, as permitted by the Act, to take into account revisions made to the above regulations and to otherwise update the guidelines as necessary. The DOE will submit the revisions to the NRC and obtain its concurrence before issuance.

2.2 LICENSING

The general policies related to licensing are:

- *Maintain standards of excellence - Technical excellence has always been a fundamental requirement of the program, and its importance increases with the increasingly difficult challenges that arise as the program moves forward. It is essential for success in licensing, establishing scientific consensus, increasing public confidence, and the prudent management of resources. (DOE, 1991b)*

- *Use simple and proven technologies - The use of simple and proven technologies, particularly those already licensed by the Nuclear Regulatory Commission, and the use of designs that approximate those of licensed facilities should facilitate licensing and increase cost effectiveness. This principle is applicable to an MRS facility, a repository, and a transportation system. (DOE, 1991b)*

- Frequent interactions with the regulator - *As part of our licensing strategy, we intend to continue frequent interactions with the staff of the Nuclear Regulatory Commission to define issues and strive for early resolution, before the submittal of the license application. (DOE, 1991b)* To ensure a high probability of success in obtaining a construction authorization/license, the goal is to submit a complete and high quality license application as suggested by the NRC. *(NRC, 1988)*

2.3 ENVIRONMENTAL COMPLIANCE

The general policies related to environmental compliance are:

- *It is DOE Policy to conduct its operations in an environmentally safe and sound manner. Protection of the environment and the public are responsibilities of paramount importance and concern to DOE. Accordingly, it is DOE policy to conduct the Department's operations in compliance with the letter and spirit of applicable environmental statutes, regulations, and standards. Finally, it is DOE's policy that efforts to meet environmental obligations be carried out consistently across all operations and among all field organizations and programs. (DOE Order 5400.1)*

- *By accomplishing our mission and isolating the radioactive waste from the human environment, we [DOE] will make the environment safer for future generations. But we also intend to ensure that the accomplishment of our mission is effected in a manner that is environmentally safe and sound. In accordance with this policy, we are committed to meeting all applicable environmental requirements set forth by Federal, State, and local laws and regulations, executive orders, and orders of the Department of Energy. Finally, the program is being carried out in accordance with the 10-point initiative announced by the Secretary of Energy on June 27, 1989, and issued to ensure that all activities are carried out in full compliance with environmental statues and regulations, and the Department's Order 5440.1D of February 22, 1991, on compliance with the National Environmental Policy Act of 1969. (DOE, 1991b)*

- *The Office of Civilian Radioactive Waste Management (OCRWM) will meet all applicable environmental requirements set forth by Federal laws and regulations, Executive Orders, and DOE Orders. With regard to State and local environmental laws for which Federal sovereign immunity has not been waived by the Congress (such as State laws that do not derive their authority from a federal law), it is the OCRWM's intention to, at a minimum, address the substantive elements of these State laws. The foregoing should not, however, be construed as limiting or restricting the OCRWM's courses of action should any State or local requirements be inconsistent with fulfilling the OCRWM's responsibilities under the NWPA, the Atomic Energy Act, and other Federal statutes. (DOE, 1992d)*

2.4 SAFETY AND HEALTH COMPLIANCE

Safety is the first priority of the CRWM Program. Safety goals will be achieved through compliance with all applicable safety codes, standards, criteria, and regulations; communication of these commitments as clearly as possible to all levels of management; and education of employees to work in a safe manner. As part of the previously described Secretary's initiative, the Secretary directed the Office of Environment, Safety and Health to prepare a comprehensive Departmental Safety and Health Policy. Pursuant to this direction by the Secretary, a draft policy statement was developed for issuance by the Secretary in the near future (DOE 1993e). The draft policy statement is reproduced below.

Environment, Safety and Health Policy
for the
Department of Energy Complex
June 1993

The hallmark of all our activities is daily excellence in the protection of the worker, the public, and the environment. Fundamental to the attainment of this vision are personal commitment, mutual trust, open communications, continuous improvement and full involvement of all interested parties.

The following guiding principles provide the framework by which every member of the Department of Energy community should conduct his or her job-related activities in support of this vision:

COMMUNICATION	*We will conduct our activities in an atmosphere of trust and confidence that is based on open, honest and responsive communication.*
PARTICIPATION	*We will actively encourage participation by all interested parties in our activities.*
RISK IDENTIFICATION AND MANAGEMENT	*We will utilize innovative and effective approaches to risk identification and management.*
INTEGRITY AND RESPECT	*We will conduct our business with integrity and mutual respect.*
SYSTEMATIC APPROACH	*We will apply a systematic approach to all activities that affect* environment, safety and health.
EFFECTIVE INTEGRATION	*We will effectively integrate environment, safety and health into all activities.*
RESOURCES	*We will allocate appropriate resources to support environment, safety and health activities.*
IMPROVED PERFORMANCE	*We will continue to improve our environment, safety and health performance.*
CONSISTENT APPROACH	*We will manage and conduct a consistent approach to environment, safety and health across the Department of Energy complex.*
INFORMATION AND RESOURCE SHARING	*We will encourage and promote the sharing of environment, safety and health information and resources.*
OWNERSHIP AND ACCOUNTABILITY	*We will establish clear ownership and accountability for all activities.*
TEAMWORK AND INVOLVEMENT	*We will promote teamwork through the involvement of all interested parties.*
EDUCATION AND TRAINING	*We will empower our employees through training, information, tools and program involvement to effectively protect themselves, the public and the environment.*

In addition, the Secretary signed a Radiological Safety and Health policy statement, which was published in the Federal Register on June 21, 1993 (DOE 1993f). This policy statement formally expresses the Department's fundamental policies and objectives on radiological health and safety. Some key policy statements excerpted from the above Federal Register notice are summarized below.

> *It is the policy of the Department of Energy to conduct its radiological operations in a manner that ensures the health and safety of all its employees, contractors, and the general public. In achieving this objective, the Department shall ensure that radiation exposures to its workers and the public and releases of radioactivity to the environment are maintained below regulatory limits and deliberate efforts are taken to further reduce exposures and releases in accordance with a process that seeks to make any such exposures or releases as low as reasonably achievable. The Department is fully committed to implementing a radiological control program of the highest quality that consistently reflects this policy.*
>
> *In meeting this policy, the Department shall:*
>
> *1. Establish and maintain a system of regulatory policy and guidance reflective of national and international, radiation protection standards and recommendations.*
>
> *2. Ensure personnel responsible for performing radiological work activities are appropriately trained.*
>
> *3. Ensure the technical competence of personnel responsible for implementing and overseeing the radiological control program.*
>
> *4. Establish and maintain, from the lowest to the highest levels, line management involvement and accountability for departmental radiological performance.*
>
> *5. Ensure radiological measurements, analyses, worker monitoring results and estimates of public exposures are accurate and appropriately made.*
>
> *6. Conduct radiological operations in a manner that controls the spread of radioactive materials and reduce exposures to the work force and the general public and that utilizes a process that seeks exposure levels as low as reasonably achievable.*
>
> *7. Incorporate dose reduction, contamination reduction, and waste minimization features into the design of new facilities and significant modifications to existing facilities in the earliest planning stages.*
>
> *8. Conduct oversight to ensure departmental requirements are being complied with and appropriate radiological work practices are being implemented.*

3. ORGANIZATIONAL RESPONSIBILITIES

Chapter 3 of the PMS Manual (DOE, 1993b) describes the OCRWM organization, and the responsibilities of the individual offices therein. It also describes the relationships with other DOE departmental entities and interfaces with external organizations. The approved mission and function statements for each organizational element within OCRWM are contained in Appendix C of the PMS Manual. Based on the information contained in Chapter 3 and Appendix C of the PMS Manual, the overall responsibilities with regard to regulatory compliance, from the standpoint of the RGD, are discussed in this chapter. Further details regarding responsibilities related to site suitability, licensing, environmental compliance, and safety and health compliance are discussed in Chapters 4, 5, 6, and 7.

[NOTE: OCRWM Headquarters is currently planning on a reorganization. On March 11, 1994 the Las Vegas component of OCRWM has implemented a reorganization whereby the former Office of Geologic Disposal and the Yucca Mountain Site Characterization Project Office have been combined into a new organization called Yucca Mountain Site Characterization Office (YMSCO). The RGD will be revised in the future to reflect changes in organizational responsibilities in Chapter 3, as well as in all other affected chapters.]

OCRWM's organization is project-oriented and designed to provide clear lines of responsibility, authority and accountability for the Program and its contractors. It provides a clear separation of the policy and guidance role at the program level from the field implementation role at the project level.

Figure 3-1* illustrates the OCRWM organization to the division level as presented in the PMS Manual. Table 3-1 is a matrix that summarizes the responsibilities associated with the program functions. Of particular interest from the standpoint of the RGD, is the function "Ensure Regulatory Compliance."

With regard to regulatory compliance, in the areas of site suitability, licensing, environmental, and safety and health, the following observations are made regarding the division of responsibilities.

The ADSC has primary responsibility for establishing regulatory requirements, providing policy and guidance with regard to regulatory compliance, identifying upper level strategies to achieve policy objectives, providing implementation guidance, and exercising compliance oversight. The ADSC carries out this responsibility through the Director, Regulatory Compliance Division (RCD). The Regulatory Integration Branch (RIB) and the Regulatory Policy and Requirements

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*Figure 3-1 and Tables 3-1 and 3-2 are direct extracts from the PMS Manual. It is recognized that some of the information contained in the above figure and tables may not be consistent with current organizational relationships and responsibilities. However, it is inappropriate to make changes to the above mentioned figure and tables in the RGD without revising the PMS Manual first. Also, refer to Appendix A of the PMS Manual for abbreviations contained in these tables.

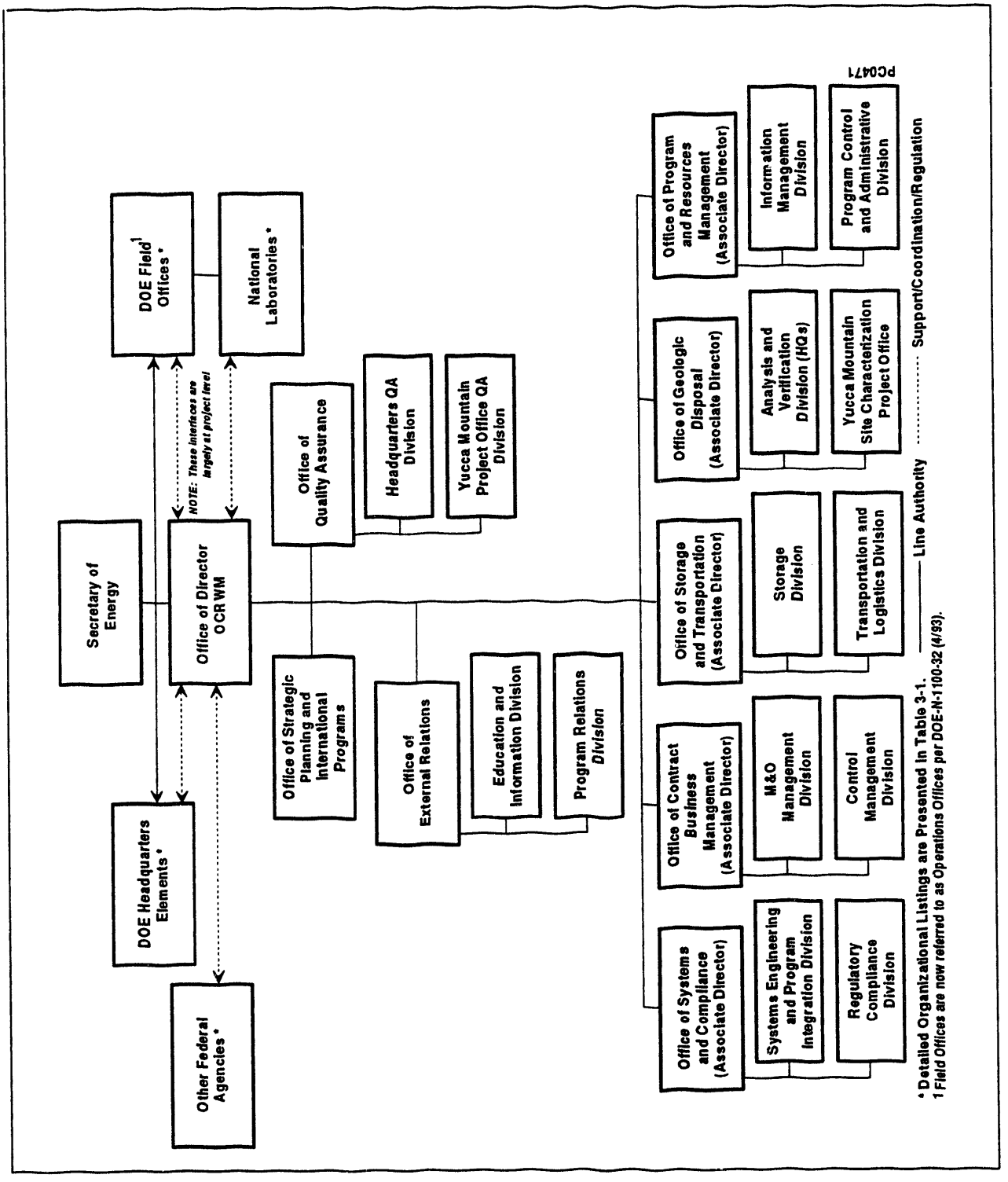

Figure 3-1. OCRWM Organization
[Source: PMS Manual, Revision 5, DOE/RW-0043]
*Field Offices are now referred to as Operations Offices per DOE-N-1100-32 (4/93)

Table 3-1. Responsibility Matrix
[Source: PMS Manual, Revision 5, DOE/RW-0043]

OCRWM Program Functions	Director	OCRWM Organizational Elements							
		OQA	OSPIP	OER	OPRM	YMSCO	OSC	OST	OCBM
Provide Systems Engineering	A	R			C	P	PR	P	
Design Engineered System	A	R			C	P	R	P	
Identify & Characterize Sites	A	R		C		PR	C	PR	
Evaluate Integrated System	A	R			C	PR	PR	PR	
Confirmation/Operational Tests	A	A			C	PR	R	PR	
Construct CRWMS	A	R		C	C	PR	C	PR	
Operate CRWMS	A	R		C	C	PR	C	PR	
Decommission CRWMS	A	R		C	C	PR	C	PR	
Ensure Regulatory Compliance	***A***	***C***		***C***		***PR***	***PR***	***PR***	
Provide External Relations	A			APCR		P	C	P	
Integrate International Programs	A	R	ACR			PR	CR	PR	
Strategic/Contingency Planning	A	R	PRC	R	R	R	R	R	R
Contract Management	A	PR	PR	PR	PR	PR	PR	PR	PRC
Administrative Services	A				APR	PC	PC	PC	PC
Provide Program Control	A	R			PRC	PR	PRC	PR	PR
Information Management	A	P	P	P	APRC	P	P	P	P
Quality Assurance	A	AR				P	P	P	P
LEGEND: A = Approve C = Coordinate P = Prepare/Perform R = Review									

Branch (RPRB) report to the Director, RCD. The detailed function statements for these two branches are listed in Appendix C of the PMS Manual. Within the Office of Systems and Compliance (OSC), preparation of the RGD is the responsibility of the Chief, RPRB.

In addition, a Self-Assessment Unit (SAU) has been established within OSC, reporting to the Chief, RPRB Branch. The objective of the self-assessment program is to determine the effectiveness and efficiency with which OCRWM and its supporting participants meet their programmatic responsibilities for environmental protection, safety and health, and safeguards and security.

Chapter 1 indicated that the Program currently includes two designated MSAs. They are: 1) YMP MSA, and 2) the MRS Project. The Yucca Mountain Site Characterization Project Manager is responsible for the YMP MSA and the Associate Director for Storage and Transportation (ADST) is responsible for the MRS Project. The Yucca Mountain Site Characterization Office is located at Las Vegas, Nevada. At present, the ADST is serving as Project Manager for the MRS MSA. The mission and function statements for the YMSCO, and the Office of Storage and Transportation (OST) indicate that they have primary responsibility for "developing implementation policies and strategies and conducting all management and programmatic functions" needed to produce their respective waste management subsystems in compliance with requirements documents and applicable laws and regulations.

The RGD is developed by the ADSC. The RCPs are to be developed by each Project Manager. Pertinent portions of Appendix F, Document Responsibility Matrix of the PMS Manual, are reproduced in Table 3-2. Table 3-2 indicates that the YMP RCP requires mandatory concurrence by the ADSC. Such concurrence review should concentrate more on policy matters than minute implementation details. Although a similar requirement for mandatory concurrence by the ADSC is not indicated for the MRS RCP, the same concurrence requirement is expected to be applicable to the MRS Project.

3.1 COMPLIANCE OVERSIGHT

The Director, OCRWM assigns responsibility for regulatory compliance oversight over all OCRWM projects to the ADSC. This responsibility is delegated to the Director, RCD, who performs such oversight function through reviews, audits, and assessment activities. Figure 3-2 is a flowchart depicting the compliance oversight process. It indicates the activities that would be performed by the Project Offices and the oversight activities performed at appropriate points in the process. The key points are summarized as follows:

- The RGD identifies the requirements at a macro level, such as identification of the principal laws or regulations. A more comprehensive set of regulatory requirements, with which compliance must be demonstrated, will be included in the RCP and/or the documents referenced therein. Federal or DOE-policy mandated requirements are initially identified by the Chief, Systems Planning and Integration Branch (SPIB) of OSC. State and local requirements will be identified by the project or project participants, as appropriate. Compliance with requirements can be tracked using the Automated Requirements Management System (ARMS). If the projects identify additional Federal or DOE-imposed requirements or changes in these requirements, the Chief, SPIB, should

Table 3-2. Document Responsibility Matrix
[Source: PMS Manual Revision 5, Appendix F, DOE/RW-0043]

DOCUMENT	SPONSOR	MANDATORY CONCURRENCE	APPROVAL AUTHORITY	PMS MANUAL SECTION
Office of Systems and Compliance				
Program Management System Manual	ADSC	PBCCB	PBCCB Chairman	4.3.2.1
Regulatory Guidance Document	ADSC	PBCCB	PBCCB Chairman	4.6.3
Office of Geologic Disposal				
YMP Project Regulatory Compliance Plan	YMP Proj Mgr	POBCCB, ADSC	POBCCB Chairman	4.6.6.1
Office of Storage and Transportation				
MRS Project Regulatory Compliance Plan	Project Mgr	POBCCB	POBCCB Chairman	4.6.6.1

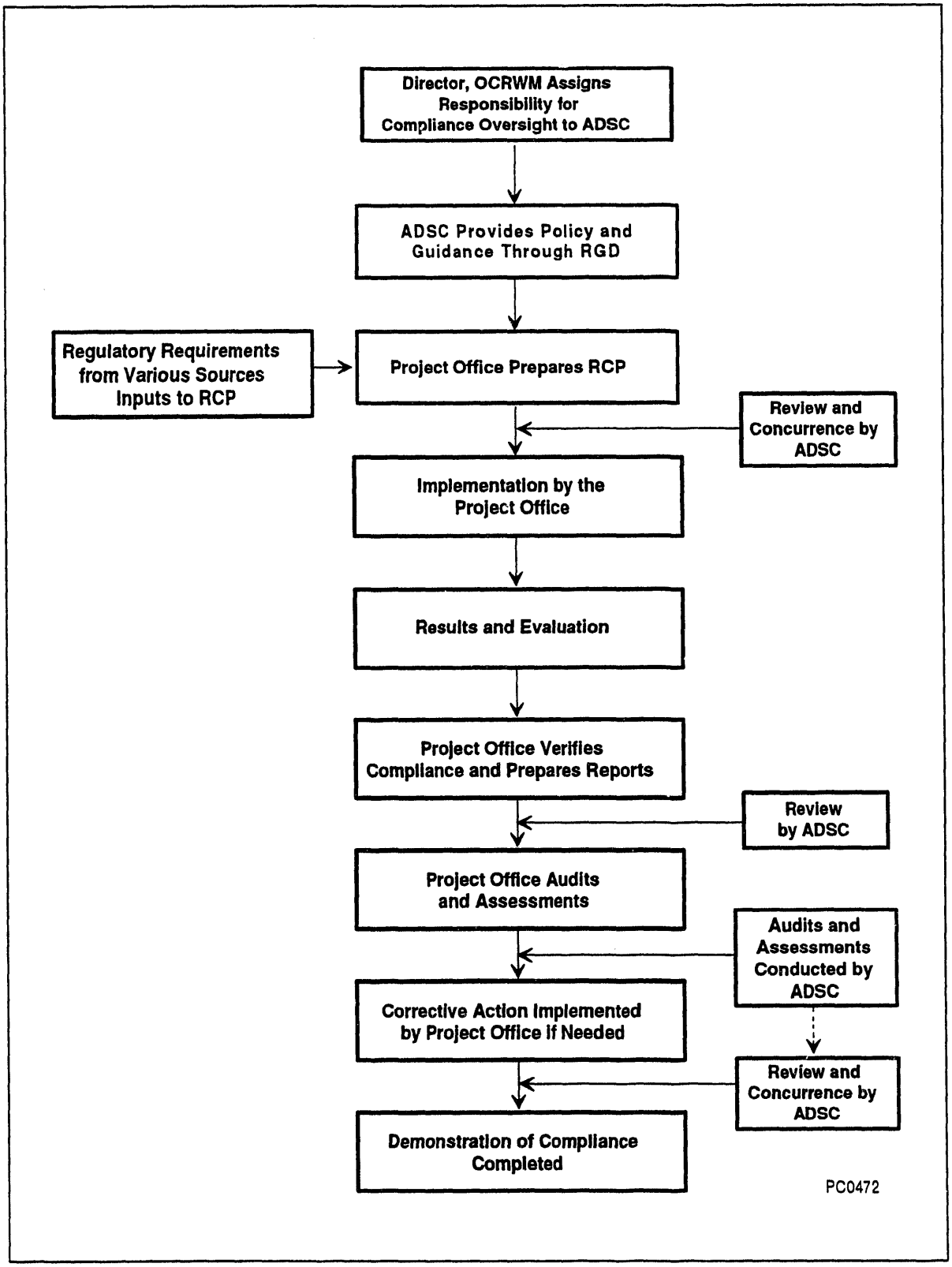

Figure 3-2. Regulatory Compliance Oversight Process

be notified by memorandum so that the change can be analyzed by the programmatic requirements and allocation research team. Additional State and local requirements or changes to these requirements will be analyzed and allocated by the Project Offices. In both cases, if a requirement is baselined, changes to the baseline requirements will have to be approved by the appropriate change control process and changes to the appropriate requirements documents approved prior to revisions to the ARMS database.

- The RCPs are subject to review and concurrence by the ADSC prior to issuance by the Project Managers as discussed on page 3-4.

- The Project Offices implement the strategies and procedures for achieving compliance with regulatory requirements. The Project Offices may develop their own procedures for determination and verification of compliance, and prepare reports of their results and evaluation as objective evidence of compliance. These reports should be forwarded to the ADSC.

- It is expected that the Project Offices will perform periodic audits and self-assessments to evaluate the effectiveness of their compliance process. Reports of such audits and assessments, and any corrective actions that may be implemented, should be forwarded to the ADSC.

- In addition, audits and assessments will be conducted by the ADSC periodically. Reports of such audits, assessments and recommendations, if any, will be forwarded to the respective Project Managers for appropriate action.

3.2 CONFLICT RESOLUTION

During the implementation stage at the Projects, certain conflicts or inconsistencies among regulatory requirements may be noted. Such conflicts could arise among any combination of regulations, DOE Orders, or internal directives. As a general policy, if conflicts or inconsistencies between regulatory requirements are observed, they should be brought to the attention of the ADSC, through the RPRB, for resolution at the program level. However, in case of conflicts or inconsistencies with certain State and local regulatory requirements, depending on the established relationships between the Project Office and those regulators, it may be more effective for the Project Office to seek resolution of such conflicts or inconsistencies with the pertinent State or local regulator. If this course is adopted, the ADSC should be kept informed on an ongoing basis throughout the process of resolution. The above outlined process is consistent with a similar process described in the PMS Manual, Section 5.2.7.3 (reproduced below for convenience) to resolve inconsistencies between Program and project-level documents.

> *When inconsistencies are detected between Program and project-level documents, the Project Manager and the Associate Director or Office Director responsible for the Program-level document shall both be notified immediately. The Project Manager may determine the acceptability of a deviation until the responsible Associate Director or Office Director has responded. The Project Manager shall propose a plan for correcting the inconsistency and attempt to avoid impacting work schedules during the transition period, if practical. If the Project Manager and*

responsible Associate Director or Office Director do not concur on the acceptability of a temporary deviation or on the corrective action and transition plans, the issue shall be raised for higher-level management decision.

If the ADSC and the Project Manager do not concur on whether compliance has been achieved in a particular case, the issue will be raised for higher-level management decision.

4. SITE SUITABILITY

The subsections of Chapter 4 discuss the site evaluation process, strategy, and responsibilities for the MGDS and MRS MSAs. Sections 4.1 and 4.2 contain guidance derived from the NWPA, as amended, and 10 CFR Part 960, DOE's general guidelines for repository siting as derived from the law.

4.1 MINED GEOLOGIC DISPOSAL SYSTEM (MGDS)

4.1.1 Siting

The NWPA, as amended on December 22, 1987, directed the DOE to characterize only the Yucca Mountain site to evaluate whether it is suitable for repository development, and submit a license application to the NRC, if the site is suitable (NWPA, as amended, Section 113 (c)(1)). Section 113 (c)(3) contains requirements with which DOE must comply if the site is determined to be unsuitable for repository development.

General Guidelines for the Recommendation of Sites for Nuclear Waste Repositories was promulgated by the DOE at 10 CFR Part 960 in accordance with the requirements of Section 112(a) of the NWPA, as amended. These guidelines establish criteria for selecting and evaluating the suitability of potential sites for the development of repositories.

4.1.2 Site Suitability Evaluation

This section addresses the evaluation of whether the Yucca Mountain site is suitable for repository development and the demonstration of compliance with 10 CFR Part 960. Section 113(c)(1) of the NWPA, as amended, states: *"The Secretary may conduct at the Yucca Mountain site only such site characterization activities as the Secretary considers necessary to provide the data required for evaluation of the suitability of such site for an application to be submitted to the Commission for a construction authorization for a repository at such site and for compliance with the National Environmental Policy Act of 1969."*

Demonstrating how the site and MGDS comply with the technical guidelines in 10 CFR Part 960 may provide the fundamental structure and supporting documentation for the Site Recommendation Report (SRR) to the President (including any additional supporting documentation required by Section 114(a) of NWPA, as amended). The SRR represents the culmination of a positive site suitability determination and, as such, is a critical component of the site suitability function. The SRR provides a practical interface for the site suitability and licensing aspects of the MGDS.

4.1.2.1 Policy

The NWPA, as amended, directed the DOE to develop general siting criteria for a geologic repository. These guidelines, promulgated as 10 CFR Part 960, establish criteria for selecting and evaluating the suitability of potential repository sites. Although certain provisions of 10 CFR Part 960 were originally written for comparison and ranking of candidate sites, the DOE has

stated its policy to use these guidelines for early and iterative evaluations of the suitability of the Yucca Mountain site for repository development (DOE, 1991b).

The siting guidelines provide general factors to be considered when evaluating the suitability or unsuitability of a potential repository site. The siting guidelines in 10 CFR Part 960 contain favorable and potentially adverse conditions and, in addition, specify both qualifying and disqualifying conditions for characteristics important to the near- and long-term safety of the repository such as geohydrology, climate changes, and tectonics.

As part of its policy, the DOE committed to submitting the site evaluation methodology and the results of an early evaluation to peer review. The DOE also committed to seek the involvement of affected governments and interested parties in the early evaluation of site suitability (DOE, 1991b). A contractor-prepared report on the early site suitability evaluation (SAIC, 1992a) was submitted to the DOE. Consistent with policy, DOE submitted this report for peer review, and published the results (SAIC, 1992b).

As part of its current assessment of site suitability, DOE intends to demonstrate compliance with those parts of 10 CFR Part 960 relevant to the technical evaluation of the Yucca Mountain site. While most of this assessment may be related to the technical evaluation of site suitability, other aspects of demonstrating compliance with 10 CFR Part 960 will be related to the demonstration that socioeconomic and environmental impacts of repository development that are identified and may be significant can be mitigated. The Draft Mission Plan Amendment (DOE, 1991b) states as a basic policy "The protection of the health and safety of the public and of workers and the quality of the environment is of paramount importance." The Draft Mission Plan Amendment also states that DOE is committed to evaluating socioeconomic issues in cooperation with affected governments.

Certain provisions of 10 CFR Part 960 were written for comparison and ranking of candidate sites and may not apply to the technical evaluation of a single site. The environmental, socioeconomic, and transportation provisions may be addressed through the National Environmental Policy Act (NEPA) compliance process rather than by the iterative suitability evaluation. DOE may have to clarify how it intends to demonstrate compliance with 10 CFR Part 960.

4.1.2.2 Strategy

To establish the suitability of a site for repository development, 10 CFR Part 960 requires OCRWM to make "higher-level" or high-confidence findings with regard to the disqualifying and qualifying conditions of that regulation. Elements of the site evaluation strategy are:

- The site evaluation process will use the general siting criteria in 10 CFR Part 960.
- The DOE must consider whether the environmental, socioeconomic, and transportation guidelines in 10 CFR Part 960 are to be evaluated as part of the site suitability methodology or whether this information will be addressed as part of the NEPA compliance process.

- Site characterization activities will be prioritized based in part on the site evaluation criteria and scope of the evaluation.

- The evaluation process or methodology to be developed by the Yucca Mountain Site Characterization Office (YMSCO) will be based on site data and conservative assumptions supported by the data to ensure that conclusions are defensible and that they are in the best interest of public health and safety.

The site evaluation process is iterative in that successive evaluations will make use of an increasingly more comprehensive database and iterative performance analyses. An important element of the general approach for evaluating site suitability is the manner in which the DOE can involve the scientific community and the general public in a way that builds confidence in DOE's evaluation process and conclusions.

The strategy for demonstrating compliance with 10 CFR Part 960 has the following components:

- The portions of 10 CFR 960 that were developed to serve as a basis for site comparisons may be viewed as no longer applicable to evaluating the suitability of the Yucca Mountain site. DOE may decide to issue an interpretation of 10 CFR Part 960 regarding this point, or may choose to revise Part 960 for consistency with the NWPA, as amended.

- Interim site suitability evaluations would lead to increased confidence in the information and analyses that will be available at milestones such as completion of Environmental Impact Statement (EIS) scoping, publication of the draft environmental impact statement (DEIS), and publication of the final environmental impact statement (FEIS).

4.1.2.3 Implementation Guidance

Implementation guidance for the evaluation of site suitability can be summarized as:

- The RCP should include a discussion of the relationship of site suitability evaluations with milestones in the NEPA compliance, design, and licensing processes and the role of these evaluations with respect to prioritizing, terminating, or continuing site characterization studies.

- The YMSCO should prepare a plan to implement the site suitability strategy outlined above. It is expected that both the general strategy and the implementation strategy will be further developed by the Project Office.

- To establish the suitability of a site for repository development, 10 CFR Part 960 requires OCRWM to make "higher-level" or high-confidence findings with regard to the disqualifying and qualifying conditions of that regulation.

- The site evaluation process will use the qualifying and disqualifying conditions in 10 CFR Part 960.

- The favorable and potentially adverse conditions in 10 CFR Part 960 will be evaluated as necessary on a site specific basis.

- Site characterization activities will be prioritized based in part on the site evaluation criteria and scope of the evaluation.

- The methodology to be developed by the YMSCO will be based on site data and conservative assumptions supported by the data to ensure that conclusions are defensible and are in the best interest of public health and safety.

- The site evaluation process is iterative in that successive evaluations will make use of an increasingly more comprehensive database and iterative performance analyses. The process is also progressive in that evaluations will be conducted periodically throughout site characterization with an early emphasis on evaluation of non-suitability and later emphasis on overall suitability. There are no NEPA actions required prior to submission of the Site Recommendation Report, which is discussed in the next paragraph (i.e., an EIS is not required for an interim evaluation of site suitability).

- If the site is suitable and a site recommendation report (SRR) and accompanying FEIS are to be sent to the President (NWPA, as amended, Sec. 114(a)), the NRC must provide comments on the FEIS and preliminary comments on the sufficiency of DOE's site characterization analysis and waste form proposal for inclusion in any license application. Since DOE must obtain those comments prior to submittal of the license application, it seems reasonable to use the results of the periodic evaluations to construct the SRR, thereby providing the framework within which NRC can evaluate the sufficiency of DOE's work. To ensure favorable comments from NRC, should the site prove to be suitable, the DOE will interact with the NRC staff to the extent required to satisfy NRC's concerns and to build confidence in DOE's technical approach and evaluations.

- The final suitability decisions may be linked to major program milestones or decision points such as the start of EIS scoping, issuance of the DEIS, and completion of the FEIS. The results of these periodic evaluations could be integrated with the NEPA compliance process and pre-licensing activities, thereby building public confidence in the OCRWM Program.

Implementation guidance for demonstrating compliance with 10 CFR Part 960 can be summarized as:

- The site suitability implementation strategy should contain plans for evaluating compliance with 10 CFR Part 960.

- The YMSCO should interact with the ADSC to be certain that this evaluation is supported at the program level and will provide suitable input for any necessary subsequent actions by OCRWM.

- If appropriate, the schedule for evaluations of site suitability should be linked to the demonstration of compliance with all applicable provisions of 10 CFR Part 960. This may require integration with the NEPA compliance process.

4.2 MONITORED RETRIEVABLE STORAGE (MRS) FACILITY

4.2.1 Siting

In the NWPA, as amended, the Congress provides for a dual approach to siting an MRS facility: (1) siting by the DOE, through a process of surveying and evaluating potential sites, and (2) siting through the efforts of the Nuclear Waste Negotiator. The Negotiator, appointed by the President and confirmed by the Senate, is to seek a willing State or Indian Tribe with a technically qualified site and is to negotiate a proposed agreement on reasonable terms. The agreement must be approved by the Congress. When it is submitted to the Congress, any proposed agreement with a volunteer host is to be accompanied by an environmental assessment for the proposed site. (An environmental assessment is also required if the MRS site is selected through a DOE-directed survey-and-evaluation process.)

4.2.2 Site Evaluation

The DOE issued "Preliminary Site Requirements and Considerations for a Monitored Retrievable Storage Facility" to provide guidance on evaluating potential sites (DOE, 1991d).

Examination of the applicable Federal Statutes, regulations, executive orders, and DOE orders suggests that suitable sites for an MRS facility could be found throughout the contiguous United States. To identify the areas that would be excluded from further consideration, preliminary site requirements were identified. They are based on specific requirements in applicable Federal statutes and regulations, with special emphasis on 10 CFR Part 72, the regulations of the Nuclear Regulatory Commission that will be applied to the MRS facility--in particular, the siting evaluation factors in Subpart E of 10 CFR Part 72.

The preliminary site considerations are derived from Federal statutes and regulations (including Subparts E and F of 10 CFR Part 72) and identify conditions that are preferable. If a site meets the preliminary site requirements, then it should be technically suitable and could then be examined in terms of the site considerations. The site considerations can be used to identify the favorable attributes of a technically qualified site--attributes that should enhance the ease with which compliance with applicable regulations can be demonstrated.

The preliminary site requirements and considerations provide guidance for assessing the technical suitability of a potential site. If a potential host is considering multiple sites for potential negotiations, then the potential sites should be examined in terms of the preliminary site considerations.

The preliminary site requirements cover the following: colocation with a geologic repository, site size, single-use protected lands, coastal barriers, critical habitat for endangered or threatened species, and hazardous waste facility siting requirements. The site considerations are divided into five groups: (1) geologic and other hazards, (2) environmental factors, (3) socioeconomic factors,

(4) transportation, and (5) cost and development time. The environmental and socioecomonic considerations are not all inclusive. A broader range of factors will be included in the detailed analysis that will be conducted for the environmental assessment. This assessment will examine the probable effects of constructing and operating an MRS facility at the site.

4.2.2.1 Policy

Currently the DOE is not conducting a site survey nor pursuing negotiations with a potential volunteer host. However, the DOE is providing support, as requested by the Nuclear Waste Negotiator (NWPA, as amended, Title IV).

The preliminary site requirements and considerations are not currently part of the DOE's technical baseline of requirements and are not intended to fully cover all regulatory requirements or to cover requirements for the license application that will be submitted to the Commission. They are intended to provide guidance and have wide applicability. Their purpose is to permit a reasonable determination, on the basis of available information without extensive analysis, that a site is potentially suitable for an MRS facility. Thus, in order to identify a potential site, a State or an Indian Tribe should be able to use these site requirements and considerations on the basis of available and existing information. However, if sufficient data are not available for analysis, then it may be necessary to gather additional data.

The preliminary site requirements and considerations are not dependent on the approach to MRS development or on details of facility design and hence should be applicable to a range of design options and concepts for storing and handling spent fuel. There are several proven concepts for handling and storage that could be used at the MRS facility. The concept that is chosen will depend on safety, licensing, cost, and schedule considerations as well as the preferences of the volunteer host (DOE, 1991d).

4.2.2.2 Strategy

As stated above, DOE has chosen not to pursue a site survey or independent negotiating effort. Instead, the DOE is supporting the Nuclear Waste Negotiator, as requested. DOE's MRS siting strategy is to continue its support of the Negotiator and to provide preliminary assessments of potential volunteered sites based on the preliminary site requirements and considerations.

The NWPA, as amended, requires the preparation of an environmental assessment (EA) which must accompany a proposed negotiated agreement submitted to Congress. Upon the request of the Negotiator, the DOE will prepare an EA for the potential site (NWPA, as amended, Section 404). Available data will be used to the extent practical but some new site-specific data may have to be obtained for the EA. Some of these data may be identified at public hearings focused on specific issues and concerns of interest to the public.

Additional more-detailed site data will be required as part of site characterization for the safety analysis report and environmental impact statement that will be required for NRC licensing.

5. LICENSING

The subsections of Chapter 5 discuss the licensing process, strategy, and responsibilities for the MGDS, MRS, and Transportation. This chapter contains a more comprehensive discussion of DOE policies outlined in Chapter 2, guidance for implementation of policy, and compliance with requirements.

5.1 MINED GEOLOGIC DISPOSAL SYSTEM (MGDS)

This section is divided into four subsections that: 1) introduce the scope of MGDS licensing to be discussed in this section, 2) provide an overview of the licensing process as it pertains to the development of the MGDS, 3) provide guidance relevant to the elements and implementation of the MGDS licensing strategy, and 4) discuss the division of responsibilities between DOE Headquarters and the Yucca Mountain Project.

5.1.1 Introduction

The development of the MGDS requires the evaluation of the suitability of the Yucca Mountain site (discussed in Chapter 4) and, if the site is found suitable, the licensing, construction, and eventual operation and closure of a geologic repository. These activities include interactions with NRC in accordance with the applicable provisions of the NWPA, as amended.

The process through which applicants and licensees interact with the NRC is commonly referred to as licensing or the licensing process. Traditionally, it is concerned with interactions associated with obtaining licenses and complying with their terms and conditions. At the present time, DOE is conducting an evaluation of site suitability under its siting guidelines, 10 CFR Part 960, and is not an applicant. However, in its interactions with the NRC, in connection with its evaluation of the suitability of the Yucca Mountain site, DOE is, in effect, required to engage in pre-licensing interactions even though technically it is neither an applicant nor a licensee. In view of the brief three-year licensing period for issuance of a construction authorization by the NRC, prescribed by the NWPA, as amended, if the site is found suitable, the importance and scope of early interactions with the NRC has been further expanded to facilitate compliance with this provision of the law.

5.1.2 Overview of the Licensing Process

Licensing is the process followed by the license applicant, DOE, and the grantor of the license, the NRC. This process involves obtaining, maintaining, amending, and terminating the license. Licensing is a continuous process marked by a number of key events or milestones. For the MGDS, the licensing process is governed by the NWPA, as amended; the Atomic Energy Act (AEA); the National Environmental Policy Act (NEPA); the Administrative Procedure Act (APA); most recently by the Energy Policy Act of 1992; and the implementing regulations promulgated by the respective agencies including NRC, DOE, and EPA.

5.1.2.1 Statutory and Regulatory Framework

Nuclear facilities and developments within the United States are subject to two types of controls: 1) laws, such as NEPA, that apply generally to any program, project, or development, and 2) laws, such as the NWPA, as amended, directed toward a specific program, project, or activity. The MGDS project is subject to both types of laws.

A hierarchy of laws, regulations, and guidance and resource documents exists. In general, in the event of conflict, the higher authority prevails. The hierarchy of laws and regulations that pertain to the MGDS is as follows: 1) public laws, 2) federal regulations, and 3) guidance and resource documents that are neither laws nor regulations.

5.1.2.1.1 Laws and Regulations

The NWPA, as amended, is the law that established the civilian radioactive waste management program for the disposal of spent nuclear fuel and high-level radioactive waste in a geologic repository. It assigned the primary responsibility for developing and operating the repository to the DOE. Under the law, the DOE is responsible for developing siting guidelines, characterizing the Yucca Mountain Site, evaluating the suitability of the site, and, if the site is found suitable, making an appropriate recommendation to the President to develop the site as a repository, preparing and submitting a license application to the NRC, constructing a repository, amending the license application to receive and possess waste, emplacing the waste, and permanently closing the repository.

The NWPA, as amended, also supplemented the regulatory authority of the NRC under the AEA of 1954 and the Energy Reorganization Act of 1974 by requiring that the MGDS, a DOE facility, be licensed by the NRC. Prior to the NWPA, DOE facilities were not required to be licensed by the NRC. The NRC is responsible for developing requirements for the licensing of the repository, authorizing the construction of the repository, licensing it for receipt and possession of radioactive waste, and authorizing closure. [See Section 5.1.2.1.2 for additional discussion of NRC responsibilities under the NWPA, as amended.] These licensing requirements that must be complied with were promulgated by the NRC and are contained in 10 CFR Part 60.

10 CFR Part 60 provides the basic technical and procedural requirements for the licensing of a repository. These include the contents of the license application and the amendments thereto. It contains technical criteria governing the siting and design of the repository and the performance objectives to be met.

In addition to 10 CFR Part 60, the licensing process, design, construction, and operation of the MGDS shall be performed in accordance with applicable requirements of the following regulations:

- 10 CFR Part 2, subpart J, Rules of Practice for Domestic Licensing Proceedings
- 10 CFR Part 19, Notices, Instructions, and Reports to Workers: Inspection and Investigations

- 10 CFR Part 20, Standards for Protection Against Radiation
- 10 CFR Part 21, Reporting of Defects and Noncompliance
- 10 CFR Part 50, Appendix B, Quality Assurance Criteria for Nuclear Power Plants and Fuel Reprocessing Plants
- 10 CFR Part 51, Environmental Protection Regulations for Domestic Licensing and Related Regulatory Functions
- 10 CFR Part 73, Physical Protection of Plants and Materials.

The Project should develop a complete list of applicable regulations using the above listing as guidance.

There are other regulations by the Environmental Protection Agency (EPA) (40 CFR Part 191) and the Department of the Labor (DOL) (30 CFR, Chapter I) that are referenced in 10 CFR Part 60 that also have a direct bearing on MGDS licensing. The status of 40 CFR Part 191 warrants a brief discussion.

In accordance with the NWPA, as amended, EPA promulgated in 1985 generally applicable environmental radiation protection standards in the form of 40 CFR Part 191. Subpart B of 40 CFR Part 191 was vacated by the U.S. Court of Appeals for the First Circuit in 1987. Since 1987, EPA has issued three working drafts and a draft proposed rule. Recently, Section 801 of the Energy Policy Act of 1992 directs the EPA to develop health based standards specific to Yucca Mountain, in consultation with the National Academy of Sciences. The Act specifically stated that no other standard was to apply to the Yucca Mountain site after the standards are promulgated. It is anticipated that it will be at least two years before such standards are finally promulgated. There are no environmental radiation protection standards applicable to the Yucca Mountain site in the interim.

5.1.2.1.2 Unique Aspects of MGDS Licensing

In the NWPA, as amended, Congress granted to the NRC unique responsibilities in addition to its traditional licensing activities. These activities, not part of the customary licensing process, include review and comment on the site characterization activities and the FEIS accompanying the site recommendation to the President. Another deviation from traditional licensing practice is that the DOE, as the applicant, will prepare the FEIS and the NRC is to adopt the document to the extent practicable. Section 113(b) of the NWPA, as amended, requires the Secretary to report to the Commission progress on characterization activities not less than every six months. Section 114(a)(1)(E) provides that, if the Secretary should decide to recommend the site to the President, that the comprehensive basis for the recommendation must, in part, include the Commission's preliminary comments on the sufficiency of DOE's at-depth site characterization analysis and the waste form proposal for inclusion in a license application, and the Commission's comments on the FEIS. The NWPA, as amended, further requires that if a site recommendation is submitted to the President and the President recommends to the Congress a site for a repository (and the site designation is permitted to take effect under Section 115), then the Secretary shall

submit to the Commission an application [for a construction authorization] within 90 days from the effective date under Section 115. While much of the data required to provide the basis for the recommendation [i.e., a site recommendation report (SRR)] are similar to those required for the license application (LA) and, to a large extent, for the FEIS, their purpose and, hence, their analysis, interpretation and level of detail, may differ.

An examination of the NWPA, as amended, the DOE Siting Guidelines, and the NRC licensing regulations makes it clear that although the requirements for suitability and licensing overlap, they are not identical, nor did Congress intend them to be. The NWPA, as amended requires that the DOE Siting Guidelines utilize factors that qualify or disqualify any site from development as a repository and includes several areas for which the DOE must develop these factors (NWPA, as amended, Sec. 112 (a)). The NWPA, as amended requires the Siting Guidelines, which provide the basis for the evaluation of site suitability, to address areas of concern such as socioeconomics, transportation, and environmental quality. The development and promulgation of site disqualifying or qualifying factors was not required in the NRC regulations for licensing (NWPA, as amended, Sec. 121 (b)). Rather, the NRC was directed to develop regulations that implemented a multistep licensing process. Congress also directed the NRC to promulgate criteria that require a system of multiple barriers and waste retrievability. In addition, the NRC requirements and criteria shall not be inconsistent with the EPA Standard.

The Program is subject to oversight beyond that provided by the NRC. Affected states, units of local government, and Indian Tribes are given unique opportunities to participate in the licensing process. The Nuclear Waste Technical Review Board (NWTRB) was established to evaluate the technical and scientific validity of DOE's efforts. In addition, cognizance of the OCRWM program is maintained by the NRC's Advisory Committee on Nuclear Waste (ACNW) and the Board on Radioactive Waste Management of the National Academy of Sciences (NAS). The Edison Electric Institute (EEI), as a representative of the Utilities who contribute to the nuclear waste fund, also maintains cognizance of the OCRWM program. In addition, stakeholders such as the Electric Power Research Institute (EPRI), National Association of Regulatory Utility Commissioners (NARUC), and public interest groups maintain a close watch over the OCRWM program.

The primary governing regulation, 10 CFR Part 60, which is being used for the first time, has yet to be interpreted definitively, and could be amended. Subpart J of 10 CFR Part 2, which established the licensing procedures applicable to the MGDS and included the new Licensing Support System (LSS), will also be used for the first time.

Finally DOE, an independent Federal agency as is the NRC, will be an applicant for licenses issued by NRC and subject to regulations by NRC. Therefore, the nature of the interactions of these independent agencies in the licensing process will differ somewhat and evolve from those associated with traditional commercial nuclear power plant licensing proceedings.

5.1.2.1.3 NRC Regulatory Guidance Documents

The NRC issues a number of documents that can provide guidance for regulatory compliance. These include Regulatory Guides, the License Application Review Plan (LARP), Staff Positions,

Staff Technical Positions, SECY papers, and Nuclear Regulatory Commission Reports (NUREGS).

Regulatory Guides provide methods (guidance) acceptable to the NRC Staff for compliance with NRC regulations. These guidance documents provide the applicant with insight on how to meet specific regulations, including acceptable technical approaches and format guidance. Using the Regulatory Guides, although not mandatory, saves considerable review time during the licensing process and, therefore, compliance with a Regulatory Guide is recommended whenever possible. However, if use of the Regulatory Guide is not in the Project's best interest, the Project is free to propose and justify alternative approaches to comply with the regulations. It should be further noted that even though a Regulatory Guide method may be acceptable evidence of compliance, adoption of a Regulatory Guide method is no guarantee that a compliance-related challenge will not be raised by intervenors during the licensing proceeding.

Of particular interest for MGDS licensing is a Draft Regulatory Guide, DG-3003, Format and Content for the License Application for the High-Level Waste Repository (FCRG). The NRC requested that the DOE review the draft FCRG and provide feedback on its content and structure. An annotated outline process was suggested by the NRC as a mechanism to expand and develop the draft FCRG based on actual experience. (See Sections 5.1.2.3 and 5.1.3.1.1 for discussions of NRC interactions and the annotated outline process.)

The NRC plans to publish a LARP similar to the Standard Review Plan for nuclear power plants. Review plans are prepared for the guidance of the NRC Office of Nuclear Material Safety and Safeguards (NMSS) staff responsible for the review of the license application to construct and "operate" a geologic repository. The LARP could provide insights into how the staff will review various aspects of the LA, the questions that may be asked, and the independent analyses that may be performed by the staff.

Staff Positions (SPs) record the staff's interpretation of existing 10 CFR Part 60 regulatory requirements or record a position on a regulatory uncertainty in Part 60. SPs are issued by the Director, NMSS with concurrence by the Office of the General Counsel. They are prepared for the guidance of NMSS staff responsible for the review of a license application proposing the construction and operation of a geologic repository.

NRC can also provide guidance to DOE in the form of Staff Technical Positions (STPs) that establish the staff's positions on site specific issues. The concept of STPs was developed to provide maximum flexibility in completing a series of technical positions that have sufficient formality to record staff positions and to notify the prospective licensee (DOE). STPs are initiated by the need for documentation of a staff concern or in response to a major question raised by the licensee, and will be issued as appropriate through out the pre-licensing period. STPs establish acceptable methods of data gathering and form the basis for tracking issues over time. In addition, they provide criteria that, when met, would allow staff to conclude that the DOE has complied with the applicable regulations.

SECY papers are prepared by the NRC staff and addressed to the Commission to either inform or seek a decision from the Commission. SECY papers provide valuable insights regarding NRC policies.

NUREGS are published reports by the NRC staff on various topics of interest such as performance assessment methodology or comments on project documents such as the Site Characterization Plan (SCP).

Although these documents do not have the same standing as regulations, they do provide useful guidance and insight on compliance demonstration and approaches to resolution of open items, at least from the perspective of the NRC Staff.

5.1.2.1.4 Regulations Promulgated by the DOE

DOE regulations are contained in Title 10 of the Code of Federal Regulations (CFR), Chapter II, Parts 200-500, Chapter III, Parts 703-961, and Chapter X, Parts 1000-1060. Although DOE regulations which are applicable to the Project must be complied with, only two of these DOE regulations, 10 CFR Part 960 and 10 CFR Part 1021, have a direct impact on the OCRWM program and are discussed in Sections 4.1 and 6.2 respectively.

With regard to 10 CFR Part 960, Congress intended the DOE, as an implementer, to initially focus on the suitability of the site, but allowed the NRC, as the regulator, to determine the requirements for compliance for the disposal system. However, the DOE could not consider the suitability of the site without some forethought with regard to the ultimate purpose of site characterization, that being recommendation of a site for development of a repository. Similarly, the NRC could not promulgate regulations for a system dependent on multiple barriers without some consideration of what would constitute determination of an adequate barrier, be it natural or engineered. Thus the technical approaches for suitability and construction authorization application should be very similar, but not necessarily identical. The investigations supporting site characterization activities may, in many instances, focus on providing credible bounding cases for a given technical issue, while analyses supporting construction application may be performed to better discern a specific process range for performance and design applications.

10 CFR Part 1021, NEPA Implementing Procedures, was promulgated by the DOE to establish procedures that the DOE shall use to comply with Section 102(2) of NEPA and to comply with and supplement the Council on Environmental Quality (CEQ) implementing regulations. The NWPA, as amended, states that "Any recommendation made by the Secretary under this section shall be considered a major Federal action significantly affecting the quality of the human environment for purposes of the National Environmental Policy Act of 1969. A final environmental impact statement prepared by the Secretary under such Act shall accompany any recommendation to the President to approve a site for a repository." The relationship of the FEIS to the licensing process was previously discussed in Section 5.1.2.1.2 of the RGD. Therefore, the Project must comply with DOE regulation 10 CFR Part 1021 and fully integrate the NEPA process into the licensing strategy for the MGDS.

5.1.2.1.5 DOE Orders

Historically, DOE Orders related to nuclear safety were the mechanism to ensure nuclear safety at non-NRC regulated DOE facilities. The oversight and licensing responsibilities assigned to the NRC by Congress will result in dual regulation by the DOE Order system and the NRC. To avoid dual regulation, OCRWM has instituted a policy of precedence of NRC regulations, and

pursued a systematic process of requesting exemptions from those DOE Orders for which corresponding NRC regulations exist.

The MGDS licensing process that would be included in the RCP should reflect the policy that NRC regulations govern. It is anticipated that inconsistencies or conflicts with DOE Orders will arise at the Project or implementation level. These conflicts, when identified, should be documented by memorandum and resolved in accordance with the conflict resolution process described in Chapter 3.

5.1.2.1.6 Licensing Support System (LSS)

In 10 CFR Part 2, subpart J, the NRC established "Procedures Applicable to Proceedings for the Issuance of Licenses for the Receipt of High-Level Radioactive Waste at a Geologic Repository." In addition to providing the procedural rules concerning the applicability of the adjudicatory process to be used in licensing the MGDS, these procedures provide for the development and use of an LSS to assist in the management of documents in licensing proceedings. In addition to the requirements to submit licensing-related documentation to the LSS, the DOE is also responsible for developing the computer system needed to implement the LSS. (Development of the LSS is the responsibility of the Office of Program and Resource Management.) Although subpart J of 10 CFR Part 2 contains guidance on the content of the information to be submitted to the LSS, detailed inclusion/exclusion guidelines are still under development and negotiation between the DOE and NRC.

Eventually, all licensing-related documentation generated or acquired by the Project must be compatible with the LSS. The Project should generate plans and procedures to implement the LSS when the implementing guidance from the NRC is issued and DOE/NRC Memorandum of Understanding (MOUs) are finalized. This activity should be identified in the RCP as a Project responsibility.

5.1.2.2 Phases of the MGDS Licensing Process

The licensing of the MGDS is a continuous process that proceeds from the site characterization activities currently underway to ultimate closure and license termination. Based on the language contained in 10 CFR Part 60, subpart B, the licensing process can be visualized as the following six phases: 1) pre-license application, 2) construction authorization, 3) construction of the repository and license to receive and possess waste, 4) operating period, 5) permanent closure and decommissioning, and 6) termination of license.

The major activities to be conducted during each of these phases are discussed below. Although all major phases of the Project are presented, the RCP for MGDS licensing need only emphasize licensing activities through receipt of the operating license, at present.

5.1.2.2.1 Pre-License Application

During the pre-licensing phase, the DOE will complete its efforts to characterize the Yucca Mountain site, prepare an FEIS, initiate the preparation of a license application, and, if the site is determined suitable, prepare and submit a site recommendation report to the President, and

complete the license application. DOE/NRC interactions will be concerned with the adequacy of the site characterization activities and analyses, the adequacy of the DEIS and FEIS, DOE's review of the FCRG and the License Application Review Plan, the staff review of DOE's annotated outline for preparing the license application, and resolution of site characterization and licensing related issues. These interactions will also include interactions with the ACNW and with NRC Staff associated with the LSS.

5.1.2.2.2 Construction Authorization

The construction authorization phase begins after the LA is submitted and docketed by the NRC and ends with the receipt of the construction authorization from the NRC. Activities include technical reviews of the LA by the NRC Staff and the ACNW which culminate in the issuance of the Staff's safety evaluation report (SER) and the ACNW letter to the Commission; an adjudicatory public hearing conducted by a Hearing Licensing Board (HLB); probable hearings in response to any appeals to the HLB decision; and issuance of the Construction Authorization by the NRC. Details of this process are contained in 10 CFR Part 2. Considerable formal interaction between DOE and the NRC occurs during this licensing phase, including responding to issues resulting from the Staff and ACNW reviews of the LA.

5.1.2.2.3 Construction of the Repository/License to Receive and Possess Waste

This phase begins with the issuance of the construction authorization by the NRC and ends with the receipt of the license to receive and possess waste, hereafter referred to as the "operating license." The primary activities will be to construct the repository and to update the LA and the EIS with information obtained during construction and any new characterization results in accordance with the requirements of 10 CFR Part 60. DOE must maintain construction records, furnish periodic and special reports including reports of deficiencies, perform such tests as the Commission deems necessary, and be subject to inspection throughout the construction period. DOE/NRC interactions during this period will be concerned with construction progress, any site information obtained that is outside the predicted limits on which the facility design was based, deficiencies in design and construction, and any unresolved safety questions. Reviews of the updated LA will be conducted by the NRC and ACNW. If the updated LA is determined by the NRC to comply with the requirements of 10 CFR 60.41 that include a finding by the NRC that construction is "substantially completed" in accordance with 10 CFR 60.41(a), a license to receive and possess waste will be granted after the completion of a licensing hearing.

5.1.2.2.4 Operating Period

Repository operations are expected to continue for about 50 years. During this period, DOE conducts its operations to receive, possess, and emplace waste in accordance with the terms and conditions of its license to receive and possess waste. DOE completes the performance confirmation program in accordance with 10 CFR Part 60, subpart F. Interactions with the NRC include routine inspections in accordance with 10 CFR Part 60, subpart D, and those interactions attendant on any amendments to the license resulting from any changes to the license specifications in accordance with 10 CFR 60.44, 60.45, and 60.46. Prior to completion of operations, DOE will prepare an amendment for permanent closure of the repository.

5.1.2.2.5 Permanent Closure and Decommissioning

At the end of repository operations, DOE is required to submit an application to amend the license to allow permanent closure. A supplement to the EIS may also be required documenting any substantial changes to result from permanent closure activities. If the license amendment is issued, DOE will begin permanent closure in accordance with the terms and conditions of the amended license.

5.1.2.2.6 Termination of License

Following completion of closure activities, the DOE is required to submit to the NRC an application for an amendment to terminate the license in accordance with 10 CFR 60.52. Upon review and confirmation that activities were in accordance with closure activities previously approved by the NRC and are in compliance with requirements of 10 CFR 60.52, the NRC will terminate the license.

5.1.2.3 Interactions with the NRC

Interactions between the DOE and NRC are managed by the Office of Systems and Compliance, Regulatory Integration Branch, and governed by procedural agreements and protocols. Two procedural agreements exist: 1) "Procedural Agreement Between the NRC and DOE Identifying Guiding Principles for Interface During Geologic Repository Site Characterization" (formerly referred to as the "Morgan-Davis Agreement") and 2) "Agreement Between the DOE Office of Civilian Radioactive Waste Management and the NRC Division of High-Level Waste Management During Site Characterization Programs and Prior to the Submittal of an Application for Authorization to Construct a Repository" (formally referred to as the "Site-Specific Agreement"). These agreements contain commitments by both agencies regarding conduct of program and project business.

Three OCRWM protocols provide additional guidance regarding the conduct of NRC-DOE interactions. These interactions are: 1) technical meetings, 2) technical exchanges, and 3) site visits.

The agreements and protocols should be reviewed by the Project staff prior to interacting with the NRC. Elements of these agreements and protocols should be included in any Project staff licensing training curriculum.

The agreements and protocols should be discussed in the RCP including the process for identifying both the need for revisions and the process for recommending revisions to the agreements and protocols.

5.1.3 Licensing Strategy

This section presents the top level licensing strategy for the Civilian Radioactive Waste Management System (CRWMS) (i.e., the conceptual approach OCRWM is taking to achieve its licensing objectives). It also presents guidance relevant to the process and technical elements that

are basic to the implementation of this strategy for the MGDS in particular, and for site suitability evaluation, the MRS, and transportation in general.

The top level licensing strategy for the CRWMS is:

- Early, frequent, and regular interactions with NRC to identify, address, and resolve, at the staff level, technical issues with licensing implications.

- Participation in the development of the statutory and regulatory framework required to support DOE's preferred approaches to the development of the CRWMS.

5.1.3.1 Process Elements of the Licensing Strategy

The DOE OCRWM is developing and will operate the CRWMS pursuant to the provisions of the Nuclear Waste Policy Act, as amended. The Act requires that this system be licensed and operated in accordance with the terms and conditions of licenses and certificates of compliance issued by NRC. To comply with the Act, the Department must implement its Licensing Strategy and interact with NRC successfully. To do so, the implementation elements of the Department's Licensing Strategy are:

- DOE will act as an applicant by identifying and resolving regulatory, technical, and institutional uncertainties; defining, understanding, and clarifying regulatory requirements; working to simplify regulatory processes; and taking the initiative in resolving licensing issues.

- DOE will conduct the Program in such a way that the Department will be accorded the full benefits provided to "expert" agencies under the Administrative Procedure Act as modified by Federal common law. DOE will, therefore, comply strictly with the procedural requirements of every relevant Federal statute and carefully document the "good reasons" for each critical decision that is made.

- DOE will fully implement the requirements of NEPA, the regulations of the Council on Environmental Quality, and the Department's NEPA compliance rule as set forth in 10 CFR Part 1021.

- DOE will consider using the Annotated Outline process in preparing the LA and other related documentation (e.g., the site recommendation report) to ensure their timely availability and consistency to the extent that this is appropriate. (For the MGDS, this will include ensuring that the application for a construction authorization is substantially complete when the Secretary is ready to recommend site approval to the President.)

- DOE will define the programmatic approach it will pursue, and aggressively participate in the development of the statutory and regulatory framework required to implement this approach.

- DOE will develop the licensing skills of appropriate personnel involved in the Program.

- DOE will develop and collect data (including information about the site) for the LA and ascertain that the data are suitable and sufficient before submitting the applications. In particular, DOE will ensure that data were obtained and analyses and evaluations for safety related items were performed under the DOE quality assurance program accepted by the NRC.

- DOE will establish and maintain, over the life of the Program, comprehensive administrative and technical records that are well indexed, easily accessible, and adequate to support licensing proceedings and potential litigation.

- DOE will ensure that documentary material is suitable and sufficient for review by the NRC staff and is suitable and sufficient to be sponsored in licensing proceedings and potential litigation by qualified individuals who were not necessarily involved in the development of this material.

- DOE will ensure the timely submittal of licensing related data and documentation to the CRWMS records management system (e.g., for topical reports) by the time of submittal to the NRC staff for review.

- DOE will conduct the Program in such a way that it will withstand the broad scrutiny of the NRC, oversight groups, affected States, units of local government, Indian Tribes, the scientific community, the utilities, public interest groups, the Congress, the general public, and the courts. This will include ensuring the full disclosure to, and participation by, the public to the extent intended by the letter and spirit of the law.

- DOE will use appropriately conservative approaches in demonstrating compliance with NRC requirements. Whenever possible, it will use simple, proven technologies, particularly those already licensed by NRC. And, it will endeavor to gain acceptance by the scientific community of the approaches, assumptions, and methods, it will employ.

- Consistent with the fact that the licensing process is a legal process, DOE will involve the Department's Office of General Counsel (OGC) in Program activities from their inception to completion to the extent that this will ensure compliance with NRC requirements. Such involvement will include working with the DOE outreach team when the need for this is indicated.

5.1.3.1.1 Annotated Outline Initiative

The Annotated Outline Initiative for the preparation of a license application for the MGDS was undertaken by the DOE at the suggestion of the NRC during the Spring of 1991 as a vehicle to be used by the DOE to comment on the draft MGDS regulatory guide DG-3003. To implement the licensing strategy discussed above, the Annotated Outline Initiative has been expanded by the DOE to include its use as a project management tool; as a mechanism to obtain NRC guidance on interpreting the draft regulatory guide, other NRC guidance documents, and the parent regulations; and to identify licensing issues requiring resolution. The DOE is considering the use of the annotated outline process to develop the FEIS and the SRR to promote consistency and economy during the data gathering efforts for these three major Project activities.

The Annotated Outline (AO) for the LA will be developed by the Project with program-wide review and concurrence activities managed by the OSC. A Concurrence Review Group, providing the AO review and concurrence function would be composed of representatives from interested and affected offices of OCRWM.

The MGDS RCP should further develop the AO Initiative to include identification and verification of information needs to be obtained from site characterization, the information need tracking system to be used, interfaces between the LA AO Initiative and the EIS and SRR activities, review requirements, and controlled distribution requirements. These processes and activities should be described directly in the RCP or the RCP should identify other appropriate documentation, such as an AO Management Plan.

5.1.3.1.2 Issue Resolution Initiative

Licensing issues consist of any technical or procedural matter with the potential to affect the licenseability of the MGDS and/or where guidance from the NRC is necessary to proceed with site characterization. The Issue Resolution Initiative is concerned with the timely identification and resolution of licensing issues to the extent practicable prior to the formal submittal of the LA. Issues have been identified by the DOE in its Site Characterization Plan (SCP), and by the NRC in its concerns related to the SCP (see NRC, 1989), and by the NRC as "open items." Issues can be identified through interactions with the NRC (technical meetings, technical exchanges, etc.), the Annotated Outline Initiative, interactions with other affected parties to the licensing process (e.g., the State of Nevada), or through the normal review processes employed to verify and validate technical work.

The NRC has documented in 10 CFR 60.18(l) that reviews performed by the NRC during site characterization "constitute informal conference between a prospective applicant and the staff, as described in §2.101(a)(1) of this chapter, and are not part of a proceeding under the Atomic Energy Act of 1954, as amended."

Issue resolution is a joint Project/OSC effort. The techniques employed to communicate with and provide information to the NRC to resolve issues at the project level will include the annotated outline, topical and technical reports, letters, and technical exchanges and meetings. Staff comments and guidance and, where possible, safety evaluation reports, will be solicited. The RCP should describe details of the implementation process.

5.1.3.1.3 Rulemaking Initiative

Rulemaking is the formal process carried out in accordance with 10 CFR Part 2 that governs the issuance, amendment, and repeal of regulations. It is a time consuming, complicated, and costly endeavor; nevertheless, it can be used as a mechanism for issue resolution.

It is the DOE's position that the use of rulemakings should be limited to when authoritative and binding clarification or elaboration is needed for technical or procedural aspects of the licensing process. It is an appropriate mechanism to remove issues from the formal licensing proceedings by resolving them separately and in advance of such proceedings. It allows the DOE to proceed with confidence on those issues resolved by rulemaking. An example of a rulemaking topic is

the Design Basis Accident Dose Criteria, for which DOE filed a petition for rulemaking with the NRC.

Because of the long timeframes needed to complete a rulemaking, topics for rulemaking must be identified well in advance of when the results of the process are needed. Lists have been generated by the DOE as potential topics for rulemaking. The Project should proceed to refine these listings, considering alternative procedures to rulemaking where feasible, prioritize the candidate topics, and begin the process as soon as possible for all prioritized rulemaking topics, seeking advice and guidance from the ADSC. Rulemaking activities are coordinated by the ADSC with technical support provided by the Project.

5.1.3.2 Technical Elements Relevant to Implementing the Licensing Strategy (Generally Applicable to the MGDS, MRS, and Transportation Elements)

Implementing the licensing strategy involves both process and technical components. The previous sections concentrated predominantly on the process component. Some of the technical considerations are discussed in this section. Although the discussion focuses on the MGDS, these technical considerations are also applicable to MRS and Transportation, with minor variations, such as different applicable regulations.

5.1.3.2.1 Conservatism

A key component of Licensing Strategy involves using conservative approaches in the licensing process. As discussed in the Draft Mission Plan Amendment (DOE, 1991b), these conservative approaches include: working to simplify the regulatory process; using conservative, simple designs and analyses; using available, qualified methods and approaches; and demonstrating that the approach to siting, design, operation, and closure is conservative with respect to requirements.

It is DOE's position that a conservative approach should be used throughout the licensing process. Conservatism will promote acceptance of methods, approaches, and assumptions by the technical community and by the NRC. Conservatism will maximize opportunities for design and operating, as well as licensing flexibility.

The RCP should address licensing conservatism and how this approach translates into project-specific activities such as the use of bounding or enveloping calculations, and the use of margins of safety, risk reduction, and defense-in-depth. The RCP should discuss how major project actions affecting the licensing process will be subject to a "licensing" review (i.e., review for a conservative licensing approach) prior to making a final decision.

5.1.3.2.2 Design Flexibility

Design flexibility, consistent with licensing conservatism, serves to accommodate changes in requirements due to the still evolving regulatory framework. As stated in 10 CFR 60.133(b), "The underground facility shall be designed with sufficient flexibility to allow adjustments where necessary to accommodate specific site conditions identified through in situ monitoring, testing, or excavation." Therefore, for the underground facilities for the geologic repository, such design flexibility is a regulatory requirement. Although 10 CFR Part 60 does not specifically contain

a design flexibility requirement for the surface facilities, it is DOE's position that design flexibility should be considered in the design of the surface facilities to facilitate the licensing process.

As a result of the Energy Policy Act of 1992, the post-closure performance standards contained in the former 40 CFR Part 191 are no longer applicable. Until the NAS provides recommendations to the EPA as to the basis for a new standard and EPA promulgates a new standard, a regulatory void exists. Design flexibility promotes the possibility to adapt to these currently unknown regulatory requirements.

The RCP should outline a process to ensure design flexibility is sufficient and consistent with existing licensing regulations and licensing strategy and to provide licensing guidance regarding the implications of the Energy Policy Act of 1992.

5.1.3.2.3 Quality Assurance

Subpart G of 10 CFR Part 60 contains the quality assurance program requirements applicable to all structures, systems and components important to safety and important to waste isolation. The regulations further require that the quality assurance program be based on the criteria of Appendix B of 10 CFR Part 50.

OCRWM is operating under an NRC-approved QA program, defined in the OCRWM Quality Assurance Requirements Document (DOE/RW-0333), that includes all applicable quality assurance program requirements. Prior to instituting the approved QA program, considerable data were obtained by the Project. The RCP should provide guidance on identification of such prior data that are intended to be used for safety-related subjects in the LA and how the Project intends to qualify these data (e.g., YMP AP-5.9 Q).

5.1.3.2.4 Nuclear Safety

The DOE nuclear safety policy is described in SEN-35-91, which states that "It is the policy of the Department of Energy that the general public be protected such that no individual bears significant additional risk to health and safety from the operation of a DOE nuclear facility above the risks to which members of the general population are normally exposed ... DOE facilities will be designed, constructed, operated, and decommissioned to assure the protection of the public, workers, and the environment."

Safety analysis is the means by which a systematic evaluation is performed of the design, including potential accidents, their consequences, and any mitigation of such consequences. The Safety Analysis Reports (SARs) that will be prepared for the respective system elements, namely MGDS, MRS, and Transportation, contain the nuclear safety requirements and compliance approaches, and document the adequacy of the safety analyses of the nuclear facility or components, to ensure that the facility can be constructed, operated, maintained, and decommissioned safely, and in compliance with applicable laws and regulations. Such SARs shall meet the applicable requirements of 10 CFR Parts 60, 71, and 72. The NRC guidance available for preparation of those SARs is consistent with the policy described in SEN-35-91. Implementation guidance with regard to nuclear safety for the projects could be derived from the

methods of compliance and means of mitigation of the consequences of potential accidents that will be described in the SARs for each project.

5.1.3.2.5 Radiological Safety

As previously described in Chapter 2, the DOE's radiological health and safety policy (DOE, 1993f) states that;

> *It is the policy of the Department of Energy to conduct its radiological operations in a manner that ensures the health and safety of all its employees, contractors, and the general public.*

Compliance with radiological safety requirements is an inherent component of the CRWMS program as articulated in the Draft Mission Plan Amendment (DOE, 1991b):

> *The protection of the health and safety of the public and of the workers and the quality of the environment is of paramount importance.*

This policy is further developed in the U.S. Department of Energy Radiological Control Manual (DOE, 1992b).

Implementation of the radiological safety policy requires: 1) a recognition and identification of the applicable requirements, 2) an orderly means of complying with these requirements (by developing plans to comply with the regulatory requirements), and 3) a means of ascertaining that these requirements have been met. The sum of these three steps comprises the radiological safety strategy. Implementation of this strategy is the responsibility of the Project Offices.

The following discussion provides guidance with regard to the requirements for licensing by the NRC:

10 CFR 60.21(c) (7) requires that the license application for MGDS contain *a description of the program for control and monitoring of radioactive effluents and occupational radiation exposures to maintain such effluents and exposures in accordance with the requirements of* 10 CFR part 20. Section 7.2 of the draft regulatory guide DG-3003, Format and Content for the License Application for the High-Level Waste Repository, provides detailed guidance with regard to the radiation protection program that should be described in the license application. The guide addresses topics such as: (1) organization, (2) equipment, instrumentation, and facilities, (3) procedures for radiation surveys, personnel dosimetry, decontamination of surface facilities, and ALARA, (4) effluent monitoring programs, and (5) environmental monitoring programs. In addition, section 7.6 (2) of the above draft regulatory guide provides guidance with regard to the health physics training program that should be described in the license application.

Similarly, 10 CFR 72.24(e) requires that the license application for MRS contain *a description of the means for controlling and limiting occupational radiation exposures within the limits given in 10 CFR Part 20, and for meeting the objective of maintaining exposures as low as is reasonably achievable.* Chapter 7 of the Regulatory Guide 3.48, Standard Format and Content for the Safety Analysis Report for an Independent Spent Fuel Storage Installation or Monitored

Retrievable Storage Installation (Dry Storage) provides detailed guidance with regard to the radiation protection program that should be described in the license application for an MRS. The guide addresses topics such as: (1) ALARA, (2) radiation sources, (3) radiation protection design features, (4) estimated on-site collective dose assessment, (5) health physics program, and (6) estimated offsite collective dose assessment. In addition, Section 9.3.1 of regulatory guide 3.48 provides guidance with regards to the health physics training program that should be described in the license application.

An objective of the radiological safety compliance strategy is that the Project Offices demonstrate compliance with NRC regulations applicable to the activities being performed. This objective can be met by verifying that each regulatory requirement has been covered in some implementing procedure; establishing and maintaining a system of compliance records; providing compliance feedback to the ADSC through routine reports; and performing compliance audits to ensure that the procedures are being fully implemented.

Implementation plans to achieve compliance with the NRC regulatory requirements should include a site-specific radiological control manual, an ALARA manual, and the Safety Engineering Plan (SEP). These manuals or plans should ultimately provide for the incorporation of the regulatory requirements into standard operating procedures. Verification that all applicable regulatory requirements are covered in some implementing procedure should be auditable.

In accordance with DG-3003 for MGDS, and Regulatory Guide 3.48 for MRS, training programs should be established in health physics subjects such as nature and sources of radiation, methods of controlling contamination, interactions of radiation with matter, biological effects of radiation, use of monitoring equipment, and principles of criticality hazards control. Personnel classification with different levels of instruction should be identified. Such training programs should be auditable by NRC inspectors; accordingly, they should be auditable under the OCRWM self-assessment program and quality assurance programs.

Compliance audits should be conducted to ensure compliance with NRC regulatory requirements; inclusion of regulatory requirements or citations thereof in manuals, plans and procedures; and adherence to procedures.

Records of activities related to radiological safety should be maintained in accordance with NRC regulatory requirements. The DOE Radiological Control Manual (DOE, 1992b) provides guidance based on industry practice. In addition to the records required, Program and Project Offices should maintain a complete chronological file of correspondence related to compliance with radiological safety regulations.

The Project Offices are responsible for determining the applicability of standards and regulations, and the depth to which applicable standards are to be implemented. In addition, Project Managers are responsible for the line management function of conducting day-to-day oversight of contractor activities, including monitoring the quality and performance of radiological work.

The Office of Systems and Compliance (OSC) provides policy, guidance, and oversight for radiological safety programs to ensure consistency across OCRWM projects. The Director, RCD, is designated as the focal point to interact on radiological control matters with the OCRWM

Project Office Managers, and counterparts within OCRWM. The Director, RCD, carries out this function through the RPRB. The Project Offices should provide the RCD with a copy of reports required under the appropriate regulatory requirements. The Project Offices should interact routinely with RPRB in the implementation of their radiological safety program.

5.1.3.2.6 Safeguards and Security

Historically in nuclear programs, safeguards are the step-by-step processes used to maintain accountability of special nuclear materials, in particular to prevent theft or diversion, thus "promoting the common defense and security" of the United States. Consistent with this historical usage of safeguards, 10 CFR 60.21(b)(3) states that the LA will contain "A certification that DOE will provide at the geologic repository operations area such safeguards as it requires at comparable surface facilities (of DOE) to promote the common defense and security."

NRC regulations further state that "Since the radiation hazards associated with high-level wastes make them inherently unattractive as a target for theft or diversion, no detailed information need be submitted on protection against theft or diversion" (10 CFR 60.21(b)(4)). The same regulation requires a description of the physical security plan for protection against "radiological sabotage." The NRC Draft Regulatory Guide DG-3003 provides guidance consistent with the regulation.

The NRC is in the process of promulgating a rulemaking regarding Safeguards and Security. The NRC stated that "...it is expected that the level of physical security implemented at a geologic repository site would not exceed that implemented at above-ground storage of comparable material." (See Desell to Sturz, January, 1993 and Sherr to Desell, March 5, 1993)

The requirement for developing safeguards and security plans flow down from 10 CFR 60.21 (b)(3) and (b)(4) for MGDS, and 10 CFR 72.24(o) and subpart H for the MRS. The specific requirements are contained in 10 CFR 73.50 and 10 CFR 72.72 through 72.78 and the projects must comply with these requirements. Further, as discussed in Section 5.1.2.1.5, NRC regulations take precedence over DOE Orders.

The OCRWM Safeguards and Security Plan, a program-level document, is currently under preparation by the ADSC. As currently structured, the Plan will provide guidance, to be adopted by each project, that will be sufficiently complete such that each project can prepare implementing procedures directly from the plan without a project-level safeguards and security plan. The plan, as currently conceived, states that inspections of the project safeguards and security activities will be conducted by the regional NRC Office. The implementing procedures will be reviewed and concurred with by the ADSC. The OCRWM Safeguards and Security Plan will be included in the appendices to the RGD and baselined in the future when the plan becomes available.

5.1.3.2.7 Emergency Plan

The NRC reserved subpart I of 10 CFR Part 60 for future development of Emergency Planning criteria. Emergency plans for the MGDS will be prepared in accordance with subpart I when the criteria are developed by the NRC. The NRC is currently in the process of defining the emergency planning requirements for the MRS. [For interim guidance, refer to the Proposed

Rule 10 CFR Part 72, Emergency Planning Licensing Requirements for Independent Spent Fuel Storage (ISFSI) and Monitored Retrievable Storage Facilities (MRS), 58 FR 23795, May 24, 1993.] Similarly, an emergency response plan to deal with potential transportation accidents needs to be prepared. When these Emergency Plans become available, they will be included in the appendices to the RGD and baselined in the future.

5.1.3.3 External Oversight

One of the elements of the licensing strategy includes acceptance of methods, approaches, and assumptions by the technical community. Among the "technical community" are the Nuclear Waste Technical Review Board (NWTRB), established by the NWPA, as amended, and the Advisory Committee on Nuclear Waste (ACNW), an advisory technical organization to the NRC. The RCP should discuss the Project's participation in interactions with these two technical bodies, to include selection of topics for presentation by the DOE, coordination of requirements among various branches of the DOE, and post-meeting documentation requirements.

As discussed in Section 5.1.2.1.2, the NAS and EEI maintain cognizance of the project. Interactions with these entities should be coordinated with OSC and the RCP should present coordination details.

5.1.3.4 Affected Units of Government and the Public

Section 117 of the NWPA, as amended, requires that DOE and NRC (and other "involved" agencies) "... provide to the Governor and legislature of such State [of Nevada], and to the governing body of any affected Indian Tribe, timely and complete information regarding determinations or plans made with respect to the site characterization siting, development, design, licensing, construction, operation, regulation, or decommissioning of such repository."

The RCP should contain plans to comply with this legal requirement at the project level and to document the flow of licensing information within the Project through the required concurrence and approval chain.

5.1.4 Licensing and Site Evaluation Responsibilities

A complete description of the responsibilities of each office within OCRWM is contained in Appendix C of the PMS Manual, Revision 5. The licensing-related responsibilities of cognizant OCRWM and DOE offices are presented in subsections 5.1.4.1 through 5.1.4.8.

5.1.4.1 Office of the Director, OCRWM

DOE will be the licensee. The Office of the Director, OCRWM has ultimate management responsibility for the successful outcome of licensing proceedings. The Director, OCRWM must concur on major project licensing deliverables including the LA, the SRR, and the FEIS and is responsible for sending these deliverables to the Secretary of Energy.

5.1.4.2 Office of Quality Assurance

The Office of Quality Assurance (OQA) is responsible for the management, execution, coordination, integration, and overview of OCRWM-wide quality assurance (QA) activities. The activities of the OQA are related to verification of quality, which includes audits, surveillances, reviews, and assessments.

The Director of the OQA is responsible for preparation of the Quality Assurance Requirements and Description document (QARD) to set forth the Program QA requirements with which all affected organizations must comply and to describe the provisions established by OCRWM to meet these requirements. The QARD provides for both the achievement and verification of quality. The line organization is responsible for the implementation of the QA program and both the line organization and the QA organization share responsibility for the verification of quality.

QARD requirements are derived from a number of regulatory and industry source documents. The regulatory source documents define requirements necessary for obtaining licenses issued by the NRC. The QARD incorporates the applicable QA requirements from 10 CFR Part 60; 10 CFR Part 50, Appendix B; 10 CFR Part 71; and 10 CFR Part 72. Changes to the regulatory documents are reviewed by the OQA which is then responsible to make appropriate changes to the QARD.

5.1.4.3 Yucca Mountain Site Characterization Office

The Yucca Mountain Site Characterization Office (YMSCO) is responsible for developing implementation policies and strategies and conducting all management and programmatic functions needed to produce the waste disposal subsystem in compliance with requirements documents and applicable laws and regulations; for managing the development of the Environmental Impact Statement; for the preparation of site suitability reports for the preparation of documentation demonstrating compliance with 10 CFR Part 960, and for preparing a site recommendation report to the President; and for preparing an annotated outline of a license application and for preparing the license application and amendments thereto. The YMSCO is also responsible for preparing supporting technical documentation and for providing technical support for defending the adequacy of the work performed and the conclusions drawn in interactions with the NRC during all phases of the licensing process.

The Project Offices are responsible for the establishment and maintenance of radiological safety programs for OCRWM and are accountable for the quality and performance of radiological work conducted at their respective sites.

5.1.4.4 Office of Program and Resource Management

The Office of Program and Resource Management is responsible for developing the LSS.

5.1.4.5 Office of Systems and Compliance

The Office of Systems and Compliance (OSC) is responsible for providing licensing guidance to the Projects and managing interactions with the NRC, EPA, Department of Transportation (DOT), and DOL during all phases of the licensing process; for identifying applicable Program-level licensing requirements; for ensuring the suitability of documents for submittal to the LSS and that the LSS contains all information needed to meet licensing requirements; and for coordinating MGDS licensing activities with the MRS and Transportation Project. Associated with the above, OSC is responsible for establishing and ensuring compliance with DOE licensing policy; managing the DOE/NRC interface; ensuring the suitability and sufficiency of documentation for use in the licensing process (including an annotated outline for a license application) and of any presentations to be made to NRC either orally or in writing; managing DOE's participation in licensing hearings and potential litigation; and developing and implementing training programs to improve the licensing skills of all personnel involved in the Program.

5.1.4.6 Office of General Counsel

The Office of General Counsel (OGC) is responsible for providing to OCRWM, at all stages of the Program, the legal support required for the successful conduct of the licensing process. The OGC will concur on all licensing documentation formally submitted to the NRC.

5.1.4.7 Assistant Secretary for Environment, Safety and Health

The Assistant Secretary has signature authority for the EIS that accompanies the LA.

5.1.4.8 Office of the Secretary

The Secretary has signature authority for the License Application. (DOE will be the licensee.) The Secretary is also responsible for making a recommendation to the President for approval of a candidate site for the development of a repository, and to forward the SRR and documentation supporting the evaluation of site suitability to Congress and the President.

5.2 MONITORED RETRIEVABLE STORAGE (MRS)

5.2.1 Introduction

The storage element of the CRWMS is being managed as a project by the Office of Storage and Transportation (OST) within OCRWM. Because the technology for storing spent fuel is well established, the technical approach the Department has taken in developing the MRS for the CRWMS has been to use established and/or previously licensed technologies to the extent practicable.

The fact that such storage technologies are readily available would allow DOE to meet its goal of accepting waste beginning in January 1998. Timely availability of a storage facility site has been and is still the key to achieving this objective. DOE's preferred approach has been to obtain an MRS site by supporting the efforts of the Office of the Nuclear Waste Negotiator to

identify a host willing to provide a suitable site. Although those efforts are continuing, they may not be able to support the availability of an MRS capable of waste acceptance beginning in January 1998.

As a consequence, the Department has been considering the development of a multi-purpose canister (MPC) and the use of Federal government sites for interim storage. Pursuant to the initiatives announced in December 1992 by the former Secretary of Energy, the Director, OCRWM approved commencement of an MPC implementation program in February, 1993. The Department is continuing to evaluate the implications of these initiatives.

Regulatory guidance relevant to the development of the MRS is provided in the following sections. It recognizes that the process employed by applicants and licensees to obtain and comply with the terms and conditions of licenses for all nuclear facilities issued by the NRC is essentially the same. This process is discussed in Section 5.1. The guidance provided herein highlights only those details of particular importance for storage. In so doing, the guidance provided addresses the Department's new initiatives to the extent practicable at this time.

5.2.2 Overview of the Licensing Process

5.2.2.1 Statutory and Regulatory Framework

5.2.2.1.1 Applicable Statutes

The development of the MRS facility is to be carried out pursuant to and in accordance with the provisions of the Nuclear Waste Policy Act, as amended, the Atomic Energy Act of 1954, as amended, the Energy Reorganization Act of 1974, the Department of Energy Organization Act, the Administrative Procedure Act, and the National Environmental Policy Act of 1969.

Of particular importance for the MRS are the following provisions of the NWPA, as amended:

- *§142(b) authorizes the Secretary to site, construct, and operate one MRS subject to the provisions of sections 143 through 149.*

- *Title IV establishes the Office of Nuclear Waste Negotiator and sets forth its duties and other relevant provisions including those associated with siting an MRS.*

- *The provisions of the Interim Storage Program are set forth in Title I, Subtitle A. Particularly relevant to the Department's Interim Storage Initiative is the fact that the Secretary's authorization to enter into interim storage contracts pursuant to the provisions of §136(a) expired on January 1, 1990. Accordingly, new legislation would be required to implement this initiative.*

- *An environmental impact statement will be required to support the interim storage initiative and any of the approaches that might be taken to develop an MRS.*

5.2.2.1.2 Applicable Regulations

The MRS facility shall be designed and operated in accordance with the applicable requirements of 10 CFR Part 72. These requirements include the requirements for storage casks set forth in 10 CFR Part 72, subpart L.

As noted above, the Department is considering the development of a multi-purpose canister (MPC). The NRC has not previously licensed such a system for use. This system would have the capability for dry storage, transport, and disposal of spent fuel. In licensing such a system, whether, when, under what circumstances, and for what reason(s) a canister might have to be opened for inspection will have to be addressed. In addition, the implications of opening the MPC for inspection and the compatibility of the system with the design and operating conditions of the MGDS will have to be addressed. It is likely, therefore, that this system will have to be shown to comply with the requirements of 10 CFR Part 60 as well as those of Parts 71 and 72.

The regulations governing the provision of MRS information to State governments and Indian Tribes and public participation are set forth in 10 CFR Part 72, subpart J.

5.2.2.1.3 Unique Licensing Aspects of the Interim Storage Initiative

The licensing of storage facilities under 10 CFR Part 72 involves demonstrating the suitability of a proposed site and then the suitability of the proposed storage facility for use on that site. Such demonstration is well within the state-of-the art and, as a consequence, if interim storage facilities at Federal government sites have to be licensed, there is no reason, in principle, why this cannot be accomplished.

Section 135(a)(1)(A)(i) of the NWPA, as amended, provides for the use of available capacity at Federal government sites if the Commission otherwise determines that such use will adequately protect the public health and safety, except that such facilities are not subject to licensing by the NRC. Presumably this determination would be based on the environmental review conducted pursuant to the provisions of §135(c)(1). As noted in Section 5.2.2.1.1 above, the provisions contained in 136(a) are now obsolete, and new legislation authorizing the use of Federal government sites for interim storage would be required. Any licensing and environmental review provisions of such legislation would have policy implications that would have to be considered.

5.2.2.1.4 Applicable Regulatory Guidance Documents

The following U.S. Nuclear Regulatory Commission Regulatory Guides (R.G.) provide guidance relevant to the preparation of the SAR and LA for the MRS:

- R.G. 3.48, Revision 1, August 1989, Standard Format and Content for the Safety Analysis Report for an Independent Spent Fuel Storage Installation or Monitored Retrievable Storage Installation (Dry Storage).

- R.G. 3.50, Revision 1, September 1989, Standard Format and Content for a License Application to Store Spent Fuel and High-Level Radioactive Waste.

5.2.2.1.5 DOE Regulations

DOE's efforts to develop the MRS will be carried out in full compliance with the Departmental procedures set forth in 10 CFR Part 1021, National Environmental Policy Act (NEPA) Implementing Procedures. In so doing, the Department shall comply with the applicable provisions of the NWPA, as amended, concerning the preparation of the environmental impact statement for the MRS, and with the requirements of 10 CFR Part 72.34. (See also Chapter 6 of this document.)

5.2.2.2 MRS Licensing Process

As noted above, the process that governs the licensing of the MRS facility is essentially the same as that employed by applicants and licensees in obtaining and demonstrating compliance with the terms and conditions of licenses for all nuclear facilities licensed by NRC. It is a legal process that has significant technical, administrative, and political dimensions. It governs how DOE must and will interact with the NRC. It, in turn, is influenced by the provisions of the NWPA, as amended, the Atomic Energy Act of 1954, as amended, the National Environmental Policy Act of 1969, and the Administrative Procedure Act. It is concerned with building the administrative record required to support NRC licensing actions.

The scope of the licensing process for the MRS differs from that for the MGDS in two important respects. In accordance with the provisions of 10 CFR Part 2.764(c) and 10 CFR Part 72.46, the Commission, after completion of one public hearing and the making of the required findings, can authorize the issuance of an initial license for the construction and operation of an MRS. This should not be interpreted to mean that NRC will not satisfy itself that construction has been completed in accordance with the terms and conditions of the license and that DOE is ready to begin to operate the facility before it authorizes such operation. (For the MGDS, public hearings will be required at both the construction authorization and the license to receive and possess stages of the licensing process.) In addition, the MRS licensing process does not involve or require the use of the LSS, a system that must be used for the MGDS pursuant to the provisions of 10 CFR Part 2, subpart J.

5.2.3 Licensing Strategy

DOE's MRS Licensing Strategy is consistent with the strategy presented in Section 5.1.3. To ensure waste acceptance capability in January 1998, given the concerns about the timely availability of a storage facility site, implementing DOE's MRS licensing strategy should involve vigorous implementation of the Annotated Outline and Issue Resolution Initiatives in the preparation and submittal of the safety analysis report (SAR). The SAR should be submitted well in advance of the filing of the complete LA and the EIS to expedite the NRC review process. The balance of the LA and the EIS will take longer to complete because of the delay in identifying the site. Embodied in this strategy and an essential and integral part of the Annotated Outline and Issue Resolution Initiatives are early, frequent, and regular interactions with the NRC staff to identify, address, and resolve, to the extent practicable, technical issues with licensing implications. These will undoubtedly include those associated with the development and certification of a multi-purpose container system should DOE elect to implement this initiative. In addition, should DOE decide to implement the Interim Storage Initiative, DOE's strategy will

also include ensuring the enactment of the legislation and the promulgation of those regulations that may be required to support the Initiative.

5.2.3.1 Technical Strategies

The following technical considerations: conservatism; design flexibility; quality assurance; nuclear safety; radiological safety; safeguards and security, and emergency plan, that are discussed in Sections 5.1.3.2.1 through 5.1.3.2.7 are also applicable to MRS. The reader is encouraged to refer to Sections 5.1.3.2.1 through 5.1.3.2.7.

5.2.4 Licensing Responsibilities

For the MRS, the licensing responsibilities of the cognizant OCRWM and DOE offices are the same as those described in Section 5.1.4, except that the Office of Storage and Transportation (OST) is responsible for MRS and Transportation.

The OST is responsible for management of all aspects of the Storage and Transportation Projects including, but not limited to, the conduct of all technical work, the preparation of all licensing documents, establishing and maintaining the required data bases and records, and providing technical support for all management, licensing, and technical interactions with NRC throughout the licensing process, including licensing hearings and potential litigation. The OST is also responsible for providing technical support for DOE outreach efforts relevant to MRS licensing.

5.3 TRANSPORTATION

5.3.1 Introduction

The OCRWM Transportation element is responsible for transporting the spent nuclear fuel (SNF) and high-level waste (HLW) to the MGDS and MRS, as appropriate, once the material has been accepted by the Waste Acceptance element. Specific activities that are part of the Transportation System include responsibility for developing, procuring, operating and maintaining the transportation cask system. In addition, Transportation is responsible for commercial contracts with highway, rail and barge carriers, for establishing and maintaining transportation schedules, the timely notification of state, (and tribal) governments of shipments, and for tracking and monitoring waste shipments.

Many of the activities that are the responsibility of the Transportation element are subject to regulation by government agencies. These regulatory requirements can be divided into two general areas: 1) Requirements affecting the operation of the transportation system including cask maintenance, and 2) Requirements specifically addressing the certification of the design of the transportation cask.

Since the NWPA, as amended, requires that OCRWM use NRC certified casks, the list of NRC certified cask designs that potentially could be used by OCRWM is a major design input for the transportation system. Parameters such as cask capacity and availability have a major impact across the entire OCRWM program. The potential use of MPCs will require similar certification processes and requirements.

5.3.2 Overview of the Regulatory Environment

Transportation of radioactive material such as SNF and HLW is highly regulated. This section discusses how OCRWM will operate within this regulatory environment. This discussion identifies the top-level regulations affecting both the transport and cask certification subelements of the transportation system, the strategy that OCRWM plans to use to comply with those regulatory requirements, and identifies the responsibilities to implement that strategy.

5.3.2.1 Transportation Regulatory Overview

The OCRWM Transportation System element is subject to the requirements of a number of regulatory agencies at the Federal, State, local and Tribal levels.

At the Federal level, the final authority for regulating shipments of hazardous materials, including radioactive materials, rests with the Department of Transportation (DOT). DOT regulations address all of the regulated aspects of shipping radioactive material, including the packaging design, fabrication and shipment operations. For casks containing large quantities of radioactive material, the DOT uses the NRC as the evaluator of the cask designs. DOT regulations permit direct use of NRC-approved packages. DOT regulations also address requirements for packaging, marking and labelling, placarding, and accident reporting.

At the State level, the regulatory environment is concerned with both nuclear and non-nuclear requirements. Nuclear-related requirements address areas such as route selection, handling and shipment schedule information, providing emergency response capabilities and physical protection of the shipments. Non-nuclear aspects include vehicle and driver licensing, vehicle inspections, firearms control, and traffic control.

Regulations at the local or Tribal level deal primarily with items such as local route selection, emergency response procedures, physical protection of the shipments, and support by local law enforcement agencies.

5.3.2.1.1 Laws and Regulations

Sections 137 and 180 of the NWPA, as amended, give specific direction that: 1) transportation of SNF shall be subject to licensing and regulation by the Commission and the Secretary of Transportation as provided for transportation of commercial spent nuclear fuel under existing law; and 2) no SNF or high-level radioactive waste may be transported except in packages that have been certified by the Commission.

Most Federal regulations related to the operational aspects of the transportation system are included in the DOT regulations. DOT regulations related to the shipment of radioactive materials are codified in 49 CFR Parts 170 to 189.

NRC regulations related to transportation activities are included in Title 10 of the CFR. In addition to 10 CFR Part 71 that deals with cask certification, the packaging and transport of licensed materials are subject to the pertinent portions of 10 CFR Parts 20, 21, 30, 39, 40, 70, and 73. The requirements of the above regulations shall be complied with as applicable.

State, local and Tribal laws should be reviewed to identify any applicable laws and to determine their impact on the CRWMS Transportation element, and should be included in the RCP.

5.3.2.1.2 DOE Orders and Regulations

OCRWM is currently reviewing DOE Orders and regulations to identify any that are applicable and to determine their impact on the CRWMS Transportation element. Results of such review should be included in the RCP. Requirements can be tracked using ARMS. (See Section 3.1)

5.3.2.2 Overview of the Certification Process

The NWPA, as amended, directed that all OCRWM shipments of SNF and HLW will be made using NRC-certified casks.

The major emphasis of the NRC cask evaluation process is toward certifying that the design, fabrication, and performance of the cask packaging system, including performance under specified accident conditions will adequately protect the public health and safety during shipments of radioactive materials. This evaluation review is called the cask certification process. Certification is focused on the review of the physical design aspects of the cask itself and how the cask is to be used. Many other aspects associated with transportation, such as operational health physics considerations and the physical security plans, are the responsibility of the licensed facility making or receiving the shipment. These aspects are addressed in the appropriate sections of the facility's license application.

The role of the NRC is to ensure that cask packages are designed, fabricated, and operated in a manner that provides adequate protection of the public health and safety. To obtain NRC certification of a cask, a SAR for a cask design is submitted to the NRC for review. The SAR describes, in detail, the cask design, its contents, how it meets the NRC performance criteria, the codes and standards to be used in fabrication, and how the cask will be operated. The performance criteria used by the NRC to evaluate cask packages is codified in 10 CFR Part 71. After satisfactorily completing the review process, the NRC will issue a Certificate of Compliance (CoC) for the design of the radioactive materials package. The CoC contains a brief description of the cask, the permitted cask contents, and any special requirements imposed on the use of the cask. With this CoC, a registered user is permitted to ship radioactive material as long as the shipment, including the cask, complies with the SAR and any stipulations listed in the CoC, and the applicable requirements of 10 CFR Part 71.

Since the certification process is concerned with the total performance of the cask, it addresses the aspects of the cask related to the physical hardware as well as the engineering design. Cask fabrication must be in accordance with the design drawings and manufacturing codes and standards and material specifications that were included in the NRC review of the cask design. The materials used in the fabrication must meet the specifications identified in the cask design documentation. All aspects of the cask procurement and fabrication must comply with the quality assurance requirements of 10 CFR 71, subpart H.

5.3.2.2.1 NRC Regulatory Framework for Cask Certification

As directed by the NWPA, as amended, the NRC is the primary regulatory agency for certifying the cask designs for the CRWMS. The NRC regulations are codified in 10 CFR Part 71.

5.3.2.2.2 DOE Orders and Other Regulatory Guidance

Since the NRC is the regulatory agency for cask certification, the NRC regulatory requirements take precedence over DOE Orders.

5.3.3 Regulatory Strategy

It is the policy of OCRWM to comply with applicable regulatory requirements. Most operational aspects of the transportation activities will be addressed in the operating procedures developed and implemented by the projects. Transportation related activities include compliance with regulatory requirements addressing packaging, marking and labelling, placarding, and accident reporting.

Regulatory requirements related to cask maintenance and similar activities will be addressed by the organizations responsible for the Cask Maintenance Facility (CMF). Currently, it is expected that CMFs will be collocated with the MRS facility and the MGDS. These facilities will perform the required cask maintenance, routine in-service inspections, and the periodic regulatory-dictated inspections for the CRWMS Transportation element.

[A licensing strategy for the MPC initiative is currently under development.]

5.3.3.1 Technical Strategies

The following technical considerations: conservatism; design flexibility; quality assurance; nuclear safety; radiological safety; safeguards and security; and emergency plan, that are discussed in Sections 5.1.3.2.1 through 5.1.3.2.7 are also applicable to the Transportation element. The reader is encouraged to refer to Sections 5.1.3.2.1 through 5.1.3.2.7.

5.3.3.2 Certification Strategy

A number of options are available to OCRWM with respect to obtaining and using NRC-certified casks. The choice from several possible options depends, to a large extent, on the method used to obtain or procure the transportation cask services for CRWMS. These options range from using only casks from private industry sources that have already been certified by the NRC, to the DOE developing and certifying their own cask designs. To use certified casks from private industry, the DOE only has to register as a user of the cask. If DOE elects to develop its own cask design(s), the DOE will be responsible for obtaining NRC certification. This responsibility may be contracted to another party (i.e. the cask designer). In all cases, it is a requirement that only NRC-certified casks will be used to transport SNF and HLW. (Currently, the preferred option for obtaining these casks has not been determined.)

5.3.3.2.1 DOE Oversight Responsibilities

DOE will review the status of certification activities associated with the development of CRWMS Transportation system. This effort will include monitoring meetings between the cask applicants and the NRC during the NRC review of the cask designs.

After a cask has been selected by OCRWM and the design has been certified by the NRC, OCRWM will monitor the status of the CoC to ensure the CoC is valid at the time of use of the cask, and will verify that cask procurement and fabrication activities comply with the quality assurance requirements of 10 CFR Part 71, subpart H.

5.3.3.2.2 NRC Audits

The NRC will conduct audits of the CRWMS Transportation element activities. The purpose of the NRC audits will be to verify compliance with the requirements as described in the cask CoC.

5.3.4 Regulatory Responsibilities

At the program level, ADST is responsible for developing the overall strategy for complying with applicable transportation requirements that affect the Program as a whole. The ADST also has an oversight responsibility to verify that the Project-level activities comply with the applicable requirements.

5.3.4.1 Transportation Responsibilities

At the project level, the Transportation element is responsible for developing and implementing a transportation system that complies with applicable regulatory requirements.

5.3.4.2 Certification Responsibilities

OCRWM has the overall responsibility to ensure that only NRC-certified casks are used to transport SNF and HLW in the performance of its mission. OCRWM has established the OST to perform this mission. OST has oversight responsibilities to verify that only NRC-certified casks are used. The Transportation element is responsible for ensuring that casks used by CRWMS are certified by the NRC, and for maintaining those certifications. This responsibility includes ensuring that all cask systems are procured and fabricated in accordance with the requirements of 10 CFR Part 71.

(Depending on the method of procuring the cask and/or transportation services, OCRWM may be directly involved in the certification process and have a number of key responsibilities or may elect to assign these responsibilities by contract to a cask developer. Other immediate options are also available and may be selected. The nature of these responsibilities will be determined later based on the option(s) selected by OCRWM.)

6. ENVIRONMENTAL COMPLIANCE

6.1 OCRWM ENVIRONMENTAL COMPLIANCE POLICIES

Compliance with environmental regulations is an integral component of the Civilian Radioactive Waste Management System (CRWMS) Program. The basic policies under which the program is conducted are discussed in Chapter 2. One of these basic policies, as presented in the Draft Mission Plan Amendment (DOE, 1991b), is:

> *The protection of the health and safety of the public and of the workers and the quality of the environment is of paramount importance.*

This policy is further emphasized in the management principle stated in the Draft Mission Plan Amendment (DOE, 1991b).

> *Maintain strict environmental compliance programs.*

The Office of Civilian Radioactive Waste Management (OCRWM) environmental policy is consistent with the policies stated in the Environment, Safety, and Health Policy Statement (1993), DOE Order 5400.1, General Environmental Protection Program, and DOE Order 5480.1, Environment, Safety, and Health Program for Department of Energy Operations:

- *It is the DOE policy to conduct its operations in an environmentally safe and sound manner.*
- *It is the DOE policy to conduct the Department's operations in compliance with the letter and spirit of applicable environmental statutes, regulations, and standards.*
- [It is the DOE policy] *to require line management to be responsible for effective environment, safety, and health performance in their programs.*
- *It is the DOE policy that efforts to meet environmental obligations be carried out consistently across all operations and among all field organizations and programs.*
- *It is the DOE policy to integrate environment, safety and health into all activities.*

This policy results in an approach to environmental protection that places primary responsibility for compliance at the line management level. To ensure consistency across OCRWM projects, the Office of Systems and Compliance (OSC) provides policy guidance and oversight of line management environmental compliance programs through its Regulatory Policy and Requirements Branch (RPRB).

6.2 OVERVIEW OF ENVIRONMENTAL REGULATORY REQUIREMENTS

OCRWM is subject to environmental regulation pursuant to the provisions of various Federal and State legislation. This legislation includes:

- Federal environmental laws
- Environmental provisions contained in the Nuclear Waste Policy Act (NWPA), as amended
- State and local laws governing environmental issues.

Federal statutes and Executive Orders that are applicable to the OCRWM environmental activities are listed in Table 5-1. DOE is responsible for administering Federal regulations at DOE-owned facilities. The relationship between Federal regulations and DOE Orders has been discussed in Section 5.1.2.1.5. DOE Orders and Secretary of Energy Notices that are applicable to OCRWM environmental compliance activities are listed in Table 5-2.

10 CFR Part 1021, NEPA Implementing Procedures, was promulgated by the DOE to establish procedures that the DOE shall use to comply with Section 102(2) of NEPA and to comply with and supplement the Council on Environmental Quality (CEQ) implementing regulations. The NWPA, as amended, states that "Any recommendation made by the Secretary under this section shall be considered a major Federal action significantly affecting the quality of the human environment for purposes of the National Environmental Policy Act of 1969. A final environmental impact statement prepared by the Secretary under such Act shall accompany any recommendations to the President." The program must comply with DOE regulation 10 CFR Part 1021 and fully integrate the NEPA process with the licensing strategy.

In many instances implementation of Federal environmental laws is delegated to the States. Many States and local governments have enacted environmental laws independent of Federal law. These laws are generally as restrictive or more restrictive than Federal laws. In these instances State law is the primary regulating authority unless Federal preemption prevails. State and local environmental statutes and ordinances are not addressed in this document. It is expected that they will be addressed in the project Regulatory Compliance Plan (RCP).

Often Memoranda of Agreement (MOA) or Memoranda of Understanding (MOU) exist between entities within DOE or among DOE and other agencies. These documents may affect how environmental compliance is achieved. There are currently no MOA or MOU concerning environmental requirements.

Unless specifically exempted, OCRWM activities are required to comply with applicable Federal, State, and local laws and applicable DOE Orders. If conflicts exist between various regulatory requirements, resolution of such conflicts should be achieved in accordance with the conflict resolution process discussed in Chapter 3.

6.3 OCRWM ENVIRONMENTAL COMPLIANCE STRATEGY

Implementation of the OCRWM policy requires a recognition and identification of the applicable laws, an orderly means of implementing the requirements of those laws, and, finally, a means of ascertaining that the standards set by these laws have been met. The sum of these three steps comprises the environmental compliance strategy. The objective of the OCRWM environmental compliance strategy is to be able to demonstrate compliance with all regulations applicable to the activities being performed. Specifically, the elements of the compliance strategy are:

- Identify applicable regulatory requirements
- Develop plans to implement regulatory requirements
- Verify that regulatory requirements have been covered in appropriate implementing procedures
- Conduct training of employees and contractors in implementing procedures and maintain training records
- Provide for maintenance of regulatory compliance records
- Provide compliance feedback to the RPRB through routine reports
- Perform environmental audits and surveillances to ensure that the procedures are being fully implemented.

6.4 OCRWM ENVIRONMENTAL COMPLIANCE IMPLEMENTATION GUIDANCE

6.4.1 Identification of Regulatory Requirements

The RPRB identifies Federal statutes, Executive Orders, Federal regulations and DOE Orders that affect OCRWM environmental compliance programs. The RPRB participates in DOE workgroups that formulate DOE responses to legislative and regulatory initiatives. The RPRB also reviews Executive Orders and Federal regulations published in the Federal Register for applicability to OCRWM activities. The RPRB reviews and recommends comments or concurrence on DOE Orders, with input from the Project Offices.

The Project Offices are responsible for identifying Federal, State and local regulations of specific applicability to the project. Once identified, these requirements should be included in the Automated Requirements Management System (ARMS). Any changes in requirements or additional requirements should be reported by the project office to the Office of Systems and Compliance (OSC) so appropriate changes can be made to the ARMS database. See Section 3.1 for further details.

6.4.2 Development of Plans and Procedures to Implement Regulatory Requirements

The Project Offices are required by various DOE Orders to develop plans, procedures, and strategies to implement the applicable regulatory requirements. The DOE Office of Environmental Guidance distributes several guidance documents that may be useful to Project Office and field personnel in developing compliance programs. A listing of these documents is provided in Table 6-3. The DOE Orders require that several planning documents be prepared for a project. A list of these documents is provided in Table 6-4. These plans should be developed in accordance with the Project Management Plan and should satisfy the requirements of DOE 4700.1 Project Management System, DOE 5400.1 and DOE 5440.1 National Environmental Policy Act Compliance Program, and DOE 5480.1 Environment, Safety and Health Program. The RPRB will review these plans and updates. These plans should ultimately incorporate the regulatory requirements into implementing procedures. An overview of the activities performed to ensure compliance with the various requirements will be provided in the Regulatory Compliance Plan (Appendix A). The ADSC provides review and concurrence of the Regulatory Compliance Plan.

6.4.3 Verification That Regulatory Requirements Have Been Covered in Implementing Procedures

The Project Offices are responsible for verification that applicable regulatory requirements are covered in implementing procedures. This verification should be auditable under the OCRWM Self-Assessment Program and other oversight programs.

6.4.4 Training of Employees and Contractors in Implementing Procedures

The Project Offices should develop training programs which ensure that employees and contractors are aware of environmental requirements in accordance with the Pollution Prevention Awareness Program described in DOE 5400.1. Additionally, Project Offices should document that employees and contractors are trained in appropriate environmental procedures before performing environmental work without direct supervision. The training program and records should be auditable under both the OCRWM Self-Assessment Program and other oversight programs described in Section 6.4.5.

6.4.5 Maintenance of Regulatory Compliance Records

All records of activities related to environmental compliance should be maintained in compliance with applicable regulatory requirements. The Project Office should maintain a complete chronological file of all correspondence related to compliance with a specific environmental regulation. Records of data and information supporting any submittal to regulatory agencies concerning a permit or approval should be easily identifiable and traceable to the submittal.

In maintaining these records, it is important to ensure that environmental data collected meets acceptable quality assurance requirements. The Project Offices should apply appropriate QA controls to environmental activities as directed in DOE 5400.1(IV)(10). Where a State regulatory agency requires an environmental quality assurance program, the Project Office will additionally comply with the applicable State requirements as noted in DOE 5400.1 (IV)(10).

6.4.6 Compliance Feedback to the RPRB

The Project Offices should provide the RPRB with a copy of reports required under DOE 5400.1, DOE 5440.1, and DOE 5480.1. Additionally, the Project Office should provide the RPRB with a monthly permit status report. This report should include a description of the status of permits and approvals that have been applied for but not granted; permits required but not applied for; compliance status for permits and approvals which are in force; and discussion of any developing situations that could result in non-compliance.

6.4.7 Performance of Compliance Evaluations to Ensure That the Procedures Are Being Implemented

Compliance evaluations are performed through two mechanisms. Under DOE Order 5482.1, Environment, Safety and Health Appraisal Program, the RPRB conducts appraisals, surveys, and audits of OCRWM activities. These appraisals are conducted in accordance with the frequencies and content specified in DOE 5482.1. Appraisals are conducted by the Self-Assessment Unit of RPRB.

The DOE is committed to developing a systematic self-assessment program. The Director, OCRWM placed responsibility for coordination of the OCRWM Self-Assessment Program under the Self-Assessment Unit of RW-30 (RW-1 memorandum of November 13, 1992). The OCRWM Self-Assessment Program is focused on establishing a culture of accountability and continuing improvement and fostering excellence in all OCRWM activities.

Under the OCRWM Self-Assessment Program, the Project Offices are required to perform self-assessments of their compliance activities. If the project is collocated at a site managed by another DOE office, the project is a tenant. In this instance, the landlord office is responsible for conducting the self-assessment. The Project Office should provide input to the other office to ensure that OCRWM activities are properly evaluated. For clarification the situation described in this paragraph is not applicable to YMP.

Guidance for developing the project Self-Assessment Program is provided in the OCRWM Self-Assessment Management Plan (DOE, 1992a) and the Format and Content Guide for Self-Assessment Implementation Plans (DOE, 1993a). Both guides are available from the OCRWM Self-Assessment Unit.

6.5 ENVIRONMENTAL COMPLIANCE RESPONSIBILITIES

6.5.1 Office of Environment, Safety and Health

Outside OCRWM, the Office of Environment, Safety and Health (EH) plays a major role, setting environmental policy for all of DOE. The Assistant Secretary (EH-1) directs the oversight of environmental policy. It is EH-1 who approves all DOE environmental impact statements and environmental assessments.

In addition, EH provides the Secretary of Energy with an independent assessment to assure compliance with applicable laws related to environmental protection. This independent

assessment includes review of environmental activities, evaluation of effectiveness, and conduct of investigations, if necessary. The implementation of the above items remains with the OCRWM and Project Offices.

6.5.2 Office of Systems and Compliance

A general description of responsibilities for the OSC is presented in Chapter 3. In addition, the OSC is specifically responsible for overseeing all OCRWM NEPA and self-assessment activities. In administering these responsibilities with respect to the OCRWM environmental compliance strategy, the OSC is responsible for the following elements of the strategy:

- Track developments in Federal statutes, Executive Orders, Federal regulations, Memoranda of Agreement, and DOE Orders that affect the environmental elements of OCRWM programs. Input requirements to ARMS as discussed in Chapter 3.

- Participate in DOE working groups that develop DOE positions on environmental issues with Project Office input.

- Review and concur on Project Office Regulatory Compliance Plan or equivalent plans.

- Develop any necessary program-wide environmental training programs to ensure consistent compliance among OCRWM projects.

- Review and comment on monthly project environmental status reports or as part of the compliance oversight function.

- Perform compliance evaluations of Project Office environmental activities under the OCRWM Self-Assessment Program.

- Implement the responsibilities of the NEPA Compliance Officer as outlined in DOE Order 5440.1 including providing training, guidance, and review of all NEPA determinations.

6.5.3 Project Offices

The Project Office responsibilities are discussed in the PMS Manual. The PMS Manual indicates that the Project Offices are responsible for implementing the provisions of the RGD, Project Management Plans, and DOE Orders. In administering these responsibilities with respect to the OCRWM environmental compliance strategy, the Project Offices should be responsible for the following elements of the strategy:

- Track developments in Federal, State statutes and local regulations that affect the environmental elements of the project office activities.

- Identify regulatory requirements of specific applicability to the Project Office activities. Input requirements to ARMS as described in Chapter 3.

- Develop plans and procedures to implement the regulatory requirements.

- Apply for all necessary permits and approvals.
- Develop applicable procedures to ensure that all requirements, including those of permits and approvals, are met.
- Provide for employee and contractor training and maintain training records.
- Establish and maintain regulatory compliance records.
- Provide for acceptable quality assurance of environmental activities.
- Provide copies of environmental reports to RPRB.
- Provide self-evaluations of Project Office activities under the OCRWM Self-Assessment Program.

6.6 PROJECT SPECIFIC ASPECTS OF ENVIRONMENTAL COMPLIANCE

The various aspects of environmental compliance previously described in Sections 6.1 through 6.5 are applicable to all elements of the CRWMS. Unique aspects of environmental compliance, if any, that are specific to a project are described in Section 6.6.

6.6.1 Yucca Mountain Project

The NWPA, as amended, provides specific guidance on the applicability of NEPA to the repository site characterization activities. The Act should be consulted in developing any requirements documentation and implementation plans.

The YMSCO has already developed an environmental document hierarchy to cover site characterization activities. It is anticipated that these existing documents will be updated to include construction and operation activities as the appropriate NRC approvals are issued. Instead of the Regulatory Compliance Plan described in Section 6.4.2, the YMSCO has developed an Environmental Regulatory Compliance Plan (ERCP) (DOE,1992b). This ERCP is used in conjunction with the Environmental Management Plan (EMP) (DOE, 1990) to manage the environmental compliance activities. Additionally, the YMSCO has separated the Environmental, Safety and Health Protection Implementation Plan (ESHPIP) into an Environmental Protection Implementation Plan (EPIP) and a Safety and Health Plan.

6.6.2 Monitored Retrievable Storage

The NWPA, as amended, provides specific guidance on the applicability of NEPA to the MRS facility activities. The Act should be consulted in developing any requirements documentation and implementation plans.

The OST plans to address all regulatory requirements in a single MRS facility Regulatory Compliance Plan. The OST also plans to incorporate the ESHPIP into the MRS Regulatory Compliance Plan.

Any agreement with a MRS host may impose environmental requirements above and beyond those recognized in an analysis of the regulations. These will need to be included in any Regulatory Compliance Plan developed for the MRS.

6.6.3 Transportation

According to current plans, that the cask maintenance facility (CMF) will be collocated with the MRS facility and geologic repository. In this instance, the MRS Project or geologic repository would provide environmental compliance support. If the CMF is not collocated with the MRS facility or geologic repository, then the CMF will have to provide all environmental requirements analysis and compliance plans.

The extensive use of contractors to transport spent nuclear fuel and high-level radioactive waste will alter the environmental compliance approach used by Transportation. Instead of developing self-sufficient compliance plans, Transportation will have to develop plans that ensure contractor compliance with various State and local laws.

Table 6-1. Environmental Statutes and Executive Orders*

CITATION NUMBER	DOCUMENT TITLE	WASTE ACCEPTANCE	WASTE TRANSPORT	WASTE STORAGE	WASTE DISPOSAL	COMMENTS
16 USC 431-433	Antiquities Act of 1906			X	X	
42 USC 1996	American Indian Religious Freedom Act of 1978			X	X	
16 USC 469-469c	Archaeological and Historic Preservation Act			X	X	
16 USC 406-406C	Archaeological Recovery Act			X	X	
16 USC 470AA-470LL	Archaeological Resources Protection Act of 1979			X	X	
16 USC 668a	Bald and Golden Eagle Protection Act			X	X	
42 USC 7401-7642	Clean Air Act		X	X	X	Trans applies to special order carriers and CMF
33 USC 1251-1376	Clean Water Act		X	X	X	Trans applies to CMF
16 USC 3501	Coastal Barrier Resources Act			X	X	YMP not located within coastal zone, for MRS coastal zone may be disqualifier
16 USC 1451)	Coastal Zone Management Act of 1972, as amended			X	X	YMP not located within coastal zone, for MRS coastal zone may be disqualifier
42 USC 13201	Comprehensive National Energy Policy Act of 1992		X	X	X	
42 USC 9601	Comprehensive Environmental Response, Compensation, and Liabilities Act of 1980		X	X	X	Trans applies to CMF
42 USC 11001 et seq.	Emergency Planning and Community Right-to-Know Act of 1986		X	X	X	Trans applies to CMF
16 USC 1531-1543	Endangered Species Act of 1973			X	X	
7 USC 4201-4209	Farmland Protection Policy Act of 1981			X	X	
42 USC 6901-6987	Federal Facilities Compliance Act			X	X	
7 USC 135	Federal Insecticide, Fungicide, and Rodenticide Act of 1972, as amended			X	X	Coverage limited to use of pesticides on site

*Note: This table is only a guide. Applicability must be verified by project office.

Table 6-1. Environmental Statutes and Executive Orders* (Continued)

CITATION NUMBER	DOCUMENT TITLE	WASTE ACCEPTANCE	WASTE TRANSPORT	WASTE STORAGE	WASTE DISPOSAL	COMMENTS
43 USC 1701-1784	Federal Land Policy and Management Act of 1976			X	X	
16 USC 661-666c	Fish and Wildlife Coordination Act			X	X	
49 USC 1801-1812	Hazardous Materials Transportation Uniform Safety Act of 1990	X	X	X	X	
16 USC 461-467	Historic Sites, Buildings and Antiquities Act			X	X	
16 USC 1361 et seq.	Marine Mammal Protection Act of 1972			X	X	YMP not located within coastal zone, for MRS coastal zone may be disqualifier
33 USC 1401 et seq., 16 USC 1431 et seq.	Marine Protection, Research, and Sanctuaries Act of 1972			X	X	YMP not located within coastal zone, for MRS coastal zone may be disqualifier
30 USC 601	Materials Act of 1947			X	X	
16 USC 703-712	Migratory Bird Treaty Act, as amended			X	X	
42 USC 4321-4361	National Environmental Policy Act of 1969		X	X	X	
16 USC 521	National Forest Organic Act			X	X	YMP not located within Forest Service lands
16USC 470	National Historic Preservation Act of 1966			X	X	
16 USC 1246	National Trails System Act			X	X	YMP not located within scope of this Act
18 USC 1170, 25 USC 3001	Native American Graves Protection and Repatriation Act			X	X	
42 USC 4901-4918	Noise Control Act of 1972		X	X	X	Trans applies to special order carriers
42 USC 10101	Nuclear Waste Policy Act, as amended	X	X	X	X	
42 USC 13101	Pollution Prevention Act		X	X	X	
23 USC 138	Preservation of Parklands			X	X	YMP not located within scope of Park Service
42 USC 6901-6987	Resource Conservation and Recovers Act of 1976, as amended	X	X	X	X	

*Note: This table is only a guide. Applicability must be verified by project office.

Table 6-1. Environmental Statutes and Executive Orders* (Continued)

CITATION NUMBER	DOCUMENT TITLE	WASTE ACCEPTANCE	WASTE TRANSPORT	WASTE STORAGE	WASTE DISPOSAL	COMMENTS
42 USC 300f-300j-10	Safe Drinking Water Act of 1974, as amended		X	X	X	Applies if site is source of drinking water
16 USC 2001, 16 USC 2004-2006, 2009	Soil and Water Resources Conservation Act			X	X	
43 USC 315	Taylor Grazing Act			X	X	YMP does not encompass Federal grazing lands
15 USC 2601	Toxic Substances Control Act					Toxic Substances Control Act does not apply to CRWMS
16 USC 1331-1340	Wild Horses and Burros Protection, Management and Control Act			X	X	
16 USC 1271-1287	Wild and Scenic Rivers Act			X	X	
E.O. 11514	Protection and Enhancement of Environmental Quality			X	X	
E.O. 11593	Protection and Enhancement of Cultural Environment			X	X	
E.O. 11644	Floodplain Management			X	X	
E.O. 11987	Exotic Organisms			X	X	
E.O. 11988	Floodplain Management			X	X	
E.O. 11989	Off-Road Vehicles on Public Lands			X	X	
E.O. 11990	Protection of Wetlands			X	X	
E.O. 11991	Protection and Enhancement of Environmental Quality			X	X	
E.O. 12088	Federal Compliance with Pollution Control Standards			X	X	
E.O. 12286	Response to Environmental Damage		X	X	X	
E.O. 12342	Environmental Safeguards on Activities for Animal Damage Control on Federal Lands			X	X	
E.O. 12580	Superfund Implementation			X	X	

*Note: This table is only a guide. Applicability must be verified by project office.

Table 6-2. DOE Orders and Secretary of Energy Notices for Environmental Activities

Order Number or Secretary of Energy Notice Number	Order or SEN Title
1540.2	Hazardous Material Packaging for Transport- Administrative Procedures
5000.3	Occurrence Reporting and Processing of Operations Information
5400.1	General Environmental Protection Program
5400.2	Environmental Compliance Issue Coordination
5400.3	Hazardous and Radioactive Mixed Waste Program
5400.4	Comprehensive Environmental Response, Compensation, and Liability Act Requirements
5440.1	National Environmental Policy Act
5480.1	Environment, Safety and Health Program for Department of Energy Operations
5480.4	Environmental Protection, Safety and Health Protection Standards
5500.1	Emergency Management Program
5500.2	Emergency Notification, Reporting, and Response Levels
5500.3	Planning for Operational Emergencies
SEN-07-89	Policy on Line Management's Responsibility to Achieve Environmental Compliance
SEN-15-90	National Environmental Policy Act
SEN-22-90	DOE Policy on Signatures of RCRA Permit Applications

Table 6-3. Environmental Guidance Documents
Prepared and Distributed by the Office of Environmental Guidance (EH-23)

American Indian Religious Freedom Act

Atomic Energy Act and Related Legislation

Clean Air Act

Clean Water Act (excluding Section 404)

Clean Water Act (Section 404) and the Rivers and Harbors Act (Sections 9 and 10)

Coastal Zone Management Act

Comprehensive Environmental Response, Compensation, and Liability Act

Emergency Planning and Community Right-to-Know Act

Endangered Species Act and the Fish and Wildlife Coordination Act

Federal Environmental Reporting Requirements Handbook

Hazardous Materials Transportation Act

Marine Protection, Research, and Sanctuaries Act and the Marine Mammal Protection Act

National Historic Preservation Act

Resource Conservation and Recovery Act

Safe Drinking Water Act

Toxic Substances Control Act

Table 6-4. Environmental Planning Documents Required by DOE Orders

Order Number	Plan Title	Plan Contents
4700.1	Environment, Safety & Health Protection Implementation Plan	Defines actions taken to comply with existing directives on environment, safety and health issues. [DOE 4700.1, Attachment II, pg II-69]
5400.1	Environmental Protection Implementation Plan	Provide environmental protection goals, strategies and timetables. Provide assignments for environmental compliance activities including development of standard operating procedures and reports.
5400.1	Long Range Environmental Protection Plan	Identify specific environmental objectives, schedules and resource allocations. [This plan is incorporated into the Five Year Environment, Safety and Health Plan]
5400.1	Groundwater Protection Management Program Plan	Document groundwater regime, design of a groundwater monitoring program, groundwater management program consistent with SDWA, RCRA, CERCLA, identification of contaminated areas and strategies for controlling the source of contamination and remediation.
5400.1	Waste Minimization Program Plan	Define a program to reduce volume and toxicity of hazardous waste generated. Include specific annual goals.
5400.1	Pollution Prevention Awareness Program Plan	Define a program to increase employee awareness of pollution prevention through training, special campaigns and incentives.
5400.1	Environmental Monitoring Plan	Define the environmental monitoring program including design criteria, extent and frequency of monitoring, laboratory analyses, quality assurance and reporting.
5400.1	Environmental Monitoring Quality Assurance Plan	Quality assurance plan consistent with DOE 5700.6. All DOE and contractor laboratories used shall meet State certification. EH-1 shall provide for independent verification of data.
5440.1	Environmental Impact Statement Implementation Plan	Content of the EISIP is provided in 10 CFR 1021.312.
5440.1	Mitigation Action Plan	Content of the MAP is provided in 10 CFR 1021.331.
5500.1	Emergency Management Plan	The EMP required in 5500.1 covers non-radiological emergency plans. The content of the EMP is discussed in DOE 5500.3

7. SAFETY AND HEALTH COMPLIANCE

7.1 INTRODUCTION

This chapter addresses the OCRWM safety and health compliance policy, the strategy for implementing that policy by the projects, the guidance for the implementation of that policy/strategy, and the responsibilities associated with policy implementation. It focuses on the activities of the projects (MGDS, MRS, and Transportation). Activities unique to specific projects are addressed in Section 7.7. The safety and health activities discussed in this chapter are applicable to the siting, design, construction, and operations aspects of the MGDS, MRS, and Transportation elements of the CRWMS.

From a functional perspective, the scope of the safety and health disciplines include: construction safety, mine safety, transportation safety, occupational medical services, industrial hygiene, fire protection, emergency preparedness, radiological safety (to the extent not already described in Section 5.1.3.2.5), and independent review. Nuclear safety is addressed in Section 5.1.3.2.4.

The OCRWM Safety and Health program has two key organizational components: the headquarters component which provides policy and guidance and exercises compliance oversight, and the project implementation component. This chapter discusses the coordination between the two components to achieve compliance with all applicable safety and health regulations.

7.2 SAFETY AND HEALTH OVERVIEW

This section briefly describes the regulatory requirements framework derived from applicable Federal regulations, DOE Orders, industry standards, and the DOE Five Year Safety and Health (S&H) Plan. It also describes key safety and health documents and memoranda of understanding.

7.2.1 Safety and Health Statutes, Regulations, and Orders

The safety and health statutes, regulations, and orders applicable to OCRWM are listed in Table 7-1. This table shows the safety and health requirements found in: the Public Law, U.S. Code of Federal Regulations, DOE Regulations, DOE Orders, Secretary of Energy Notices (SENs), Memoranda of Understanding (MOU), other Federal regulations applicable to safety and health, and applicable national standards. Table 7-1 identifies Federal Statutes and Orders governing safety and health issues for which at least one portion of the Statute or Order is applicable to OCRWM projects. Each project is responsible for conducting a detailed review of the Statutes and Orders for applicability to that project and for completing/verifying the allocation to the safety and health functional areas listed in the table.

The listing does not specify the detailed citations to safety and health regulations. That will be left to the RCPs. The listing provides the title and number designator of each document that contains at least one safety and health requirement along with a reference to the appropriate document. Each Project Office should describe its implementation strategy in its RCP. The RCPs should contain a greater level of detail (see Appendix A for a suggested outline).

Table 7-1 does not provide comprehensive guidance regarding the scope of requirements. It is intended to assist the projects in the preparation of their own project-specific requirements and not to serve as the safety and health requirements baseline. The requirements research and allocation team, reporting to the Chief, SPIB, is responsible for upper-level analysis and allocation of Federal and DOE-imposed requirements. The project should respond by stating which of the identified requirements are appropriate and will be implemented. Additional State and local requirements should be analyzed and allocated by each project. In both cases, changes in the baseline requirements will have to be approved by the appropriate change control process and changes to the appropriate documents approved prior to revisions of the ARMS database. See Section 3.1 for further details.

7.2.2 Key Safety and Health Documents

7.2.2.1 DOE Safety and Health Policy

In June 1993, the Secretary of Energy issued an Environmental, Safety and Health Policy for the Department of Energy Complex. That policy is the basis for the safety and health policy for the OCRWM program. This new DOE Policy establishes the "guiding principles" for management, employees, and other members of the DOE community as described in Chapter 2.

It is expected that further comprehensive DOE Safety and Health Policies will be established in the near future.

This program level OCRWM RGD establishes the program guidance for all of the OCRWM safety and health plans in response to the new DOE Environmental, Safety, and Health Policy.

7.2.2.2 System Safety Program Plan (SSPP)

The System Safety Program Plan (SSPP) section of the Engineering Specialties Plan (ESP) presents the System Safety Program (SSP) for the OCRWM. The SSP shall be implemented by the Management and Operating contractor (M&O) under the direction of OCRWM. The ESP is required by the CRWM Systems Engineering Management Plan. The system safety organization is responsible for the identification and control of hazards throughout the life of a program. The results of the SSPP activities should be incorporated into the implementation procedures of the Projects.

7.2.2.3 Environmental, Safety and Health Protection Implementation Plan (ESHPIP)

Each Project Manager is required to develop an Environmental, Safety, and Health Protection Implementation Plan (ESHPIP), in accordance with Chapter II, Part F, and Attachment II-4 of DOE Order 4700.1, as an annex to the PMP. The ESHPIP:

> *...defines the specific actions being taken on the project to comply with existing directives on environment, safety and health issues. These actions include environment, safety, and health policy; organization; training; preparation of safety analyses, National Environmental Policy Act documentation, and environmental permits; reviews and audits; reporting of unusual occurrences and remedial actions; and related*

management implementing procedures to protect the health and safety of employees and the public, and to minimize risks from hazards to life and property.

The YMP and MRS Project S&H plans are intended to contain the items listed in the ESHPIP (described above). The contents of the ESHPIP are basically the same as the Project Safety and Health Plan. Therefore, if the Project S&H plans are prepared in accordance with the DOE Order 5481.1B & 6430.1A, they will have satisfied the ESHPIP requirement. Currently, there are no plans to prepare an ESHPIP for the MGDS project. The PMS Manual and the Document Hierarchy should be revised accordingly.

7.2.3 Memoranda of Understanding

OCRWM has committed, via Memoranda of Understanding (MOU), to comply with other government agency regulations on its projects. Those MOUs constitute program policy. Two applicable MOUs are summarized in this section.

7.2.3.1 MOU DOE/DOL

7.2.3.1.1 Background

- The MOU between DOE/OCRWM and the Department of Labor (DOL)/Mine Safety and Health Administration (MSHA) on mining safety activities (dated December 23, 1986) covered proposed construction of underground site characterization facilities at the three candidate sites in bedded salt, basalt, and tuff then under consideration. The MOU reiterated DOE policy that safety and health protection was of major importance for all underground workers both during construction and operations of exploratory and repository facilities.

- Under the Federal Mine Safety and Health Act of 1977 (the Mine Act), the MSHA is responsible for conducting mine inspections and investigations and developing and enforcing regulations and standards to protect the safety and health of miners.

- The MOU, however, fails to recognize that the Exploratory Studies Facility (ESF) is not a commercial mine. This is an important consideration for project implementation because State of Nevada statutes only address mines. By way of clarification, there are also State of Nevada mining statutes that deal with mines. DOE's position is that the State of Nevada mining statutes apply to mines and are not applicable to the Exploratory Studies Facility nor the potential repository.

7.2.3.1.2 Intent of the Agreement

- In this advisory MOU, DOE/DOL formalized a working arrangement whereby MSHA inspects operations of OCRWM to determine compliance with MSHA standards.

- Under this agreement, the results of these inspections will be furnished to DOE so that DOE can implement its policy of compliance with MSHA standards.

- DOE/DOL established a procedural framework for furnishing MSHA technical assistance and consultation services to DOE with respect to mine geology, underground construction techniques, and related matters concerning the protection of life, the promotion of health and safety, and the prevention of accidents in DOE's underground repository operations.

- MSHA standards relevant to underground operations are 30 CFR Parts 31, 32, 36, 48, 49 and 57.

7.2.3.2 MOA OCRWM/DOE Office of Nuclear Safety

7.2.3.2.1 Background

The memorandum of agreement (MOA) between DOE/OCRWM and the DOE Office of Nuclear Safety (NS) on nuclear safety, dated March 31, 1992 was established to eliminate redundancy, reduce confusion, and avoid the unnecessary costs of dealing with dual DOE/NRC regulation. DOE-N-1100-32 abolished the Office of Nuclear Safety and assigns some of its functions related to nuclear safety to the Office of Environment, Safety and Health (EH). Nevertheless, it is expected that the above MOA will continue to be in effect under EH.

7.2.3.2.2 Intent of the Agreement

- The MOA defined the nuclear safety requirements that will apply to OCRWM facilities and activities in order to eliminate redundancy, reduce confusion, and avoid unnecessary costs of complying with two sets of standards.

- It clarified the operational relationships between NS and OCRWM on matters related to the Energy System Acquisition Advisory Board (ESAAB) for OCRWM facilities.

- Initial proposed rules include 10 CFR Part 820 on Procedural Rules (NS); 10 CFR Part 830 on Nuclear Safety Management (NE); 10 CFR Part 834 on Radiation Protection of the Public and the Environment (EH); and 10 CFR Part 835 on Radiation Protection of Occupational Workers (EH).

- For OCRWM activities and facilities (e.g., MRS, MGDS, and Transportation system) for which the NRC has regulatory authority, the NRC requirements are the only controlling nuclear safety requirements.

- For OCRWM-funded activities that are not regulated by the NRC (i.e., research, development, and testing for the OCRWM waste management program), the DOE nuclear safety rules are the controlling requirement.

- NS participation in the ESAAB for OCRWM facilities is appropriate within the framework established by SEN-27-90 with NRC regulations governing nuclear safety requirements.

7.3 SAFETY AND HEALTH POLICIES/OBJECTIVES

Certain key policies that would be consistent with the guiding principles of DOE safety and health policy described in Section 7.2.2.1 could be summarized as follows:

- Safety is the personal responsibility of every participant in the Program.
- Safety is a management responsibility at all levels of the Program.
- All workers are to be trained to work safely and to understand that it is to their advantage to work safely.
- Activities for which a program has responsibility are to be conducted in a manner so as to limit the health risk to workers and members of the general public (injuries, illnesses, or radiation exposures) consistent with governing standards, regulations, and program objectives.
- Work-related injuries, illnesses, or radiation exposures are to be reported immediately to management.

Certain objectives are derived from the above cited policies, and these are discussed in the following subsections.

7.3.1 Comply With Applicable Federal, State, and Local Safety and Health Regulations

Activities on the program will be conducted in accordance with applicable Federal, State, and local safety and health regulations, orders, statutes, or MOUs in effect at the time. The RGD identifies these requirements at a macro level. As stated previously, the requirements research team reporting to the Chief, SPIB, will analyze Federal and DOE-imposed requirement. Each Project Office will identify which of these are applicable and will add the relevant State and local requirements to develop a baseline set of safety and health regulatory requirements for their project. These requirements should be baselined in the project configuration management system (also see Section 3.1).

7.3.2 Provide Policy and Implementation Guidance to the Projects

The ADSC provides policy and implementation guidance to the Project Offices through the RGD, as further described in Section 7.5.

7.3.3 Specify Policy Objectives

Specific objectives derived from the overall safety and health policy are listed below. These are further discussed as part of the discussion on Implementation Guidance in Section 7.5.

- Establish a management structure to implement safety and health objectives
- Develop project-level safety and health plans
- Develop safety and health procedures

- Conduct training on safety and health procedures
- Conduct safety and health compliance audits
- Perform safety and health self-assessments.

7.4 SAFETY AND HEALTH COMPLIANCE STRATEGY

The objective of the safety and health compliance strategy is to demonstrate compliance with regulations applicable to the activities being performed. Key components of the overall strategy include:

- A thorough understanding of the safety and health requirements
- An aggressive safety training program for employees and contractors
- A comprehensive self-assessment program with frequent assessments.

Elements of the overall strategy to achieve compliance with applicable safety and health regulations and requirements are described in the following sub-sections.

7.4.1 Compliance Strategy

The basic elements of the compliance strategy are summarized below:

- Clearly delineate the organizational responsibilities for the management and implementation of safety and health policy
- Identify applicable safety and health requirements
- Develop the program and project level safety and health plans
- Conduct readiness reviews of the safety and health plans, procedures, and training
- Develop procedures for implementing changes in regulatory requirements that occur after the requirements baseline is established
- Implement an integrated audit program
- Perform comprehensive audits to ensure that the procedures are being fully implemented
- Conduct comprehensive safety training.

7.4.2 Safety and Health Assessment by External Organizations

Safety and health audits and/or assessments by external organizations such as DOE-EH, OSHA, etc., will be conducted periodically during the life of a project. To assure satisfactory results, self-assessments should be performed and any needed corrective action should be taken prior to the assessments or audits by the external organizations.

7.5 SAFETY AND HEALTH IMPLEMENTATION GUIDANCE

This section provides guidance for implementation of the compliance strategy discussed in Section 7.4. The primary form of the guidance is the identification of the specific activities the Project Offices should undertake. This section defines *what* is required. *How* it is to be implemented should be left up to the projects and will be defined in the project safety and health plans.

7.5.1 Delineation of Organizational Responsibilities

OCRWM has delineated the responsibilities for management and oversight of the safety and health compliance activities. OSC is responsible for establishing program requirements based on regulatory, legislative, and other external requirements; and overseeing implementation of program requirements and system integration. OSC is responsible for compliance oversight as discussed in Chapter 3.

At the Project level, management responsibilities should be clearly defined to administer and implement the safety and health activities for each project and to provide required compliance information to ADSC. Discussion of these responsibilities was provided in Chapter 3.

7.5.2 Requirements Identification

All activities on the program will be conducted in accordance with applicable Federal, State, and local safety and health regulations, orders, statutes, and MOUs.

The OSC will develop a baseline set of safety and health regulatory requirements for the entire program. These suggested requirements will be reviewed by each project. Applicable requirements will be identified and baselined in the project requirements base and included in the ARMS. (Chapter 3).

Each OCRWM project should identify Federal, State and local safety and health requirements applicable to that project. This requirements set should include design related, programmatic, and derived safety and health requirements.

7.5.3 Development of Safety and Health Plans and Procedures

7.5.3.1 Project Safety and Health Plan

Each project should prepare its plans to ensure public and worker safety and to comply with all applicable policies and requirements. Such plans could be included as part of the RCP or as part of a project safety and health plan. Project safety and health plans should identify the requirements, organizational structure, and levels of authority and responsibility. To ensure adequate implementation of the safety and health compliance program, an effective appraisal and self-assessment plan should also be established.

The project safety and health plan should cover the management, administration, and implementation of the following activities:

- Employee safety and health
- System safety design review and evaluation
- Operational support of safety and health activities in the areas of construction management and other field-related activities
- Hazard Analysis
- Regulatory compliance
- Self-assessment and appraisal
- Safety orientation and training
- Documentation, record keeping, and reporting
- Occurrence Reporting and Processing System (ORPS).

From a functional point of view, project safety and health plans should be required to address the following minimum set of topics:

- Transportation Safety
- Occupational Medical Services
- Industrial Safety
- Industrial Hygiene
- Fire Protection
- Emergency Preparedness
- Independent Review
- System Safety.

[Nuclear safety is addressed in Section 5.1.3.2.4. The Health Physics program, which is a part of Radiological Safety, is addressed in Section 7.5.6.]

7.5.3.2 Safety and Health Procedures

Each Project Office should develop a comprehensive set of safety and health procedures that addresses the implementation of applicable safety and health requirements contained in the project safety and health requirements baseline.

Project safety procedures should be made available to employees and management. All safety requirements should be complied with, unless specifically exempted. Each project should conduct self-assessments to ensure that all safety procedures are being fully implemented and that employees are being trained on the procedures.

7.5.4 Compliance Monitoring

The ADSC will exercise compliance oversight with regard to safety and health compliance as described in Chapter 3. The oversight process includes:

- Review of self-assessment activity reports forwarded to the program that were conducted by the project safety and health organization
- Review of the completeness of project self-assessments against the safety and health requirements baseline
- Periodic on-site reviews of project compliance
- Coordination with EH on safety and health related reviews.

The Project Office should incorporate the Projects' compliance review/monitoring activities in either an RCP or a Safety and Health Plan. Project compliance plans should, as a minimum, address the following safety and health items:

- Reviews and audits
- Reporting compliance
- All project safety and health requirements (or references to the requirements documents), a description of the method of implementation, and a description of how compliance will be verified
- Requirements change impacts.

7.5.5 Self-Assessment

In a memorandum dated January 10, 1994, the Director, OCRWM initiated an integrated environment, safety and health (ES&H) self-assessment program in OCRWM. These assessments are based on the ES&H Self-Assessment Implementation Plans (SAIPs) that have been prepared in accordance with the November 13, 1992, OCRWM Self-Assessment Management Plan. Implementation of this integrated self-assessment program will also ensure meeting the requirements of DOE Order 5482.1B, "Environment, Safety and Health Appraisal Program." This Order requires the conduct of periodic appraisals to ensure ES&H compliance.

In accordance with the Secretary's commitment to implement Total Quality Management (TQM) in DOE activities, the Director, OCRWM expressed his strong commitment to vigorous implementation within OCRWM. Since self-assessment and TQM have consistent goals, OCRWM will utilize the ES&H SAIPs and the ES&H performance metrics in these plans as part of the OCRWM TQM program.

This integrated ES&H assessment activity will be managed by the OCRWM Self-Assessment Unit (SAU) in the Office of Systems and Compliance. This responsibility is appropriate for the

SAU because it has no direct project functions. As part of its integrating function, the SAU will trend the OCRWM assessment results and provide periodic reports to the Director, OCRWM on ES&H program status.

By performing independent evaluations, the SAU will also ensure that the Director, OCRWM meets program management responsibilities under DOE Order 4700.1, "Program Management System." This order requires that the Director, OCRWM maintain overall accountability for program success. This success cannot be achieved unless OCRWM fully meets applicable ES&H requirements.

7.5.6 Health Physics Program

The radiological safety considerations are discussed in Section 5.1.3.2.5.

Projects are required to implement the DOE/EH Radiological Control Manual (DOE, 1992b) or a suitable equivalent per DOE Order 5480.6. The ADSC is responsible for exercising compliance oversight of the project health physics programs as described in Chapter 3. The ADSC will provide assistance to Projects in implementing their Health Physics Programs and periodically assessing the effectiveness of each project's health physics program.

7.5.7 Occurrence Reporting

The project safety and health organization should utilize the Occurrence Reporting and Processing System (ORPS) for all safety and health events on the project. Occurrence, as used in this section, is a generic term meaning any type of unplanned event or series of events that results in death, injury, occupational illness, damage to or loss of equipment, property, or the environment. It includes near-miss situations (DOE Order 5000.3B).

7.5.8 Training Programs

Training programs should be established to properly train employees. Each Project Office should develop and conduct training on safety and health procedures developed for their respective projects. Key training areas include:

- Worksite safety and health orientation
- "Tool Box" safety training
- Training records.

7.5.9 Hazards Analyses

Each OCRWM project should conduct project safety and health hazards analysis in accordance with project plans and procedures. It will address Preliminary Hazard Analysis and Activity Hazard Analysis.

7.5.10 Inspections and Hazard Abatement

Each OCRWM project should define the responsibilities, plans, procedures, and corrective actions for conducting inspections and hazard abatement activities (DOE Order 5480.9).

7.5.11 Project Safety and Health Reporting, Record Keeping, and Accident Investigation

Each OCRWM project should prepare project safety and health status, occurrence, and audit reports in accordance with project plans a..d procedures (DOE Order 5483.XX).

7.6 SAFETY AND HEALTH RESPONSIBILITIES

A complete description of the responsibilities of each office within OCRWM is contained in Appendix C of the PMS Manual, Revision 5. This section delineates the general and specific responsibilities of the DOE project/site managers with regard to compliance with the safety and health policy and regulations and the compliance tasks defined in the previous sections. Specific responsibilities should also be included in the project safety and health plans.

7.6.1 Office of Systems and Compliance

The Office of Systems and Compliance (OSC) is responsible for establishing program requirements based on regulatory, legislative, and other external requirements, and overseeing implementation of program requirements and system integration. That responsibility includes the following functions:

- Provide safety and health policy guidance
- Maintain a current database of the applicable Federal, State, and local requirements
- Conduct project compliance audits for Federal, State, and local regulations
- Review project safety plans
- Develop and maintain the OCRWM safety and health self-assessment program
- Provide input to the project outreach programs for public safety and health.

7.6.2 Project Offices

Project Managers are responsible for all safety and health activities of the Project Office and its contractors and for implementing all applicable safety and health policies and procedures required by Federal, State, and local laws.

The principal functions that must be performed to carry out that responsibility include:

- Establish a project organization to implement the safety and health policy
- Identify and baseline the project safety and health requirements
- Develop a project safety and health plan
- Perform project specific hazard analyses

- Develop the safety and health implementing procedures
- Verify the procedure implementation
- Perform self-assessment
- Provide the results of the self-assessment activities to the program safety and health organization
- Develop major project-related safety portions of major documents (SAR, LA, SSPP).

7.6.3 DOE Office of Environment, Safety and Health (EH)

Outside OCRWM, EH plays a major role in safety and health, setting policy for all of DOE including the CRWM Program. The Assistant Secretary (EH-1) directs the oversight of environmental, safety, and health policy in areas other than defense programs and NE. EH-1 is: *...responsible for development and coordination of DOE policy and conducts assessments to assure compliance with applicable laws related to environmental protection, radiation safety, worker safety, and those aspects of public health and safety that deal with epidemiology and radiological protection* (DOE, 1993c).

In addition, EH-1 provides the Secretary of Energy with an independent assessment to assure compliance with applicable laws related to environmental protection, worker and public health and safety related to DOE operations. This independent assessment includes review of safety analyses, appraisals of effectiveness of the safety programs, and review and investigation, if necessary, of operational occurrences. The charter for implementation of the above items remains with the OCRWM and project organizations.

This independent assessment authority also gives EH the authority to have a site presence for any OCRWM project and to review the major safety and health documents.

7.7 PROJECT SPECIFIC ASPECTS OF SAFETY AND HEALTH COMPLIANCE

The descriptions related to safety and health compliance presented in Sections 7.1 through 7.6 are applicable to all projects under the jurisdiction of OCRWM. This section discusses those aspects related to MGDS, MRS, or Transportation.

7.7.1 Yucca Mountain Project

The Yucca Mountain Project underground excavation activities are covered by a number of Federal, State, and local laws and regulations. Many of these regulations are overlapping. It is vitally important that YMP safety and health requirements are developed so that there is a basis from which to measure compliance. This set of requirements should be developed using the process summarized in Section 3.1.

Underground operations are inherently risky and therefore require rigorous adherence to safety regulations. The YMP Project safety and health organization should schedule and coordinate on-

site oversight activities such as audits and inspections to assess compliance with safety and health requirements.

7.7.2 MRS Compliance

The location of an MRS facility may impact the S&H compliance strategy. At this time, however, compliance strategies should emphasize providing a very credible compliance monitoring/oversight program that is highly visible to the public. Any negotiated agreement with an MRS host may contain additional safety and health requirements. All safety and health requirements should be included in the RCP.

7.7.3 Transportation Compliance

The Transportation compliance strategy should also place emphasis on providing public visibility to a very vigorous safety and health compliance monitoring/oversight program.

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Table 7-1. Applicable Safety and Health Statutes and Orders

PUBLIC LAW, REGULATION, ORDER, or STANDARD		FUNCTIONAL AREAS						REQUIREMENT IMPOSED BY
Title	Number	Trans-portation Safety	Occupa-tional Medical Services	Indust-rial Safety	Fire Protec-tion	Emergency Pre-pardness	Independent Review	
PUBLIC LAWS								
Occupational Safety and Health Act of 1970	PL 91-596		X	X				Congress
Federal Mine Safety and Health Act of 1977 (DOL)	PL 95-164							See Ref 5480.4
Federal Mine Safety Acct (the Mine Act) of 1977, as amended [30 USC Ch. 22: Mine Safety & Health (Sections 801-962 et. seq.)]	30 USC 801			X				This act is the basis for the MOU between RW and MSHA
Mine and Tunnel Safety	PL 91-173, 88 Stat. 742-804 as amended by PL 95-164							PL 95-164 "Federal Mine Safety and Health Act of 1977" (DOL). See Ref 5480.4
US CODE								
Occupational Safety and Health Act of 1970 (OSHA) (29 USC Ch. 15: Occupational Safety and Health (Sections 651-678)	29 USC 651 st. seq.							DOE-Implemented Federal Law
Hazardous Materials Transportation Act: as amended [49 App USC, C h. 27]	49 App. USC 1801 et. seq.	X						DOE Order 5480. 4, Attach. 1
National Environment Policy Act (NEPA) of 1969	49 USC 4321 et. seq.							DOE-Implemented Federal Law
CALIFORNIA STANDARDS								
Tunnel Safety Orders, Administrative Code, State of California	CCR 8400, Title 8, Chapter 4, Subchapter 20			X		X		DOE Policy 5480.4, DOE 5483.XX

Notes:

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[2]The "Functional Area" allocation has not been completed and should be verified by the projects.

Table 7-1. Applicable Safety and Health Statutes and Orders (Continued)

PUBLIC LAW, REGULATION, ORDER, or STANDARD		FUNCTIONAL AREAS						REQUIREMENT IMPOSED BY
Title	Number	Transportation Safety	Occupational Medical Services	Industrial Safety	Fire Protection	Emergency Preparedness	Independent Review	
Petroleum Safety Orders, Administrative Code, State of California	Title 8, Chapter 4, Subchapter 14			X				DOE 5480.4 [Except the requirement of Subparagraph (b), section 6640, article 41 of the 1959 Orders is permanently waived-API PR 98 applies], DOE 5483.XX
OSHA STANDARDS								
Recording and Reporting Operational Injuries and Illnesses	29 CFR 1904	X	X	X	X	X	X	DOE 5483.XX, Section VII
Rules of Practice for Variances, Limitations, Variations, Tolerances, and Exemptions Under the Williams-Steiger Occupational Safety Act of 1970	29 CFR 1905							Provides rules and procedures for obtaining variances from or interim Orders for OSHA standards pursuant to Public Law 91-596
Occupational Safety and Health Standards (Relating to Labor)	29 CFR 1910		X	X				DOE Policy 5480.4, PL 91-596; Also required by DOE 5483.1A
Occupational Safety and Health Standards, Explosives, and Blasting Agents	29 CFR 1910.109			X	X			DOE Policy 5480.4
Safety and Health Regulations for Construction	29 CFR 1926			X				DOE Policy 5480.4; Also required by DOE 5483.1A
Safety and Health Provisions for Federal Employees	29 CFR 1960							Provides regulations and guidelines for implementation of the DOE Federal Employee Safety and Health Program pursuant to PL 91-596
DOE REGULATIONS								
Workplace Substance Abuse Programs at DOE Sites	10 CFR 707							

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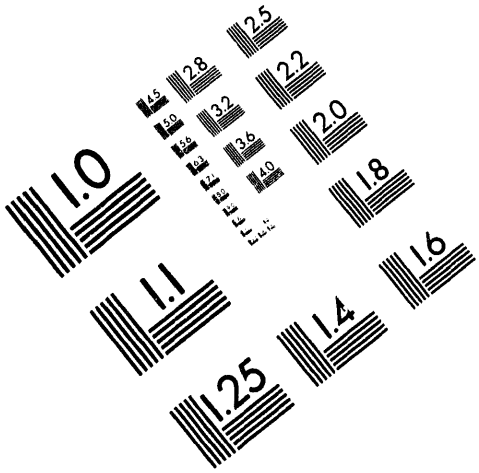

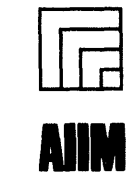

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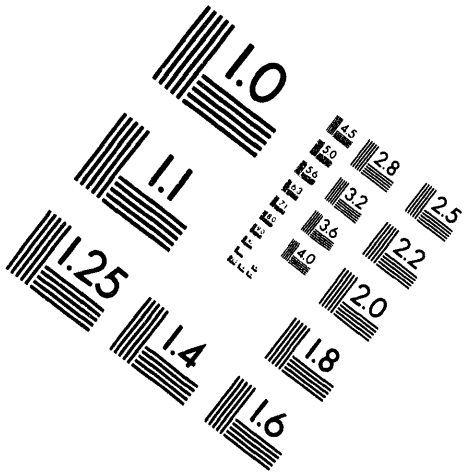

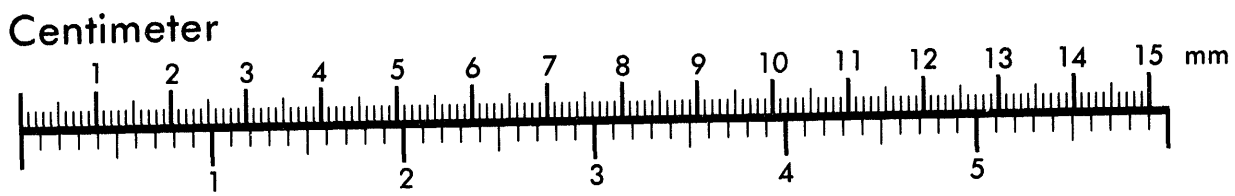

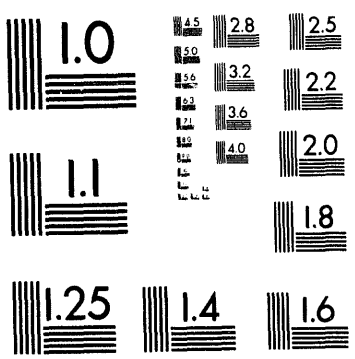

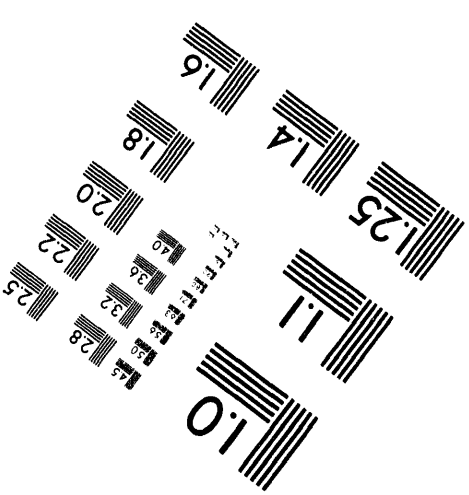

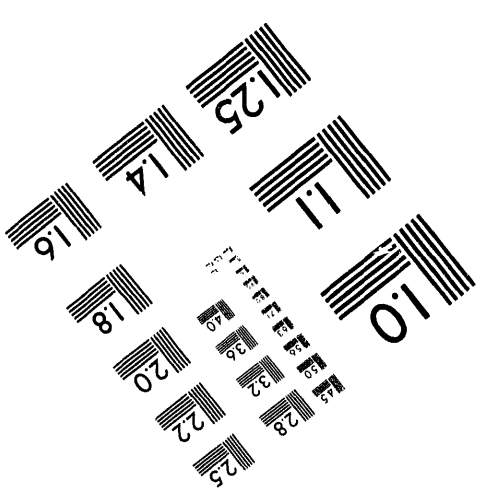

2 of 2

Table 7-1. Applicable Safety and Health Statutes and Orders (Continued)

PUBLIC LAW, REGULATION, ORDER, or STANDARD		FUNCTIONAL AREAS						REQUIREMENT IMPOSED BY
Title	Number	Trans-portation Safety	Occupa-tional Medical Services	Indust-rial Safety	Fire Protec-tion	Emergency Pre-pardness	Independent Review	
Criteria and Procedures for DOE Contractor Employee Protection Program	10 CFR 708							
NRC REGULATIONS								
Standards for Protection Against Radiation	10 CFR 20							Statutory - NRC
Packaging of Radioactive Materials for Transportation	10 CFR 71							Statutory - NRC Referenced in DOE 5480.4
DOE ORDERS								
Materials Transportation and Traffic	1540.1							DOE-DP
Hazardous Material Packaging for Transport - Administrative Procedures	1540.2							DOE-DP
Base Technology for Radioactive Material Transportation Packaging Systems	1540.3							DOE-DP
Physical Protection of Unclassified Irradiated Reactor Fuel by Transit	1540.4							DOE-DP
Federal Employee Occupational Safety & Health Program	3790.1A, Chg. 4							DOE-AD
Drug-Free Federal Workplace Testing Implementation Program	3792.3							DOE-AD
Project Management Systems, 3/6/87	4700.1							DOE-AD
Part F - Environmental Planning and Review								

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Table 7-1. Applicable Safety and Health Statutes and Orders (Continued)

PUBLIC LAW, REGULATION, ORDER, or STANDARD		FUNCTIONAL AREAS						REQUIREMENT IMPOSED BY
Title	Number	Transportation Safety	Occupational Medical Services	Industrial Safety	Fire Protection	Emergency Preparedness	Independent Review	
Occurrence Reporting and Processing of Operations Information	5000.3A							DOE-EH
Hazardous and Radioactive Mixed Waste Program	5400.3							DOE-EH
Radiation Protection of the Public and Environment	5400.5							DOE-EH
Onsite Transportation of Hazardous Materials	5480.XX							
Environmental Protection, Safety, and Health Protection Program for DOE Operations	5480.1B							DOE-EH
Safety Requirements for packaging and Transport of Hazardous Waste Materials, Hazardous Substances, and Hazardous Waste	5480.3	X		X				DOE-EH
Environmental Protection, Safety, and Health Protection Standards	5480.4, Chg. 3							DOE-EH
Safety of Nuclear Facilities, Imposition of Proposed Nuclear Safety Requirements	5480.5							DOE-EH, DOE Exempted? RW Non-concurred this order 9/91
Fire Protection	5480.7A				X			DOE-EH
Contractor Occupational Medical Program	5480.8							
Draft Contractor Occupational Medical Program	5480.8A		X					DOE Order 5483.XX

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Table 7-1. Applicable Safety and Health Statutes and Orders (Continued)

PUBLIC LAW, REGULATION, ORDER, or STANDARD		FUNCTIONAL AREAS						REQUIREMENT IMPOSED BY
Title	Number	Transportation Safety	Occupational Medical Services	Industrial Safety	Fire Protection	Emergency Preparedness	Independent Review	
Construction Safety and Health Program	5480.9							
Draft Construction Safety and Health Program	5480.9A			X				DOE Order 5483.XX
Contractor Industrial Hygiene Program	5480.10		X	X				Superseded by 10 CFR 835 in March 1992
Draft Contractor Industrial Hygiene Program	5480.10A		X	X				DOE Order 5483.XX
Radiation Protection for Occupational Workers	5480.11							Superseded by 10 CFR 835 in March 1992
Aviation Safety	5480.13							
Firearms Safety	5480.16A			X				Cancels DOE 5480.16 of 1/12/88
Site Safety Representatives	5480.17							DOE-EH
Conduct of Operations	5480.19							
Personnel Selections, Qualification, Training, and Staffing Requirements at DOE Reactor and Non-Reactor Nuclear Facilities	5480.20							Referenced in DOE 1/93 OCRWM PMSM
Nuclear Safety Analysis Reports	5480.23							
Natural Phenomena Hazards Mitigation for Department of Energy-Owned Facilities	5480.NPH							
Employee Concerns [Draft]	5480.EC						X	Referenced in DOE Order 5483.XX
Safety Analysis and Review System	5481.1B							DOE-EH

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Table 7-1. Applicable Safety and Health Statutes and Orders (Continued)

PUBLIC LAW, REGULATION, ORDER, or STANDARD		FUNCTIONAL AREAS						REQUIREMENT IMPOSED BY
Title	Number	Trans-portation Safety	Occupa-tional Medical Services	Indust-rial Safety	Fire Protec-tion	Emergency Pre-pardness	Independent Review	
ES&H Appraisal Program	5482.1B						X	DOE-EH
Draft ES&H Appraisal program	5482.1C						X	DOE Order 5483.XX
Occupational Safety and Health Program DOE Contractor Employees at GOCO Facilities	5483.1A		X	X	X	X	X	Not applicable to YMP
Occupational Safety and Health Program DOE Contractor Employees at GOCO Facilities	5483.XX		X	X	X	X	X	Draft Document not yet implemented. This order will cancel DOE 5483.1A when implemented.
Environmental Protection, Safety, and Health Protection Information Reporting Requirements	5484.1							
Emergency Management System	5500.1B							Cancels DOE Order 5500.1A, RW exempt? RW Non-concurred 9/90
Emergency Notification, Reporting and Response Levels	5500.2A							
Emergency Planning and Preparedness for Operational Emergencies	5500.3A							Cancels DOE Order 5500.3 RW exempt? RW Non-concurred 9/90
Public Affairs Policy and Planning Requirements for Emergencies	5500.4							
Vital Records Protection Program	5500.7B							Cancels DOE Order 5500.7A
Emergency Planning, Preparedness, and Response to Continuity of Government Emergencies	5500.9					X		

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Table 7-1. Applicable Safety and Health Statutes and Orders (Continued)

PUBLIC LAW, REGULATION, ORDER, or STANDARD		FUNCTIONAL AREAS						REQUIREMENT IMPOSED BY
Title	Number	Transportation Safety	Occupational Medical Services	Industrial Safety	Fire Protection	Emergency Preparedness	Independent Review	
Packaging and Transportation of Nuclear Explosives, Nuclear Components and Special Assemblies	5610.1							
Quality Assurance	5700.6C							
Radioactive Waste Management Rad Con Manual	5820.2A							
General Design Criteria	6430.1A							
SECRETARY OF ENERGY NOTICES AND DIRECTIVES								
Departmental Organizational and Management Arrangements	SEN-6E-92							5-Year Safety & Health Planning, SEN 6E-92, was cancelled by DOE-N-1100-32 (4/93)
DOE Approval for Restart of Facilities Shut Down for Safety Reasons	SEN-16A-90							
Interaction with Internal and External Oversight Organizations	SEN-20-90							
Strategic Planning Initiatives	SEN-25A-91							Referenced in 1/93 OCRWM PMSM
Nuclear Safety Policy	SEN-35-91							
MEMORANDA OF UNDERSTANDING								
MOU between DOE/RW and DOL/MSHA dated 12/23/86 on Mining Safety Activities	MSHA			X	X	X		

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Table 7-1. Applicable Safety and Health Statutes and Orders (Continued)

PUBLIC LAW, REGULATION, ORDER, or STANDARD		FUNCTIONAL AREAS						REQUIREMENT IMPOSED BY
Title	Number	Trans-portation Safety	Occupa-tional Medical Services	Indust-rial Safety	Fire Protec-tion	Emergency Pre-pardness	Independent Review	
MOU between OCRWM and Office of Nuclear Safety dated 3/31/92 on Nuclear Safety	NS							DOE-N-1100-32 (4/93) assigned NS responsibilities to EH
NS/RW Memorandum of Agreement on Nuclear Safety Requirements, dated 1 April 1992	NS							DOE-N-1100-32 (4/93) assigned NS responsibilities to EH
1990 MOU between DOE and Department of Health and Human Services	HHS							
Mine Safety and Health Act (MSHA)								
Design/Safety Requirements	30 CFR 18-36							Statute
Diesel Mine Locomotives	30 CFR Part 31		X	X				Imposed by virtue of the MOU between RW and MSHA dated 12/23/86
Mobile Diesel Powered Equipment for Non-Coal Mines	30 CFR Part 32			X				Imposed by virtue of the MOU between RW and MSHA dated 12/23/86
Mobile Diesel Powered Transportation Equipment	30 CFR Part 36		X	X				Imposed by virtue of the MOU between RW and MSHA dated 12/23/86
Training and Retraining of Miners	30 CFR Part 48			X				Imposed by virtue of the MOU between RW and MSHA dated 12/23/86
Mine Rescue Teams	30 CFR Part 49			X		X		Imposed by virtue of the MOU between RW and MSHA dated 12/23/86

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Table 7-1. Applicable Safety and Health Statutes and Orders (Continued)

PUBLIC LAW, REGULATION, ORDER, or STANDARD		FUNCTIONAL AREAS						REQUIREMENT IMPOSED BY
Title	Number	Transportation Safety	Occupational Medical Services	Industrial Safety	Fire Protection	Emergency Preparedness	Independent Review	
Safety and Health Standards Underground Metal and Non-Metal Mines	30 CFR Part 57			X				Imposed by virtue of the MOU between RW and MSHA dated 12/23/86
Department of Transportation								
Aircraft Safety	14 CFR 91 (DOT)							
Aircraft Safety	14 CFR 1 (Parts 1-199)	X						DOE 5480.4, [Excluding Parts 11, 13, 50-60, 123, 127, 129, 141, 143, 147. 149, and all of subchapters K, N, and O "Federal Aviation Regulations"
Department of Transportation Hazardous Materials Regulations	49 CFR Part 100-199	X						DOE 5480.1A
Hazardous Materials Regulations	49 CFR 397	X		X	X			DOE 5480.4
Manual on Uniform Traffic Control Devices for Streets and Highways	Bureau of Public Roads	X						DOE 5480.4
OTHER								
Acquisition Regulations	48 CFR 9, 48 CFR 1			X				GSA - Contains provisions of the occupational safety and health clause for DOE contractors
Seismic Safety of Federal and Federally Assisted or Regulated New Building Construction. January 5, 1990	Executive Order 12699							
OCRWM Draft Self-Assessment Guidance Document	1/16/92							Provides assistance and guidance for the Secretary's program of self-assessments in environment, safety, and health (ES&H)

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[1]This document is only intended as a guide. Each entry must be specifically reviewed for applicability to the respective project.

[2]The "Functional Area" allocation has not been completed and should be verified by the projects.

Table 7-1. Applicable Safety and Health Statutes and Orders (Continued)

PUBLIC LAW, REGULATION, ORDER, or STANDARD		FUNCTIONAL AREAS						REQUIREMENT IMPOSED BY
Title	Number	Transportation Safety	Occupational Medical Services	Industrial Safety	Fire Protection	Emergency Preparedness	Independent Review	
Draft Interpretations Guide to OSH Standards	1/1/92							Provides baseline for consistent interpretations of DOE-prescribed OSH standards
Standards								
National Fire Protection Codes	NFPA			X	X			DOE 5480.4, DOE 5483.XX
Product Directories of Underwriters	UL	X	X	X	X			DOE 5480.4, DOE 5483.XX
Factory Mutual Approval Guide	FM			X	X			DOE 5480.4, DOE 5483.XX
Standards on Fire Protection for Portable Structures	DOE/EV-0043, 8/79	X		X	X			DOE 5480.4, DOE 5483.XX
TLVs - Threshold Limit Values for Chemical Substances and Physical Agents in the Workroom Environment with Intended Changes	Most current version ACGIH		X					DOE 5480.4
Practices for Respiratory Protection	ANSI Std. Z88.2 - 1980		X		X			DOE 5480.4
Safe Use of Lasers	ANSI Std. Z136.1 - 1986		X	X				DOE 5480.4, DOE 5483.XX
Safety Requirements for Working in Tanks and Other Confined Spaces	ANSI Std. Z117.1 - 1989		X	X	X			DOE 5480.4, DOE 5483.XX
Safety Levels with Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 300 KHz to 100 GHz	ANSI Std. Z95.1 - 1982							DOE 5480.4
Boiler and Pressure Vessel Code, Sect. I-IX	ASME							DOE 5480.4, DOE 5483.XX

Notes:

[1]This document is only intended as a guide. Each entry must be specifically reviewed for applicability to the respective project.

[2]The "Functional Area" allocation has not been completed and should be verified by the projects.

Table 7-1. Applicable Safety and Health Statutes and Orders (Continued)

PUBLIC LAW, REGULATION, ORDER, or STANDARD		FUNCTIONAL AREAS						REQUIREMENT IMPOSED BY
Title	Number	Transportation Safety	Occupational Medical Services	Industrial Safety	Fire Protection	Emergency Preparedness	Independent Review	
Crane Safety Specification No. 70, Crane Manufacturers Association of America (CMAA)	Specification 70			X				DOE 5480.4, DOE 5483.XX
ANSI Standard for Crane Safety	ANSI B-30 Series			X				DOE 5480.4, DOE 5483.XX
Applicable Division of Production Specifications and Recommendations Practices on Oil Field Equipment	API			X				DOE 5480.4, DOE 5483.XX
Accident Prevention Reference Guide, 1988 (Replaces Rotary Drilling Handbook on Accident Prevention and Safe Operation Practices)	IADC			X				DOE 5480.4, DOE 5483.XX
National Electric Code	ANSI/NEPA 70-1981			X	X			DOE 5480.4
National Electrical Safety Code	ANSI C2-90			X				DOE 5480.4, DOE 5483.XX
U S. Department of Energy Explosives Safety Manual	DOE/EV/06194			X	X			DOE 5480..4, DOE 5483.XX
Blasters Handbook	DuPont			X				DOE 5480.4
Motor Carrier Safety Regulations	FHA	X						DOE 5480.4
Inspection Requirements for Motor Vehicles, Trailers, and Semi-Trailers Operated on Public Highways	ANSI D7.1 1973	X						DOE 5480.4
Uniform Vehicle Code	NCUTLO	X						DOE 5480.4
Federal Protective Service Uniformed Force Operations (GSA)	PBS P5930.17							DOE 5483.XX

Notes:

[1]This document is only intended as a guide. Each entry must be specifically reviewed for applicability to the respective project.

[2]The "Functional Area" allocation has not been completed and should be verified by the projects.

Table 7-1. Applicable Safety and Health Statutes and Orders (Continued)

PUBLIC LAW, REGULATION, ORDER, or STANDARD		FUNCTIONAL AREAS						REQUIREMENT IMPOSED BY
Title	Number	Trans-portation Safety	Occupa-tional Medical Services	Indust-rial Safety	Fire Protec-tion	Emergency Pre-pardness	Independent Review	
Pistols and Revolvers (AMC)	FM 23-25, 7-60							DOE 5483.XX
Safety With Firearms Handbook (NRA)	NRA			X				DOE 5483.XX
Policies and Procedures for Firing Ammunition for Training (DOD)	AR 385-63, MCO P3570.1A							
MGDS SPECIFIC REQUIREMENTS								
Management Agreement Between Nevada Operations Office and the Yucca Mountain Site Characterization Project Office	Dec - 1990							Annex C Defines NTS Oversight responsibilities over YMSCO
STATE REGULATORY DOCUMENTS								
Inspection and Safety of Mines	NAC-512			X	X	X		
Occupational Safety and Health	NAC-618		X					
Public Health and Safety: Sanitation	NRS-444		X					
Public Health and Safety: Water Controls, Air Pollution	NRS-445		X					
Hazardous Materials	NRS-459			X	X			
Occupational Safety and Health	NRS-618		X					

Notes:
[1]This document is only intended as a guide. Each entry must be specifically reviewed for applicability to the respective project.
[2]The "Functional Area" allocation has not been completed and should be verified by the projects.

8. GUIDANCE FOR THE PREPARATION OF REGULATORY COMPLIANCE PLANS

As discussed in the previous chapters, the RGD is a program-level policy and guidance document, and the RCP is a project-level implementation-type document that will be prepared by each Project. The PMS Manual, in Section 4.6.6.1, states that the RCP provides: *...respective project's detailed plans for implementing the policy, requirements, and guidance established in the RGD.* It is, therefore, recognized that the Project Office should have sufficient flexibility in structure and content of the RCP to suit the needs of its implementation function.

However, from the standpoint of OCRWM's overall policies and objectives with regard to regulatory compliance, the RCP needs to include certain specific items. It is from this viewpoint that the RGD provides guidance regarding the contents of the RCP. By way of such guidance, a suggested generic outline for the Regulatory Compliance Plan, with brief annotations, is provided in Appendix A.

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9. REFERENCES

[Note: Laws, Regulations, and Orders cited in the document are not included in this chapter]

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4. U.S. Department of Energy, 1994. *Statement of Daniel A. Dreyfus*, Director, Office of Civilian Radioactive Waste Management, before the Committee on Appropriations, Subcommittee on Energy and Water Development, United States House of Representatives, March 14, 1994.

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11. U.S. Department of Energy, 1993g. *Statement of the Record*, Presentation to the U.S. Nuclear Regulatory Commission by Daniel A. Dreyfus, Director, OCRWM, December 20, 1993.

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20. U.S. Department of Energy, 1991, *Preliminary Site Requirements and Considerations for a Monitored Retrievable Storage Facility.* DOE/RW-0315P, Washington, D.C.: Office of Civilian Radioactive Waste Management. August.

21. U.S. Department of Energy, 1990. *Yucca Mountain Site Characterization Project. Environmental Management Plan.* YMP/CC-0006, Rev 0. Office of Civilian Radioactive Waste Management. Yucca Mountain Project. December.

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APPENDICES

APPENDIX A

REGULATORY COMPLIANCE PLAN
SUGGESTED GENERIC ANNOTATED OUTLINE

1. INTRODUCTION

1.1 BACKGROUND

In this subsection, the document hierarchy leading to the Regulatory Compliance Plan (RCP), and the relationship between the Regulatory Guidance Document (RGD) and the RCP would be described.

1.2 PURPOSE OF THE RCP

The following points would be covered in the description of the purpose:

- The purpose of the Regulatory Compliance Plan is to describe how the project will comply with, and demonstrate such compliance with all applicable Federal, State, and local laws and regulations. The level of detail of the RCP would be such that it would provide direction or guidance to other companion project activities (e.g., design, analysis, or field activities).

- In accordance with the above stated purpose, the RCP would contain identification of all applicable laws, regulations, and compliance requirements; description of the regulatory (licensing/permitting) process; compliance strategies, and organizational responsibilities.

Other purposes of the RCP would be:

- Serve as a reference document for companion project activities such as design, analysis, preparation of the SAR, etc. to ensure that the information and requirements identified in the compliance strategies are taken into account in such project activities.

- Serve as a compliance planning tool for assigning responsibilities and schedules for the series of steps that may constitute a particular compliance strategy.

- Serve as a tool to track progress towards demonstration of compliance.

1.3 SCOPE OF THE RCP

The scope of the RCP includes the following in the area of compliance with respect to licensing, environmental, and safety and health:

- Identification and description of Federal, State, and local laws and regulations, Executive Orders, and DOE Orders that are applicable to the project activities. This may be accomplished by inclusion or reference.

- Detailed information with regard to the requirements
- Implementation or compliance strategies
- Organizational responsibilities including review and approval of the Regulatory Compliance Plan
- Schedules for obtaining licenses, permits, and approvals
- Description of the tracking system for licenses/permits/approvals
- Description of procedures for initiating and implementing revisions to the RCP
- The subsections titled "schedule" under Sections 3, 4, and 5 would contain the logic and major dates leading through the stages of site characterization, submittal of license application, and ending with the receipt of the "Operating License."

1.4 ORGANIZATION OF THE RCP

In this subsection, the RCP would break down its organization into three sections, namely Licensing Compliance, Environmental Compliance, and Safety & Health Compliance. Considering the detailed scope of each of those sections, it may be more convenient and useful to develop three separate volumes, each volume being self sufficient in its scope. If such an approach is adopted, individual tables of contents for each volume could be developed in greater detail, utilizing the items contained in Sections 3, 4 and 5 of the RCP Outline as guidance.

1.5 PROCESS FOR REVISION OF THE RCP

There could be a need for revision of the RCP over time, as further evolution of the laws and regulations takes place, or as further experience is gained with compliance strategies. This section will describe the process/procedures for revision of the RCP. It would be beneficial to devise a process whereby portions of the RCP could be revised without subjecting the entire RCP to the change control process, or causing reissuance of the entire RCP.

1.6 GLOSSARY

1.7 ACRONYMS

2. PROJECT SUMMARY

2.1 PROJECT OVERVIEW

2.2 DESCRIPTION OF PROJECT ACTIVITIES

Emphasis would be placed on activities that are significant to regulatory compliance.

2.3 MAJOR MILESTONES

[NOTE: For MGDS, the site suitability may be discussed in a separate chapter, namely Chapter 3. Such chapter could consist of the following sections:

- 3.1 Interim Site Suitability Evaluations
- 3.2 Assessment of site characterization activities
- 3.3 Integration into long-range planning
- 3.4 Site Recommendation Report.

Numbering of the subsequent chapters need to be adjusted accordingly.]

3. LICENSING COMPLIANCE

3.1 PURPOSE (OF THE LICENSING COMPLIANCE SECTION)

3.2 SCOPE (OF THE LICENSING COMPLIANCE SECTION)

3.3 REGULATORY FRAMEWORK FOR LICENSING

This subsection would contain a comprehensive listing and discussion of all applicable laws and regulations for licensing.

3.4 DESCRIPTION OF THE LICENSING PROCESS

3.5 LICENSING COMPLIANCE REQUIREMENTS

This subsection would contain a comprehensive list of all licensing requirements (both procedural and technical), either by specific listing or by making reference to appropriate documents where some of those requirements are already documented. It should be noted that the design requirements for MGDS or MRS extend beyond those contained in 10 CFR Part 60 or 10 CFR Part 72 respectively, and can result from other laws and regulations, NRC regulatory guides, national codes and standards, and results of trade studies, etc.

3.6 ORGANIZATIONAL RESPONSIBILITIES FOR COMPLIANCE

3.7 COMPLIANCE STRATEGIES

This section is envisioned to contain enough detail to provide guidance to designers and other users of the RCP throughout the project organization.

For the MGDS, the scope of Section 3.7 should include strategies for compliance with the requirements of 10 CFR Part 60, NRC's Format and Content Regulatory Guide, including portions of other regulations incorporated by reference in Part 60, for example, 10 CFR Part 20, 10 CFR Part 50 Appendix B, and the replacement for 40 CFR Part 191.

This section should be reviewed against the License Application Review Plan (LARP) (when issued by the NRC) and the strategies should be revised, as needed.

For MRS and Transportation, the scope of section 3.7 should include strategies for compliance with 10 CFR Part 72, Regulatory Guide 3.48, including portions of other applicable regulations such as Part 20, Part 71, and Part 73.

In addition this section should capture those items that may be identified in the Annotated Outlines for the Preparation of a LA, for which strategies need to be developed.

3.8 LICENSING COMPLIANCE TRACKING AND SELF-ASSESSMENT AUDITS

3.9 SCHEDULE

3.10 REFERENCES

4. ENVIRONMENTAL COMPLIANCE

4.1 PURPOSE

The environmental compliance section of the RCP should provide management direction to insure complete compliance with all requirements dealing with environmental permits approvals and impacts.

4.2 SCOPE

The specific objectives of the environmental section are to:

- Identify the particular laws or regulations pertaining to environmental compliance and the requirements contained in them
- Define the actions, procedures, reports, or permits required to achieve compliance
- Identify data necessary to satisfy the requirements and to demonstrate compliance to any verification organization
- Provide a compliance schedule for the purpose of integrated project planning.

Further, the RCP is intended to cover all phases of the project including site investigation, construction, operation, and decommissioning.

4.3 FEDERAL STATUTES AND EXECUTIVE ORDERS

This section will include an explanation of the hierarchy of applicable environmental laws, a complete set of environmental requirements for the project, and a specific description of the

method to be employed for compliance verification. Details of requirements may be referenced to other documents.

4.3.1 Purpose and Applicability

Discuss the major categories of Federal statutes or laws that apply to the project and describe the hierarchy of those regulations.

4.3.2 Requirements Baseline

Develop a requirements matrix/database that:

- Lists applicable environmental requirements for the project that come from a Federal statute or law
- Lists the number and title of each applicable law
- Lists the functional area(s) to which the requirement applies
- Cites the parent requirement which invokes each requirement or law where applicable.

This discussion may reference existing requirements databases where applicable.

4.3.3 Implementation (or Compliance Strategy)

Utilizing the same requirements database, add information defining:

- Method of implementation (procedure/activity, report, etc.)
- Method of verification (visual inspection, data analysis, etc.)
- Form of the data used for the verification (format, source)
- Frequency of implementation of the compliance activity.

4.4 STATE AND LOCAL REQUIREMENTS (INCLUDING FEDERALLY DELEGATED OR MANDATED)

This section will include an explanation of the hierarchy of applicable environmental laws, a complete set of environmental requirements for the project, and a specific description of the method to be employed for compliance verification. Details of requirements may be referenced to other documents.

4.4.1 Purpose and Applicability

Discuss the major categories of State statutes or local laws which apply to the project and describe the hierarchy of those regulations.

4.4.2 Requirements Baseline

Develop a requirements matrix/database that:

- Lists every applicable environmental requirement for the project that come from a State statute or local law
- Lists the number and title of each applicable law
- Lists the functional area(s) to which the requirement applies
- Cites the parent requirement that invokes each requirement or law where applicable.

4.4.3 Implementation (or Compliance Strategy)

Utilizing the same requirements database, add information defining:

- Method of implementation (procedure/activity, report, etc.)
- Method of verification (visual inspection, data analysis, etc.)
- Form of the data used for the verification (format, source)
- Frequency of implementation of the compliance activity.

4.5 DOE ORDERS and SENs

4.5.1 Purpose and Applicability

Discuss the major categories of DOE Orders and SENs that apply to the project and describe the hierarchy of those regulations.

4.5.2 Requirements Baseline

Develop a requirements matrix/database that:

- Lists every applicable environmental requirement for the project that come from a DOE Order or SEN
- Lists the number and title of each applicable DOE Order or SEN
- Lists the functional area(s) to which the requirement applies
- Cites the parent requirement that invokes each requirement or law where applicable.

4.5.3 Implementation (or Compliance Strategy)

Utilizing the same requirements database, add information defining:

- Method of implementation (procedure/activity, report, etc.)
- Method of verification (visual inspection, data analysis, etc.)
- Form of the data used for the verification (format, source)
- Frequency of implementation of the compliance activity.

4.6 OTHER REGULATIONS

This section will describe any other environmental requirements that have not been discussed in the previous sections.

4.7 COMPLIANCE PLANNING

4.7.1 Organization and Responsibilities

Describe which organizations within the Project Office that are responsible for implementation of environmental compliance. Note where interfaces with regulatory agencies and the Program Office occur.

4.7.2 Environmental Compliance Tracking

Describe how project compliance tracking will be accomplished, the data needed, and the reports required, etc.

4.7.3 Environmental Compliance Audits

Describe how program compliance audits will be accomplished, the data needed, the reports required, and the role of the project environmental compliance organization to support the audits.

4.8 SCHEDULE

This section will be used for development of information necessary for integrated scheduling of environmental compliance activities.

4.9 REFERENCES

5. SAFETY AND HEALTH COMPLIANCE

The safety and health compliance section provides a standard structure to be applied to the development of all project specific RCPs.

5.1 PURPOSE (OF THE SAFETY AND HEALTH COMPLIANCE SECTION)

The safety and health compliance section of the RCP should provide management direction to insure compliance with all externally imposed requirements dealing with employee and public safety and health.

5.2 SCOPE (OF THE SAFETY AND HEALTH COMPLIANCE SECTION)

The specific objectives of the safety and health section are to:

- Identify the particular laws or regulations pertaining to safety and health and the requirements contained in them.
- Define the actions, procedures, reports, or permits required to achieve compliance.
- Identify data necessary to satisfy the requirements and to demonstrate compliance to any verification organization.
- Provide a compliance schedule for the purpose of integrated project planning.

Further, the RCP is intended to cover all phases of the project including site investigation, construction and operations.

5.3 FEDERAL STATUTES AND EXECUTIVE ORDERS

This section will include an explanation of the hierarchy of applicable safety and health laws and regulations, a complete set of safety and health requirements for the project, and a specific description of the method to be employed for compliance verification.

5.3.1 Purpose and Applicability

Discuss the major categories of Federal statutes or laws, regulations, and guidance documents that apply to the project and describe the hierarchy.

5.3.2 Requirements

Develop a requirements matrix/database that:

- Lists every applicable safety and health requirement for the project that come from a Federal statute or law
- Lists the number and title of each applicable law
- Lists the safety and health functional area(s) to which the requirement applies
- Cites the parent requirement that invokes each requirement or law where applicable.

5.3.3 Implementation (or Compliance Strategy)

Utilizing the same requirements database, add columns and text defining:

- Method of implementation (procedure/activity, report, etc.)
- Method of verification (visual inspection, data analysis, etc.)
- Form of the data used for the verification (format, source)
- Frequency of implementation of the compliance activity.

5.4 STATE AND LOCAL REQUIREMENTS (INCLUDING FEDERALLY DELEGATED OR MANDATED)

5.4.1 Individual State and Local Safety and Health Regulations

Discuss the major categories of DOE regulations, SENs, and orders that apply to the project and describe the hierarchy of those regulations.

5.4.2 Requirements

Develop a requirements matrix/database that:

- Lists every applicable safety and health requirement for the project that come from a Federal statute or law
- Lists the number and title or each applicable law
- Lists the safety and health functional area(s) to which the requirement applies
- Cites the parent requirement that invokes each requirement or law where applicable.

5.4.3 Implementation (or Compliance Strategy)

Utilizing the same requirements database, add columns and text defining:

- Method of implementation (procedure/activity, report, etc.)
- Method of verification (visual inspection, data analysis, etc.)
- Form of the data used for the verification (format, source)
- Frequency of implementation of the compliance activity.

5.5 OTHER FEDERAL REQUIREMENTS (DOT, GSA, ETC.)

5.5.1 Purpose and Applicability

Discuss the major categories of Federal statutes or laws from other Federal agencies that apply to the project and describe the hierarchy of those regulations.

5.5.2 Requirements Baseline

Develop a requirements matrix/database that:

- Lists every applicable safety and health requirement for the project that come from these Federal statutes or laws
- Lists the number and title of each applicable law
- Lists the safety and health functional area(s) to which the requirement applies
- Cites the parent requirement that invokes each requirement of law where applicable.

5.5.3 Implementation (or Compliance Strategy)

Utilizing the same requirements database, add columns and text defining:

- Method of implementation (procedure/activity, report, etc.)
- Method of verification (visual inspection, data analysis, etc.)
- Form of the data used for the verification (format, source)
- Frequency of implementation of the compliance activity.

5.6 CONTRACTOR REGULATIONS

5.7 STATE AND LOCAL REQUIREMENTS (INCLUDING FEDERALLY DELEGATED OR MANDATED)

5.7.1 Purpose and Applicability

Discuss the major categories of Federal statutes or laws that apply to the project and describe the hierarchy of those regulations.

5.7.2 Requirements Baseline

Develop a requirements matrix/database that:

- Lists every applicable safety and health requirement for the project that come from a State statute or law
- Lists the number and title of each applicable law
- Lists the safety and health functional area(s) to which the requirement applies
- Cites the parent requirement that invokes each requirement or law where applicable.

5.7.3 Implementation (or Compliance Strategy)

Utilizing the same requirements database, add columns and text defining:

- Method of implementation (procedure/activity, report, etc.)
- Method of verification (visual inspection, data analysis, etc.)
- Form of the data used for the verification (format, source)
- Frequency of implementation of the compliance activity.

5.8 COMPLIANCE PLANNING

5.8.1 Organization and Responsibilities

Describe which organizations are responsible for the project self-assessments. Describe which organizations are responsible for the program independent audits.

5.8.2 Safety and Health Compliance Tracking

Describe how project compliance tracking will be accomplished, the data needed, and the reports required, etc.

5.8.3 Safety and Health Compliance Audits

Describe how program compliance audits will be accomplished, the data needed, the reports required, and the role of the project S&H organization to support the audits.

5.9 SCHEDULE

5.10 REFERENCES

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APPENDIX B

GLOSSARY

Appendix B of the PMS Manual (DOE/RW-0043) contains a glossary of terms used in the CRWMS. The glossary for selected terms used in the RGD are presented below.

Audit - A planned and documented verification performed to determine by investigation of objective evidence the adequacy of and compliance with established implementing documents and the effectiveness of implementation. (OCRWM 1992)

Conflict - Condition which exists when compliance with one regulation, order or directive results in a non-compliance with another regulation, order or directive.

Guidance - Direction provided for meeting the intent of a regulation, order or directive. Compliance with guidance is not mandatory.

Implementing Procedure - A document that prescribes an approved process for accomplishing work in compliance with requirements.

Oversight - The process of ensuring that policies and procedures are being implemented and that personnel and resources are available to properly comply with regulations, orders, and directives. Independent Oversight is performed by an individual or organization which is not directly responsible for implementing regulatory compliance.

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APPENDIX C

ABBREVIATIONS AND ACRONYMS

The PMS Manual is the source document for the following list of abbreviations and acronyms used in the RGD. Refer to Appendix A of the PMS Manual for a complete list of acronyms.

ACNW	Advisory Committee for Nuclear Waste
ADGD	Associate Director for Geologic Disposal
ADSC	Associate Director for Systems and Compliance
ADST	Associate Director for Storage and Transportation
AEA	Atomic Energy Act
ALARA	As Low As Reasonably Achievable
AO	Annotated Outline
APA	Administrative Procedure Act
ARMS	Automated Requirements Management System
ASEH	Assistant Secretary for Environment, Safety and Health
CCB	Change Control Board
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
CMF	Cask Maintenance Facility
CoC	Certificate of Compliance
CRWM	Civilian Radioactive Waste Management
CRWMS	Civilian Radioactive Waste Management System
DEIS	Draft Environmental Impact Statement
DHLW	Defense High-Level Waste
DOE	Department of Energy
DOL	Department of Labor
DOQA	Director, Office of Quality Assurance
DOT	Department of Transportation
EA	Environmental Assessment
EEI	Edison Electric Institute
EH	Office of Assistant Secretary for Environment, Safety, and Health, DOE
EIS	Environmental Impact Statement
EMP	Environmental Management Program
EPA	Environmental Protection Agency
EPACT	Energy Policy Act of 1992
EPIP	Environmental Protection Implementation Plan
EPRI	Electric Power Research Institute
ERA	Energy Reorganization Act
ERCP	Environmental Regulatory Compliance Plan
ESF	Exploratory Studies Facility

ESP	Engineering Specialties Plan
ESHPIP	Environmental, Safety, and Health Protection Implementation Plan
ESAAB	Energy System Acquisition Advisory Board
FCRG	Format and Content Regulatory Guide
FEIS	Final Environmental Impact Statement
GC	General Counsel
HLB	Hearing Licensing Board
HLW	High-Level Waste
LA	License Application
LARP	License Application Review Plan
LSS	Licensing Support System
M&O	Management and Operating (Contractor)
MGDS	Mined Geologic Disposal System
MOA	Memorandum of Agreement
MOU	Memorandum of Understanding
MPC	Multipurpose Canister
MRS	Monitored Retrievable Storage
MSA	Major System Acquisition
MSHA	Mine Safety and Health Administration, Department of Labor
NARUC	National Association of Regulatory Utility Commissioners
NAS	National Academy of Sciences
NEPA	National Environmental Policy Act
NRC	Nuclear Regulatory Commission
NS	Office of Nuclear Safety
NUREG	Nuclear Regulatory Commission Reports
NWPA	Nuclear Waste Policy Act of 1982
NWPAA	Nuclear Waste Policy Amendments Act of 1987 (amends the NWPA)
NWTRB	Nuclear Waste Technical Review Board
OCRWM	Office of Civilian Radioactive Waste Management
OGC	Office of General Counsel
OQA	Office of Quality Assurance
OSC	Office of Systems and Compliance, OCRWM
OSHA	Office of Safety and Health Administration
OST	Office of Storage and Transportation, OCRWM
PBCCB	Program Baseline Change Control Board
POBCCB	Project Office Baseline Change Control Board
PSO	Principal Secretarial Office
RCD	Regulatory Compliance Division

RCP	Regulatory Compliance Plan
RGD	Regulatory Guidance Document
RPRB	Regulatory Policy and Requirements Branch
SAIP	Self Assessment Implementation Plan
SAR	Safety Analysis Report
SAU	Self-Assessment Unit
SCP	Site Characterization Plan
SEN	Secretary of Energy Notice
SER	Safety Evaluation Report
SNF	Spent Nuclear Fuel
SPIB	Systems Planning and Integration Branch
SRR	Site Recommendation Report
SSPP	System Safety Program Plan
STP	(NRC) Staff Technical Position
S&H	Safety and Health
TQM	Total Quality Management
YMP	Yucca Mountain Project
YMSCO	Yucca Mountain Site Characterization Office

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