



ENVIRONMENTAL

*Bennett*

## Report to the Secretary of Energy



# *WIPP Readiness to Begin Test Phase Activities with Transuranic Waste*

Office of Environmental Restoration  
and Waste Management

September 1991



**REPORT  
TO  
THE SECRETARY OF ENERGY**

**WIPP READINESS TO BEGIN  
TEST PHASE ACTIVITIES  
WITH TRANSURANIC WASTE**

**SEPTEMBER 1991**

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## EXECUTIVE SUMMARY

This Readiness Report documents the completion of the Decision Plan prerequisites for the Waste Isolation Pilot Plant (WIPP) and provides the basis for the recommendation to the Secretary of Energy on the readiness of WIPP to begin the Test Phase with transuranic (TRU) waste.

The WIPP was authorized by Public Law 96-164 to provide a research and development facility for demonstrating the safe disposal of radioactive waste produced by national defense activities. The WIPP site is located in southeastern New Mexico approximately 26 miles east of Carlsbad. The WIPP is designed to dispose of 6.2 million cubic feet of contact-handled transuranic waste and 250,000 cubic feet of remote-handled transuranic waste in a bedded salt geologic repository located 2,150 feet below ground level. The WIPP site includes surface and underground facilities that will support the emplacement of transuranic waste within the repository.

On October 19, 1989, the Department of Energy (DOE) issued its first draft Decision Plan for WIPP. The Decision Plan process provided a formal method for the identification, development, and review of activities that were prerequisites for radioactive waste receipt at WIPP. The Decision Plan preparation was carefully coordinated so that the process would provide for substantial State, Federal, and other interested party participation in the identification of significant safety and environmental issues. A total of 15 Decision Plans have been issued, including Revision 10, the Final Decision Plan.

Since October, 1989, a total of 50 prerequisites have been identified for action and resolution by the DOE to support dry bin test initiation. Summary descriptions of these prerequisites are provided in this report, including key interim milestones, activities, completion dates, and where applicable, identification of the participation by external organizations in the review process.

All prerequisites identified in the various WIPP Decision Plans have been completed to support initiation of the dry bin tests, except for land withdrawal. (As the Decision Plan process evolved, along with DOE's test program planning, focus shifted to the dry bin tests, the first phase of a bin program that will eventually extend to wet bin and alcove testing as well.) The completion of these prerequisites marks a significant accomplishment resulting from years of technical analysis, environmental and safety evaluations, and extensive public review. The Department has completed a Final Safety Analysis Report (FSAR), and an FSAR Addendum for the dry bin portion of the Test Phase, a Final Supplemental Environmental Impact Statement (FSEIS), a Record of Decision on the FSEIS, a Performance Assessment Test Plan, a Retrieval Plan, emergency response training in States along selected transportation routes to WIPP, TRansUranic PACKage Transporter (TRUPACT-II) fabrication and acceptance, a demonstration of the Department's response to a simulated transportation accident, Resource Conservation and

Recovery Act (RCRA) permit applications, Quality Assurance Plans, Waste Characterization Plans, and many other key operational readiness activities, including a final Operational Readiness Review conducted by the Department of Energy's Office of Environmental Restoration and Waste Management (DOE/EM).

Since October, 1988, the WIPP has been the focal point of numerous appraisals and reviews. Nineteen Operational Readiness Reviews have been conducted by a variety of expert oversight organizations. A total of 2009 findings were registered of which 550 were identified as prestart items. All prestart findings were resolved and the associated corrective actions completed. The resolutions of the Operational Readiness Review appraisals demonstrate the scope and detail of the safety and operations assessments conducted at WIPP.

In addition to the extensive internal reviews conducted by the DOE program and oversight elements, the WIPP project has received significant safety and technical review by DOE advisors, other Federal agencies, the State of New Mexico, and other interested parties. The National Academy of Sciences Panel on the WIPP, the Environmental Protection Agency, and the Advisory Committee on Nuclear Facility Safety have expressed their views supporting the safety and scope of the WIPP testing activities.

Several groups and individuals have expressed concerns regarding portions or all of the DOE strategy to start WIPP Test Phase activities, including the State of New Mexico, the Environmental Evaluation Group, the Natural Resources Defense Council, Concerned Citizens for Nuclear Safety, Southwest Research and Information Center, and various Members of Congress. However, there are no remaining unresolved issues that DOE believes need to be addressed prior to the start of the dry bin test program.

In summary, the WIPP Readiness Report concludes that all applicable DOE, State, and Federal regulatory requirements have now been met, other than land withdrawal. WIPP and the supporting sites and systems are ready to begin the dry bin portion of the Test Phase with TRU waste to determine WIPP's suitability as a disposal facility for defense TRU waste. Prior to initiating later portions of the Test Phase, e.g., wet bins, alcoves, etc., DOE will perform similar readiness evaluations to ensure worker and public health and safety, and environmental protection.

# 1. INTRODUCTION

## 1.1 PURPOSE

The purpose of this report is to document the completion of Decision Plan prerequisites for the Waste Isolation Pilot Plant (WIPP), and provide the basis for the recommendation to the Secretary of Energy on the readiness of WIPP and supporting sites and systems to begin the Test Phase with Transuranic (TRU) waste.

This report describes the Decision Plan process used by the Department of Energy (DOE) to identify all prerequisite activities that would need to be completed before the Secretary could declare WIPP readiness to initiate Test Phase activities requiring the receipt of radioactive waste. These prerequisites include the safety, environmental, technical, and institutional activities required for DOE to initiate preparation, shipping, and emplacement of TRU waste at WIPP.

This report is intended to provide brief summaries of each prerequisite activity. It is not intended to provide detailed descriptions of each activity. References are provided for the reader if additional information is desired.

## 1.2 BACKGROUND

The WIPP Project was authorized by Public Law 96-164, the Department of Energy National Security and Military Applications of Nuclear Energy Act of 1980, "to provide a research and development facility for demonstrating the safe disposal of radioactive waste produced by national defense activities."

The WIPP site is located in Eddy County in southeastern New Mexico. It is approximately 26 miles east of Carlsbad in a relatively flat, sparsely inhabited area with little surface water and limited land uses. The land is used mainly for grazing, but other uses in the area include mining for potash, and oil and gas exploration and development.

In order to accomplish its mission, as established by Public Law 96-164, the WIPP needs to achieve two primary objectives. First, investigations into the behavior of salt rock and its interactions with radioactive waste must be conducted, performance assessments completed, and eventual compliance with the Environmental Protection Agency (EPA) disposal standards (Reference 1) demonstrated. Second, the safe and efficient handling, transportation, and emplacement of TRU waste in an actual facility must be demonstrated.

The WIPP is designed to dispose of 6.2 million cubic feet (ft<sup>3</sup>) of contact-handled (CH) TRU waste and 250,000 ft<sup>3</sup> of remote-handled (RH) TRU waste in the mined repository over a 25-year (including the Test

Phase) operational life. TRU waste is waste contaminated with alpha-emitting radionuclides that are heavier than uranium and have half-lives longer than 20 years at concentrations of 100 nanocuries per gram or greater. These wastes result primarily from defense-related plutonium reprocessing and fabrication, as well as defense-related research and development activities at various DOE facilities. TRU waste is generated by 10 DOE defense facilities around the country and stored at seven (Savannah River, Richland, Idaho, Nevada, Rocky Flats Plant, Oak Ridge, and Albuquerque) sites. The waste exists in a variety of forms ranging from unprocessed laboratory trash, e.g., tools, glassware, and gloves, to solidified sludges from wastewater treatment. A substantial portion (approximately 60 percent) of the post-1970 TRU waste that would be emplaced in WIPP also contains hazardous chemical components. Such TRU waste, i.e., mixed waste, is similar in its physical and radiological characteristics to TRU waste that does not contain these components (Reference 2).

The WIPP includes surface and underground facilities that will support the emplacement of TRU waste in a geologic repository in bedded salt. The principal surface structure at the WIPP is the Waste Handling Building, in which TRU waste containers will be received, inspected, and moved to the waste handling shaft for transfer underground. The building also contains change rooms, a health-physics laboratory, and equipment for ventilation and filtration. Other surface facilities include an Exhaust Filter Building, a fire and domestic water pumphouse, a sewage-treatment plant, a building for safety and emergency services, a guard and security building, and support buildings. The constructed underground facilities include four shafts, the first panel of the waste disposal area, an experimental area, an equipment and maintenance area, and connecting tunnels. These underground facilities were mined 2,150 feet beneath the land surface, in the Salado Formation, a 2,000-foot-thick bedded salt and anhydrite formation. (A more detailed description of the WIPP facility is provided in Reference 3.)

## 2. WIPP DECISION PLAN

On October 19, 1989, the DOE issued its first draft Decision Plan for WIPP (Revision 0). This plan was prepared at the direction of the Secretary to allow an adequate baseline of information to be developed, reviewed, and revised, as necessary before a decision could be made on WIPP's readiness to receive waste for the Test Phase.

A total of 15 Decision Plans have been issued, including Revision 10, the Final Decision Plan. As DOE's test planning matured, the later revisions of the Decision Plan focused on the prerequisites for initiation of the first phase of the test program -- dry bins. Since October 1989, the Decision Plans identified 50 prerequisites for dry bin waste receipt at WIPP. These prerequisites include activities in the following areas: Regulatory Compliance, Project Completion, Test Phase Activities, Bin Preparation, Transportation and Land Withdrawal. These activities are discussed in Section 3.0 of this report. Activities for later tests, e.g., wet bins, alcoves, are not discussed here.

The preparation of the WIPP Decision Plan has been carefully coordinated so that the process would provide for substantial State, Federal, and other interested party review. This approach provided an opportunity for the many interested parties to participate substantively in the identification of significant safety and environmental issues. The Decision Plan was provided to the States of New Mexico, Colorado, Idaho, Nevada, South Carolina, Tennessee, and Washington, as well as Federal agencies including the EPA, and the Departments of Defense and Interior. Also, the Environmental Evaluation Group, (EEG), Defense Nuclear Facilities Safety Board, (DNFSB), the Advisory Committee on Nuclear Facility Safety (ACNFS), the Blue Ribbon Panel (BRP) and Congress were provided the Decision Plan for review and comment. Meetings with representatives of interested States were held to discuss the status of Decision Plan activities. As comments were received and analyzed, formal responses to the reviews were prepared, revisions to the Decision Plans were published and comments were incorporated as appropriate. As each new revision was published, copies were sent to the State, Federal, and public participants for their further review and comment.

The WIPP Decision Plan was a living document that reflected the current schedule status of the prerequisite activities. As progress was made, as activities were completed, and as new issues and requirements were identified, the Decision Plan was updated and reissued to reflect the latest information.

### **3. COMPLETED PREREQUISITES**

#### **3.0 COMPLETED PREREQUISITES**

The Secretary's Decision Plan process was conceived as an iterative process of reviewing and updating the prerequisite activities to be completed as improved understanding of the technical and institutional issues was achieved. Initially, 13 prerequisites were identified in the October, 1989, Draft Decision Plan (Revision 0). Since then, a total of 50 prerequisites have been identified and completed for the initiation of the dry bin tests, other than land withdrawal. The following sections provide summary descriptions of these prerequisites including key interim milestones, activities and completion dates, and where applicable, the participation by external organizations in the review process is highlighted. A listing of the prerequisites and their associated completion date is shown in Figure 3-1.

#### **3.1 REGULATORY COMPLIANCE**

##### **3.1.1 NATIONAL ENVIRONMENTAL POLICY ACT**

The 1980 WIPP Final Environmental Impact Statement (FEIS) was published in October, 1980 (Reference 4). The FEIS presented an analysis of the environmental impacts of a number of alternatives for demonstrating the safe disposal of TRU waste. The reasonable alternatives considered included:

- Alternative 1. No action. A research and development facility to demonstrate safe disposal of TRU waste would not be developed and post-1970 TRU waste would continue to be retrievably stored.
- Alternative 2. Developing the WIPP at the Los Medanos site in southeastern New Mexico.
- Alternative 3. Disposing of stored TRU waste in the first available repository for high-level radioactive waste.
- Alternative 4. Delaying a decision on the site for a WIPP until at least 1984 to allow for the investigation of alternative sites.

Other alternative methods and geologic media for TRU waste disposal were also considered but rejected in the FEIS. The alternative methods included burial in deep ocean sediments, emplacement in deep drillholes, transmutation, and ejection into space. The alternative geologic media included igneous, volcanic, and argillaceous rocks.

**Figure 3-1**  
**Decision Plan Prerequisites Listing**

No.	Title	Date Completed	Report Section
1.	Supplemental Final Env. Impact Statement (FSEIS)	1/90	3.1.1.1
2.	Record of Decision on FSEIS	6/90	3.1.1.2
3.	EPA Approval of RCRA Regulatory Authority for New Mexico	7/90	3.1.2.1
4.	EPA Issuance of No Migration Determination	11/90	3.1.2.2
5.	RCRA Part A Permit Application	1/91	3.1.2.3
6.	RCRA Part B Permit Application	2/91	3.1.2.3
7.	NESHAP Notification to EPA	6/91 and 8/91	3.1.3
8.	ESAAB Key Decision (No.4)	3/91	3.2.1
9.	Base Facility Complete (Project Completion)	3/91	3.2.1
10.	Construction Completion	1/90	3.2.2
11.	Final Safety Analysis Report	6/90	3.2.3
12.	Potash Lease Settlement	6/90	3.2.4
13.	Preoperational Appraisal/ORR	12/89	3.2.5
14.	AL/EH ORR Final Closeout	3/91	3.2.5
15.	Critical As-Builts	11/90	3.2.6
16.	Waste Hoist Repair	4/90	3.2.7
17.	Base Facility Internal ORR	3/91	3.2.8
18.	Closeout of ACNFS Commitments for Waste Receipt	8/91	3.2.9
19.	FSAR Addendum (Dry Bins)	8/91	3.3.1
20.	Performance Assessment Test Plan	4/90	3.3.2
21.	Retrievability Plan	5/90	3.3.3

*Figure 3-1*  
*Decision Plan Prerequisites Listing (Continued)*

<b>No.</b>	<b>Title</b>	<b>Date Completed</b>	<b>Report Section</b>
22.	Blue Ribbon Panel Reports and DOE Response	8/89;8/90	3.3.4
23.	Decision on Operations Demonstration	6/90	3.3.5
24.	Status Report on Disposal System	6/90	3.3.6
25.	Phase II Internal ORR	7/91	3.3.7
26.	Integrated Systems Checkout	7/91	3.3.8
27.	Certification of Site Readiness	8/91	3.3.9
28.	Begin EM Operational Readiness Review	5/91	3.3.10
29.	Complete EM Operational Readiness Review	9/91	3.3.10
30.	Draft Waste Characterization Program Plan	5/90	3.4
31.	Second Draft Waste Characterization Program Plan	10/90	3.4
32.	Waste Characterization Program Plan Rev. O	1/91	3.4
33.	Waste Characterization Program Plan, Rev. 1	7/91	3.4
34.	Waste Characterization Sites Selected	6/90	3.4
35.	Quality Assurance Program Plan, Rev. O	4/91	3.4
36.	Quality Assurance Program Plan, Rev.1	7/91	3.4
37.	Quality Assurance Project Plan for INEL, Revision 1	8/91	3.4
38.	Lab Qualification Complete	4/91	3.4.1
39.	Start of Bin Loading	3/91	3.4.2
40.	First Bin Loading Complete	4/91	3.4.2
41.	WACCC Audits and Corrective Actions	8/91	3.4.2
42.	TRUPACT-II Certificate of Compliance	8/89	3.5.1

**Figure 3-1**  
**Decision Plan Prerequisites Listing (Continued)**

No.	Title	Date Completed	Report Section
43.	NRC Approval of SARP Amendment for Dry Bins	4/91	3.5.1
44.	NRC Approval of SARP Amendment for Manufacturing Specifications	8/91	3.5.1
45.	Quality Assurance Plan for Transportation	8/89	3.5.2
46.	DOE/Western State Transportation Agreement	7/90	3.5.3
47.	New Mexico Transportation Route Hearings	4/90	3.5.4
48.	New Mexico Designation of Transportation Routes	10/90* 8/91**	3.5.4
49.	Emergency Response Training	6/90 and 8/91	3.5.5
50.	Public Land Order	1/91***	3.6

\* Environmental Improvement Board - Initial Approval

\*\* State Highway Commission - Final Approval

\*\*\* DOE May Choose to Use Administrative Land Withdrawal, Although a Legislative Approach Is Preferred.

The DOE's Record of Decision (ROD) issued by the Secretary of Energy in January 1981, announced the DOE's selection of Alternative 2: to proceed with the phased development of the WIPP at the Los Medanos site in southeastern New Mexico (Reference 5).

The decision called for the WIPP to be designed to accommodate approximately 6.2 million cubic feet of contact-handled TRU waste and 0.25 million cubic feet of remote-handled post-1970 TRU waste. The analysis in the supporting FEIS concluded that any adverse environmental impacts of the implementation of Alternative 2 would be generally minor and that the Los Medanos site would be acceptable for the long-term disposal of TRU waste with minimal risk of any release of radioactivity to the environment. The DOE also concluded that the consequences of the no-action alternative were unacceptable.

The 1981 ROD also stated that if significant new environmental data results were obtained from the Site and Preliminary Design Validation (SPDV) program or other WIPP project activities, the FEIS would be supplemented as appropriate to reflect such data, and that the decision to proceed with phased construction and operation of the WIPP facility would be reexamined in the light of that supplemental National Environmental Policy Act (NEPA) review.

The DOE performed an environmental analysis of the results of the SPDV program in 1983 to determine whether the conclusions stated in the ROD remained valid. The DOE determined that the new information either fell within the bounds of the impacts discussed in the FEIS or represented insignificant change.

### 3.1.1.1 SUPPLEMENTAL ENVIRONMENTAL IMPACT STATEMENT

Following the FEIS ROD in January 1981, the DOE spent eight years systematically designing, constructing, testing, and documenting the WIPP facility. This process resulted in a large amount of additional data, as well as changes in the originally proposed configuration of the plant. The Council on Environmental Quality (CEQ) NEPA regulations (40 CFR Parts 1500-1508) require agencies to prepare a Supplemental Environmental Impact Statement (SEIS) if significant changes have occurred to the proposed action, or if significant new information becomes available. While none of the changes to the WIPP Project were considered significant in terms of environmental impacts, the DOE concluded that sufficient change had occurred to justify additional public review and comment to initiation of Test Phase activities. As a result, the DOE announced on December 16, 1988, its intent to prepare a SEIS for the WIPP facility. On February 17, 1989, the DOE published in the Federal Register a notice of its intent to prepare a Supplement to the 1980 FEIS.

The draft SEIS was issued for public review and comment in April 1989. The draft SEIS addressed three alternatives: (1) proceed with operation of the WIPP facility and conduct an up-to-five-year Test Phase followed

by permanent disposal upon successful compliance with EPA standards; (2) delay waste receipt for the Test Phase until WIPP demonstrates compliance with EPA standards; and (3) no emplacement of waste in WIPP, and continued storage of TRU waste at interim sites and DOE generator and storage sites.

The draft SEIS focused on new information or changes in the following areas: (1) the inventory to be placed in WIPP; (2) hazardous constituents in some of the TRU wastes to be shipped to WIPP; (3) recent developments in waste packaging, transportation routes, and transportation modes; and (4) the research and development program at WIPP.

More than 2,000 copies of the draft SEIS were distributed to members of Congress, State and Federal agencies, and interested individuals. The DOE provided a 90-day public comment period on the draft SEIS that included 12 days of public hearings in nine locations nationwide. Almost 1,000 speakers expressed their views on the draft SEIS and WIPP during the public hearings. There were 9,000 pages of comments received. Nine states, the Department of Interior (DOI), EPA, EEG, and numerous special interest groups participated. The DOE considered and responded to the approximately 20,000 comments raised by the public, and by State and Federal officials during the public comment period by making appropriate changes or additions in the existing two volumes of the draft SEIS or by providing detailed responses in a new third volume.

The Final SEIS was issued in January 1990 (Reference 3). A Notice of Availability of the Final SEIS was published in the Federal Register on February 2, 1990.

### 3.1.1.2 RECORD OF DECISION FOR SEIS

Comments on the draft SEIS were received from the EPA, the DOI, New Mexico's Environmental Improvement Division (NMEID), EEG and jointly from the Environmental Defense Fund, Concerned Citizens for Nuclear Safety, the Office of the Texas Attorney General, and the Southwest Research and Information Center (which were subsequently adopted by the

Natural Resources Defense Council). These comments were considered in preparing the ROD and were responded to individually.

The SEIS ROD was issued by DOE on June 13, 1990 (Reference 6). The DOE, in compliance with NEPA and its implementing regulations, weighed the need for the WIPP against its environmental and other impacts as updated in the Final SEIS, and decided to continue with the phased development of WIPP by proceeding with the Test Phase. Proceeding with the Test Phase was determined to be in accordance with the original Congressional mandate to develop a facility to demonstrate the safe disposal of radioactive wastes produced by national defense activities. The No-Action Alternative was found to be inconsistent with this Congressional

intent. The above-ground testing alternative would not provide the same degree of certainty in the data for performance assessment calculations used to determine compliance with EPA disposal standards.

The Mitigation Action Plan that addresses the mitigation commitments stated in the RODs for both the FEIS and SEIS was prepared in draft by DOE in August, 1991. For commitments related to the start of the Test Phase at WIPP, all mitigative activities have been initiated or are currently in place. (See also Section 3.4.)

### 3.1.2 RESOURCE CONSERVATION AND RECOVERY ACT

#### 3.1.2.1 EPA APPROVAL OF RCRA REGULATORY AUTHORITY FOR NEW MEXICO

The State of New Mexico initially received authorization from the EPA under the Resource Conservation and Recovery Act (RCRA) for its hazardous waste program on January 25, 1985 (50 FR 1515). On July 25, 1989, the State of New Mexico submitted a program revision application to the EPA for additional program approvals, including the authority to regulate radioactive mixed waste. On July 11, 1990 (55 FR 28397), EPA granted final authorization to the State to operate its expanded program, subject to the authority retained by EPA in accordance with the Hazardous and Solid Waste Amendments of 1984. Effective July 25, 1990, New Mexico was authorized to issue permits for treatment, storage, and disposal facilities managing radioactive mixed waste and to enforce other aspects of the RCRA base program for radioactive mixed waste.

#### 3.1.2.2 NO MIGRATION VARIANCE PETITION

The land disposal of hazardous wastes is restricted by the provisions under RCRA as promulgated in 40 CFR Part 268. However, land disposal facilities may be granted a variance from the land disposal restrictions. To be granted a variance, the owner/operator of the unit must successfully demonstrate to a reasonable degree of certainty, that there will be no migration of hazardous constituents from the disposal unit for as long as the wastes remain hazardous. A determination of no-migration by EPA's Office of Solid Waste (OSW) allows untreated restricted wastes to be emplaced in a land disposal unit, subject to the conditions and limitations of the determination.

Pursuant to RCRA, DOE submitted a No Migration Variance Petition (NMVP) to the EPA-OSW in March 1989 (Reference 7). The NMVP demonstrated that no hazardous constituents will migrate out of the WIPP facility during the Test Phase. The Petition included a description of the specific wastes, an evaluation of the geology of the repository as a viable disposal facility, and various safeguards to assure compliance including plans for a volatile organic compound monitoring system.

Throughout the petitioning process, DOE met frequently with the EPA to discuss technical issues associated with WIPP and its performance under 40 CFR 268, and submitted Addenda to the Petition through January 1990. DOE also conducted numerous tours of the WIPP for EPA and its contractors. In response to the NMVP, EPA published a proposed determination in the Federal Register on April 6, 1990, to solicit public comment concerning the proposal to grant a variance for WIPP (Reference 8). The EPA conducted three public hearings and addressed over 300 comments prior to granting a determination of no-migration.

In a November 14, 1990 Federal Register Notice, the EPA issued a Conditional No-Migration Determination for the WIPP (Reference 9). This allows the DOE to emplace untreated restricted wastes in the facility for experimental purposes. The EPA notice provided information relevant to the No-Migration Determination; described EPA's responses to comments provided on the proposed determination, and specified the conditions and limitations of the determination. The major conditions of the No-Migration Determination are as follows:

- The No-Migration Determination is effective for 10 years;
- Waste emplaced at WIPP is to be used for the Test Phase only;
- Waste emplaced at WIPP may not exceed 8,500 drums or drum equivalents, or 1 percent of the total design capacity;
- Waste emplaced at WIPP must be placed in a readily retrievable manner;
- Waste emplaced at WIPP must be removed if DOE cannot demonstrate compliance with 40 CFR Part 268; and
- DOE must provide to the EPA annual written reports on the status of DOE's performance assessment during the Test Phase.

The DOE has agreed to comply fully with all conditions and limitations of the No-Migration Determination.

### 3.1.2.3 RCRA PART A AND PART B PERMIT APPLICATIONS

DOE first submitted the Part A of the WIPP RCRA permit application to the NMEID and the EPA on July 7, 1988. The NMEID returned the permit application and EPA did not take any action on the permit application due to a lack of regulatory authority. The NMEID was granted authority to regulate radioactive mixed waste on July 25, 1990. In order to obtain interim status at WIPP, the DOE was required to submit its Part A application by January 22, 1991.

DOE submitted the WIPP Part A permit application to the NMEID on January 22, 1991 (Reference 10). The NMEID also requested that DOE submit the WIPP Part B permit application by February 28, 1991. In response to

this request, DOE submitted the Part B permit application on February 26, 1991 (Reference 11). DOE, therefore, has complied with the procedural requirements necessary to have interim status under RCRA.

The design capacity and the estimated annual waste quantities identified in the Part A application are for the expected life of the facility. In anticipation of test program evolution, the DOE is seeking through its Part B application to permit only those waste-handling activities for which final design details can be provided. The three major radioactive waste tests (dry bin, wet bin, and alcove) currently planned for the Test Phase at the WIPP are sequential. At this time, the WIPP Part B permit application contains detailed information for dry bin tests only. As detailed information becomes available for wet bin and alcove tests, supplemental information to the WIPP Part B application will be provided to the State of New Mexico.

### 3.1.3 CLEAN AIR ACT

On December 15, 1989, the EPA promulgated National Emission Standards for Hazardous Air Pollutants (NESHAP), which includes standards for radionuclides (Reference 12). In its Notice of Final Rulemaking, EPA indicated that expected emissions from the disposal of transuranic waste at the WIPP will be sufficiently low that no NESHAP standard was required. This finding, however, is relevant only to the closure phase of the facility. During the testing and operational phases, WIPP is subject to the provisions of Subpart H of 40 CFR Part 61. Since construction of WIPP began prior to the publication in the Federal Register of the proposed NESHAP for radionuclides, WIPP was considered an existing source, rather than a new source, pursuant to the provisions of 40 CFR 61.02.

As the owner of an existing source, DOE is required to provide written notification to EPA of both its anticipated and actual facility startup date under 40 CFR 61.09. On June 10, 1991, DOE notified the EPA Administrator of its anticipated startup of the WIPP in accordance with the requirements of 40 CFR 61.09(a)(1). Followup letters to keep EPA updated on DOE's plans were sent to the EPA Regional Administrator of Region VI Air Enforcement Branch on August 7, 1991. Upon startup of the WIPP, EPA will be notified as to the actual startup date in accordance with the requirements of 40 CFR 61.09(a)(2). An air monitoring system is presently in place to comply with 40 CFR 61 (as well as 40 CFR 191, Subpart A) air monitoring requirements. DOE will document compliance in an annual report which identifies air monitoring results during the previous year.

### 3.1.4 OTHER REGULATORY REQUIREMENTS

There are hundreds of regulations at the Federal and State level that affect the construction and operation of the WIPP facility. There are also a number of other statutes that are, to varying degrees, applicable

to WIPP. These statutes and regulations provide for broad protection of worker safety, the environment, and the heritage of the site and its environs. In brief, the most significant of these statutes and regulations are presented below. This list does not include those discussed in the previous or following sections.

- Subpart A of 40 CFR 191, Environmental Standards for Management and Storage;
- The U.S. Department of Transportation (DOT) and Nuclear Regulatory Commission (NRC) transportation requirements (49 CFR 100-177 and 10 CFR 71) respectively;
- The DOE requirements equivalent to those of the Occupational Safety and Health Act (OSHA) and the Federal Mine Safety and Health Act (MSHA).
- The National Historic Preservation Act - There were no historic sites identified at WIPP; however, archaeological sites are present and a preservation plan has been put into place which the State of New Mexico has accepted.
- The Endangered Species Act of 1973 - The New Mexico Department of Game and Fish agreed that the construction of WIPP would probably not have appreciable impacts on state-listed endangered species in the area.
- The Clean Water Act (CWA) of 1977 - The CWA establishes controls on the discharges of waste water to the nation's waters, as defined under 40 CFR 122.2. At WIPP there are no such waters and the State of New Mexico has determined that the WIPP need not file a discharge plan for its waste water treatment lagoons.

Besides these statutes, several Executive Orders appear to have some applicability to WIPP, including the following:

- Executive Order 11514 (Protection and Enhancement of Environmental Quality) which implements NEPA; and
- Executive Order 12088 (Federal Compliance with Pollution Control Standards) which addresses the prevention, control, and abatement of environmental pollution.

These statutes and Executive Orders, along with applicable DOE Orders, Secretary of Energy Notices, and agreements with the State of New Mexico represent a subset of the several hundred documents that apply to WIPP. Evaluation of the requirements in the above regulations shows that they have been met for the dry bin Test Phase.

## 3.2 PROJECT COMPLETION

The WIPP, designated as Project 77-13f, first appeared as a budget line item in Public Law (PL) 94-355 in 1977.

On December 29, 1979, Congress enacted the DOE National Security and Military Applications of Nuclear Energy Act of 1980, PL 96-164, which authorizes the construction of the WIPP as a defense activity of the DOE.

The WIPP project was subsequently managed as a Major Systems Acquisition (MSA) under DOE Order 4700.1, Project Management System, and predecessor orders. This order provides the necessary guidance for the Department's establishment of a project management system which governs the development, approval, and execution of program acquisitions. All activities associated with the project phase have now been completed. The following sections describe prerequisite activities completed in the project phase.

### 3.2.1 ENERGY SYSTEMS ACQUISITION ADVISORY BOARD DECISION

The Energy Systems Acquisition Advisory Board (ESAAB), composed of senior DOE managers and chaired by the Under Secretary of Energy (Acquisition Executive), is responsible for periodic reviews of MSA projects. Consistent with the policy established by the Office of Management and Budget (OMB Circular A-109) as implemented in DOE Order 4700.1, a logical sequence of activities made of four Key Decisions is required during the execution of an MSA. Each project is required to convene the ESAAB to review Key Decisions over the life of the project, with a subsequent decision by the Acquisition Executive. In this manner, the Department determines how best to meet its mission requirements.

The ESAAB reviewed the progress of the project and approved these Key Decisions:

- Key Decision #1, Approval of New Start was granted in October 1979, allowing the advanced development (Title I design) to commence;
- Key Decision #2, Approval to Commence Title II or Detailed Design was granted in September 1981, allowing final design to commence; and
- Key Decision #3, Approval to Commence Construction was granted in July 1983, allowing the start of the construction phase.

Finally, the WIPP project made a presentation to the ESAAB on February 21, 1991, for Key Decision #4, approval to start cold operations and concurrence regarding completion of construction of the WIPP facility and authority to close the project phase. In the Acquisition

Executive's memorandum of March 29, 1991, the DOE Office of Environmental Restoration and Waste Management (EM) was authorized to:

- Close out the construction phase; and,
- Continue site activities and close out all Test Phase prerequisites as managed by the Secretary's Draft Decision Plan.

### 3.2.2 CONSTRUCTION COMPLETION

DOE Order 4700.1 requires the preparation and disposition of a construction completion report to document the project history and ensure the availability of necessary information in the Department's Real Property Inventory System. The WIPP Construction Completion Report, dated January 1990, documents the completion of construction of the WIPP (Reference 13).

### 3.2.3 FINAL SAFETY ANALYSIS REPORT

The WIPP Final Safety Analysis Report (FSAR), dated May 1990, represents a statement and commitment by the DOE that the WIPP facility can be operated safely and at minimal risk, if operated in accordance with the FSAR (Reference 14). The FSAR was prepared to document that a systematic analysis of the potential hazards associated with operating WIPP has been performed; that potential consequences have been analyzed; and that reasonable measures have been taken to eliminate, control, or mitigate the hazards. The draft FSAR was issued for initial review in February, 1989. A comprehensive review and analysis of the document was conducted by DOE's Albuquerque Operations Office (AL), the Assistant Secretary for Environment, Safety, and Health (EH) and EM. A Safety Evaluation Report (SER) on the FSAR was issued by EH on July 27, 1989, which identified 23 findings. Supplements to the SER, Supplement 1 and Supplement 2, dated January 16, 1990, and March 8, 1991, respectively, provide the documentation and review process utilized to close these findings. External independent comments were also received from NMEID, the EEG, and the ACNFS. All relevant issues raised by the various reviewers were resolved and the FSAR was approved by EM-1 on June 12, 1990.

### 3.2.4 POTASH LEASE SETTLEMENT

To protect the 16 sections of land within the WIPP site from human intrusion, it was necessary for the DOE to acquire all surface and subsurface interests within the land withdrawal boundary. On June 29, 1990, the DOE purchased from IMC Fertilizer, Inc., a 1600 acre potash leasehold which encumbered 2 1/2 sections of land within the boundaries of the WIPP. With the purchase of this leasehold, the Federal government now holds title to all surface and subsurface interests

within the WIPP land withdrawal boundary, except for two outstanding gas well leases. A NEPA analysis has been conducted regarding one of the leases where a deviated gas well was drilled in 1982. The analysis examined whether a gas well could impact repository performance. This analysis indicated no impact on repository performance. The EPA also conducted an analysis and reached the same conclusion.

### 3.2.5 EH READINESS REVIEW INSPECTIONS

The Office of the Deputy Assistant Secretary for Safety, Health and Quality Assurance (EH-30) conducted a Readiness Review Inspection (RRI) of the WIPP during the interval of May 8-15, 1989. The purpose of the EH review was to provide an independent DOE assessment of the facility's readiness to be operated in a safe manner. The principal responsibility for assuring the readiness and safety of the WIPP facility rested at that time with the DOE Office of Defense Programs (DP) and AL. Consequently, the EH review was an independent assessment effort.

The review included an evaluation of the technical adequacy of selected structures, selected mechanical and electrical equipment, operations training, radiological protection, emergency preparedness, quality assurance program, fire protection, industrial safety, maintenance, management controls, and waste management.

The EH RRI review relied upon pre-determined acceptance criteria to judge the adequacy of the results for each specific area examined. The acceptance criteria were excerpted from existing engineering documents and reports. These include: FSAR, Design Validation Final Report, DOE Orders, and the Technical Safety Appraisal Reference Manual Volume 1.

In addition to the facility, staffing, training and procedures reviews, two emergency drills were observed by the EH team.

The RRI report documenting the EH review was issued on June 2, 1989 (Reference 15). The EH RRI identified 190 findings. Of these, 73 were found to be of sufficient safety significance that they required resolution prior to facility startup. The remaining 117 findings were considered to be of lesser safety concern (or non-critical), and EH determined that they could be resolved after startup without significantly affecting WIPP safety.

Between July and October 1989, the WIPP Project, EH and DP (later EM), worked toward the resolution of the 73 prestart findings. During November 6-8, 1989, EH made a followup visit to the WIPP site. The status of open findings was further investigated through interviews with project personnel, inspection of equipment, examination of documents, and the observation of drills. As a result of this meeting, 53 prestart findings were closed; however, four new findings were identified, resulting in a total of 24 remaining prestart findings for a new total of 77 prestart items. Supplement 1 to the RRI was issued on January 24, 1990, to document this progress (Reference 16).

Supplement 2 to the RRI report issued on March 11, 1991 addressed the 24 critical prestart findings remaining open at the end of January 1990. Between February 1990 and January 1991, the WIPP Project, EH, and EM worked toward the resolution of the remaining pre-start findings. Followup visits to the WIPP site were made during August 14-16, 1990, and January 22-24, 1991. As a result of this interaction, 22 findings were resolved and two findings were downgraded to non-critical. All RRI findings which required resolution prior to facility startup were closed out on March 11, 1991 (Reference 17).

Closure of the prestart findings was based on a combination of review of substantiating documentation and field verification. The basis for closing each of the findings was included in the report. For each finding, the report gave: 1) a statement of the acceptance criteria; 2) the original finding; and 3) a summary of the evaluation process.

The findings which were downgraded to non-critical are being tracked along with the post-startup findings, bringing the total number of post-startup findings to 119. Closure of these post-startup items is proceeding according to schedule.

### 3.2.6 CRITICAL AS-BUILTS

A finding by the June 1989 EH RRI was a deficiency in the as-built electrical drawings transferred from the construction manager to the management and operating contractor (MOC). Subsequently the as-built drawing program was expanded to include those drawings necessary to support "critical" systems, defined as those necessary to protect the safety of plant workers and the public, ensure compliance with the limiting conditions for operations (LCO) contained within the FSAR, and those necessary to operate the WIPP facility within normal operating parameters.

On September 14, 1990, revision and verification of the critical systems' as-built drawings was completed by the MOC. This process included field walkdown of each of the systems by an independent committee within the MOC organization. EH-30 verified completion of this as-built program in January 1991 and closed their RRI findings. Completion of the non-critical drawings as-built program is underway. The scope of this program includes structural drawings, composite equipment location drawings, and dimensional drawings along with control wiring diagrams for general support equipment.

### 3.2.7 WASTE HOIST REPAIR

On July 18, 1989, during a scheduled annual preventive maintenance inspection of the Waste Handling Hoist system, damage to a wheel shaft bearing was discovered. The damage did not constitute a safety hazard,

but a functional disability. An Investigation Board was appointed to examine the incident and an evaluation was conducted in accordance with the requirements of DOE Order 5484.1 regarding "Type B" investigations. Detailed examinations and a failure analysis were performed (Reference 18). As a result of these evaluations, bearing replacement was performed, modification to the hoist brake system was completed, and the hoist was certified for operation by the Nordberg, General Electric, Westinghouse and Triflex companies. The waste hoist was restored to a fully operational status in April, 1990.

### 3.2.8 BASE FACILITY INTERNAL OPERATIONAL READINESS REVIEW

An operational readiness review (ORR) of the WIPP base facility and transportation system was conducted by the Westinghouse Waste Isolation Division (WID), the WIPP site MOC, as part of project completion activities. This portion of the internal ORR necessary for project closeout, covering only the base facility, was the first of two phases, with the second phase covering the Dry Bin-Scale Test Program. The base facility is defined as the WIPP facility corresponding to operations within the scope of the FSAR.

The results of the base facility and transportation system internal ORR are documented in a Westinghouse report, dated April 1, 1991 (Reference 19). A total of 75 pre-start actions were identified and subsequently resolved.

The review was completed on March 1, 1991. The Readiness Review Board concluded that for the base facility, "... all prereadiness items were successfully completed and verified to support the declaration of a state of readiness." The transportation carrier was declared ready, although two remaining issues prevented declaration of transportation system readiness, closure of a DOE-AL TRUPACT-II audit and designation of New Mexico Transportation routes. These issues were subsequently closed as described in Section 3.5.

The WID General Manager, A. Trego, submitted a readiness recommendation to the DOE Project Manager, A. Hunt, in a memorandum dated March 1, 1991. In a March 21, 1991, memorandum, the DOE Project Manager responded to the WID General manager that "... as a result of the overview by my staff of the WID ORR process, we agree that in principle the base facility is ready to receive TRU wastes. We also concur in the statement of transportation system readiness with the noted exceptions."

### 3.2.9 CLOSEOUT OF ACNFS COMMITMENTS FOR WASTE RECEIPT

At the request of the Secretary of Energy, the ACNFS conducted a number of reviews of the WIPP, beginning in 1989. The recommendations focused primarily on two areas: Long-term Environmental Performance and Safety Issues related to the conduct of operations. In response to the committee's reviews, the DOE made 29 specific commitments to the

committee that are being formally tracked to closure. On August 19, 1991, the DOE informed the committee that all the prerequisites to waste receipt (pre-start commitments) were closed. There are six remaining post-start commitments, which are expected to be closed out by the end of November 1991.

### 3.3 TEST PHASE ACTIVITIES

#### 3.3.1 FSAR ADDENDUM

The Addendum to the WIPP FSAR, dated August 1991, (Reference 20), modifies the May 1990 FSAR by addressing the dry bin portions of the WIPP bin-scale waste tests to be conducted at the WIPP facility as described in the Sandia National Laboratory (SNL) document dated January 1990 (Reference 21), and its Addendum No. 1, dated December 1990 (Reference 22).

The Addendum parallels the WIPP FSAR in format and structure. On-site and off-site hazards have been evaluated for those test activities that are not fully documented and assessed in the WIPP FSAR. These activities include the following:

- Receipt and modification of Dry Bin-Scale Test containers
- Emplacement of Dry Bin-Scale Test containers (including monitoring equipment installation)
- Test plan operation (including routine monitoring, sampling and maintenance)
- Post-test retrieval of Dry Bin-Scale Test containers (including preparation for possible off-site shipment)

The analyses in the Addendum are based on an upper receipt limit of 113 dry test bins of CH TRU waste. The waste to be used in these tests originated from the Idaho National Engineering Laboratory (INEL) and the Rocky Flats Plant (RFP). Shipment of the test bins to the WIPP facility will be in Standard Waste Boxes (SWB) inside of the NRC certified TRUPACT-II shipping containers. Upon arrival at the WIPP facility, additional preparation activities for the test bins will be performed within the Waste Handling Building and in conjunction with underground emplacement. These activities included modification of the SWB to create a radiological control boundary (RCB), connection of test bin instrumentation, and modification of the test bin internal environment, e.g., purging, oxygen gettering, etc. At completion of the Dry Bin-Scale Tests, test bin instrumentation will be removed and the test bins retrieved and prepared for appropriate disposition.

The FSAR Addendum has received extensive internal and external reviews. Within DOE, in addition to the reviews performed by EM, reviews have

been performed by the Albuquerque Office of Environment, Safety and Health; EH, which prepared Supplement 3 to the Safety Evaluation Report on the FSAR Addendum dated August 24, 1991, listed no pre-startup and 16 post-startup issues; and the Office of Nuclear Safety (NS). All comments provided by these internal reviews were resolved and incorporated into the FSAR Addendum.

External to the DOE, the document has been reviewed by the New Mexico Environment Department (NMED), the EEG and the ACNFS. Also, an information copy of the draft FSAR Addendum was provided to the DNFSB. All relevant comments dealing with safety aspects of these tests provided by the external groups have been resolved and incorporated. The FSAR Addendum was approved by EM-1 on August 30, 1991.

### 3.3.2 PERFORMANCE ASSESSMENT TEST PLAN

On April 20, 1990, the DOE issued the WIPP Test Phase Plan: Performance Assessment, Revision 0 (Reference 23). The Plan describes and identifies the key activities for the Test Phase Test Program.

The two primary objectives of the Test Phase are to demonstrate:

- 1) Reasonable assurance of compliance of the WIPP disposal system with the long-term disposal standards of the EPA Standard, 40 CFR 191, Subpart B. Compliance with the disposal standard will be determined based on a probabilistic performance assessment, incorporating both data and interpretations developed during the Test Phase.

- 2) The ability of the DOE TRU waste management system (the generating/storage sites, the transportation system, and WIPP) to safely and effectively certify, package, transport, and emplace waste underground at WIPP in accordance with all applicable regulatory requirements.

Two extensive review cycles were conducted by outside review groups of the draft Test Plan in April, 1989 and December 1989. These groups included the National Academy of Sciences-WIPP Panel, EPA, the State of New Mexico, and the EEG. Responses to comments made by these groups were developed and discussed with the group, and the document was modified accordingly to address these comments.

The Test Phase Plan identifies work elements in the four major areas of scientific investigation integral to the assessment of disposal system performance. These areas include the behavior of the disposal room and drift system, the sealing system, structural and fluid-flow behavior of the Salado Formation, and non-Salado hydrology and radionuclide migration. The Plan also identifies the key activities of the seven major components in the performance assessment methodology: 1) data collection, model development, and engineered alternatives, 2) scenario development and screening, 3) preliminary consequence analysis,

4) sensitivity and uncertainty analysis, 5) final consequence analysis and comparison with the EPA Standard, 40 CFR 191, 6) analysis of undisturbed performance, and 7) documentation. The combination of the above activities describes the elements of the Test Phase. Detailed test plans for each of the programmatic areas of the test program have been developed by SNL. The WIPP Bin-Scale Test Plan was published in January 1990, with an Addendum published in December 1990. The Alcove Test Plan and the Test Plan for Laboratory and Modeling Studies of Repository and Radionuclide Chemistry were also published in January 1990. Consistent with DOE's phased approach for WIPP research and development activities, additional test plans will be issued as needed.

### 3.3.3 WASTE RETRIEVAL PLAN

The Waste Retrieval Plan (Reference 24) issued May 1990, was prepared by DOE to specifically address EPA's concerns regarding DOE's ability to remove the waste from the repository if DOE cannot demonstrate compliance with applicable regulations during the Test Phase. DOE's commitment to retrieve Test Phase waste has been clearly delineated in several documents, including the "Working Agreement for Consultation and Cooperation" with the State of New Mexico. The Plan was externally reviewed by EPA, EEG, and the Blue Ribbon Panel in early 1990 and comments factored into the final version. EH reviewed the Waste Retrieval Plan (WRP) for consistency with the FSAR Addendum SER.

The WRP outlines the retrieval process which will be implemented if a decision is made by the DOE to retrieve the waste emplaced during the Test Phase. The plan provides a detailed description of the surface and underground facilities which will be used in any retrieval activity. The scope of the retrieval plan addresses the activities involving contact handled waste which primarily deal with the operational aspects of retrieving the waste used for experimental purposes and preparing it for shipment. A general description of the decision making process to determine where the retrieved waste will be stored on an interim basis is addressed in the plan.

### 3.3.4 BLUE RIBBON PANEL

On August 11, 1989, the Secretary established a five-member Blue Ribbon Panel (BRP). Members were selected by the Governors of New Mexico, Colorado, and Idaho; and two by the Secretary. The BRP was to specifically address the performance assessment activities, the operations demonstration proposal, and the RFP waste certification process. Following a number of briefings, tours, and in-depth discussions, the BRP members submitted individual reports with numerous recommendations in October 1989. Several follow-on meetings between DOE and the BRP resulted in the BRP concurring with resolution of each individual recommendation in August 1990. The BRP has continued to assess and discuss with DOE certain WIPP initiatives, such as the WIPP WAC, Waste Characterization Program Plan, TRU waste integration, and

Test Phase Strategy document development. The BRP is now preparing final reports to the Secretary, consistent with a Fall 1991 closeout and their recent assessments.

### 3.3.5 DECISION ON OPERATIONS DEMONSTRATION

In 1989, a review of the proposed Operations Demonstration program was performed by the National Academy of Sciences (NAS), the EEG, the EPA, the BRP, and the ACNFS. The Operations Demonstration was planned to evaluate whether the WIPP facility and associated TRU waste management activities could be safely and effectively operated at full-scale shipping, handling and disposal rates. The review resulted in a variety of major comments being provided to the DOE. The comments primarily focused on the timing of the proposed program relative to a determination of compliance with the EPA disposal standards for TRU waste, and on the scope, i.e., quantities of waste and the rates at which it is received, relative to the operational experience to be gained from the performance assessment test program. Based on a re-evaluation of the proposed Operations Demonstration, the DOE decided in June 1990, as part of the ROD for the Final SEIS, that the decision on whether to proceed with an Operations Demonstration as part of the Test Phase should not be made until a high-level of confidence in complying with the EPA disposal standards has been achieved and a determination is made that additional operational experience with waste (beyond that to be gained by the Test Phase activities) is required. The ROD further stated that the following activities must be completed before DOE can make a decision on the need of the Operations Demonstration program, i.e., a determination of whether additional operational experience with waste is required:

- (1) An evaluation of the feasibility of the EPA recommendation of monitoring the performance of the facility by emplacing waste (approximately 1.5 percent of design capacity) in 2 full-scale, instrumented, backfilled, sealed rooms after a satisfactory demonstration of retrieval using simulated waste;
- (2) Establishment of systems objectives and criteria for evaluating disposal operations readiness; and.
- (3) A preliminary report is issued on operational experience gained from the handling and emplacement of TRU waste for the performance assessment tests and an assessment of this experience relative to the pre-established system objectives and criteria for WIPP disposal operations readiness.

These conditions will be met prior to proceeding with an operations demonstration, if one is determined to be needed.

### 3.3.6 STATUS REPORT ON DISPOSAL SYSTEM

Prior to initiating waste disposal, the WIPP must demonstrate compliance with 40 CFR Part 191, Subpart B, which sets environmental standards for radioactive waste disposal. The standard, "Environmental Radiation Protection Standards for Management and Disposal of Spent Nuclear Fuel, High-Level and Transuranic Radioactive Wastes," was vacated in 1987 by a Federal Court of Appeals and is undergoing revision. The WIPP Program is evaluating compliance with the Standard as promulgated in 1985 until a new regulation is available in accordance with an agreement with the State of New Mexico.

As recommended by external reviewers, the DOE issued in June 1990 the status of the facility's ability to achieve compliance with 40 CFR 191 Subpart B (Reference 25). The report reviewed the qualitative and quantitative requirements for compliance, and identified unknowns complicating performance assessment. It discussed the approaches to resolving those unknowns, and concluded that there was reasonable confidence that compliance was achievable with the Standard as first promulgated. This report was not a formal evaluation of compliance. Available data and models were not sufficient for a full-scale assessment and 40 CFR Part 191 has not been reissued following remand. Each year SNL conducts and documents an updated performance assessment based on the data that has been collected to date. The first performance assessment was completed in December 1990 (Reference 26).

### 3.3.7 PHASE II INTERNAL OPERATIONAL READINESS REVIEW

As an extension to the ORR of the WIPP base facility and transportation system, WID conducted Phase II of their Internal ORR on the Bin-Scale Test Program covering site activities of WID and SNL. The scope of this ORR corresponds to activities within the FSAR Addendum previously discussed.

The internal ORR was completed in August 1991 and the results of the Phase II System Internal ORR have been documented by WID. A total of 202 pre-start actions were identified and subsequently resolved.

### 3.3.8 INTEGRATED SYSTEMS CHECKOUT

The Integrated Systems Checkout (ISC) was a full-scale demonstration of all major systems, procedures, and tasks required to validate the readiness of the WIPP facility to begin the Dry Bin-Scale Tests. The ISC process built upon the completion of the base facility and project completion discussed in Section 3.2. The ISC process compared the actual, in-place facility, controls, and management systems at WIPP with the documentation, hardware, and activities for the Dry Bin-Scale Tests as outlined in the WIPP FSAR Addendum.

The ISC process included:

- Planning, beginning in October 1989, resulting in an Integrated Systems Checkout Plan (ISCP), dated August 1990 (Reference 27);
- Internal preparation (encompassing final equipment installation, procedure approval, and training) completed in June 1991;
- Internal ISC review and closeout (WID practice runs and corrective actions) completed on July 16, 1991; and
- ISC on July 17 through July 23, 1991.

In addition to the WPO and WID observers, approximately 25 individuals observed the ISC from the DNFSB, the EEG, the State of New Mexico, DOE-AL, and DOE-Headquarters (EM, EH, and NS).

The results of the ISC are documented in the Integrated Systems Checkout Report dated August 15, 1991 (Reference 28). The report concluded that successful performance of the ISC procedure, WP-05WH5101, WIPP Dry Bin-Scale CH TRU Waste Integrated System Checkout, demonstrated the ability of the WIPP to satisfactorily meet the acceptance criteria documented in the ISC procedure as listed below:

- 1) Adequate procedural controls were established.
- 2) Activities were safely and effectively performed in full compliance with approved procedures.
- 3) Personnel demonstrated their ability to manage and resolve unusual events.
- 4) Health Physics maintained personnel dosage within the FSAR As Low as Reasonably Achievable (ALARA) assumptions.
- 5) Transportation and hazardous material handling compliance documents were successfully tested.
- 6) All personnel were qualified to perform their specific tasks, and qualifications were documented.
- 7) Equipment and systems adequately met design performance requirements.
- 8) ISC activities were performed within the FSAR Operational Safety Requirement (OSR) through the use of approved site procedures.

A demonstration drill simulating an underground contamination release accident was an integral part of the ISC.

### 3.3.9 CERTIFICATION OF SITE READINESS

In August 1991, the WID/SNL Nuclear Review Board recommendation for readiness to accept bins for the dry bin test program was submitted to the WPO Safety Review Board. The WPO Safety Review Board recommendation for readiness was submitted to the Project Manager in August 1991. Readiness was certified by the DOE WIPP Project Manager in August 1991 and approved by DOE-AL in August 1991.

### 3.3.10 EM OPERATIONAL READINESS REVIEW

The DOE Office of Environmental Restoration and Waste Management operational readiness review (EM-ORR) was conducted as part of the DOE management responsibility to ensure safe and environmentally sound operation of the WIPP facility and in response to the DNFSB Recommendation 91-3, dated April 25, 1991, that a comprehensive, independent ORR of WIPP be conducted prior to initiation of the Dry Bin-Scale Test Phase.

The ORR Team was lead by EM senior management, with 3 Senior Advisors and 23 Technical Experts and Support Coordinators. The ORR Team activities were observed by DOE-AL, DOE-HQ (EM, EH, and NS), DNFSB, EEG, and the NMED.

The review objectives were described in the Implementation Plan for an ORR for the Dry Bin-Scale Test Phase of Operations, Waste Isolation Pilot Plant, dated June, 5, 1991 (Reference 29). Specific Criteria and Review Approaches (CRA) were developed by Team experts to meet objectives in the categories of management, personnel, hardware, and functional programs.

The review was conducted in three phases. The first phase of the review, which covered completion of the Team's CRA, the start of on-site reviews of the base facility, transportation system, and bin preparation activities in Idaho, was completed on June 7, 1991. The second phase, ending on June 28, 1991, included completion of the reviews begun in the first phase. The third phase of the review was conducted over the period July 17-23, 1991, and included a review of the ISC and an Emergency Response Drill conducted at the Team's request. Resolution of findings occurred throughout July and August 1991.

The EM-ORR Team Report, dated August 9, 1991, provides details of the process and findings from the review (Reference 30). The EM-ORR Team concluded that WIPP is ready to begin the Dry Bin Scale Test Phase of Operations subsequent to the resolution of the Pre-Start Findings provided that AL, WPO and WID certify WIPP readiness and that a review by the Team of the FSAR Addendum is completed to assure that there are no substantive changes beyond the draft utilized for the Team's evaluation. The ORR Team concluded that WIPP is in compliance with those portions of the DOE Orders which significantly impact the environment, safety, and health. Corrective actions were completed, and

all pre-start findings were closed. Closeout of the 38 pre-start findings identified by the ORR Team, as well as plans and status of the post-start findings, is documented in an Addendum to the EM-ORR report (Reference 31). This Addendum was revised (Reference 32) in September 1991. It provides an updated status and clarification of the EM-ORR findings, including closeout of the punch list items identified in the Addendum. DNFSB comments on the ORR findings have been addressed.

The EM-ORR findings and supporting concerns on Industrial Hygiene, Safety, and Fire Protection Programs were found to be adequately stated by the AL observer Team in a memorandum dated August 2, 1991.

A report was received from EH on August 21, 1991 concluding that "The EH oversight assessment has determined that the EM ORR of the WIPP plant and equipment, personnel, management, and functional areas and programs met DOE requirements and was adequate to assess the readiness of the facility for startup." Furthermore, in a report from NS, dated August 28, 1991, 18 pre-start items were identified that were subsequently closed out in September, 1991. Post-start items identified by the EM-ORR, EH, and NS will be closed out in an expeditious manner.

As recommended by the EM ORR, an end-to-end shipping and handling demonstration was conducted during August 1991. A waste bin containing simulated waste was loaded into a TRUPACT-II at the Radioactive Waste Management Complex (RWMC) at the INEL and shipped to the WIPP site. At the WIPP the TRUPACT-II was unloaded. This end-to-end demonstration simulated conditions as near as possible to an actual shipment.

### 3.4 BIN PREPARATION ACTIVITIES

The bin preparation program was developed to support the WIPP experimental test program (References 21, 22). Several DOE facilities were evaluated to assess capabilities for having waste sufficiently representative for the gas generation tests, as well as for conducting waste characterization activities to demonstrate compliance with various programmatic and regulatory requirements. The INEL and RFP were selected in June 1990 to provide the initial waste. Although RFP will play a significant role in the bin preparation program, the first several bins will be loaded at INEL.

Many steps have been taken in the bin preparation program to assure safety and compliance with all State and Federal regulatory requirements for operations. Some of the activities and accomplishments which were completed prior to bin loading include:

- INEL Stored Waste Examination Pilot Plant (SWEPP) ORR was completed.
- Safety Analysis for SWEPP was approved.

- NEPA analysis for SWEPP; on-site transportation; and Argonne National Laboratory-West (ANL-W) activities were completed and approved.
- INEL SWEPP retrieval operations were completed.
- INEL SWEPP waste examination was completed.
- Waste was shipped to ANL-W.
- Idaho Air Quality Board approval was received.
- RCRA Part A permit application revision was approved for ANL-W.
- Safety Analysis Report for the ANL-W decontamination cell was completed and approved.
- Readiness Review/Dry Run at ANL-W was performed, corrective actions completed, and the Readiness Review report issued.

A number of DOE documents have been prepared in support of the bin preparation program. These documents have been submitted to the NMED and EPA for review and comment prior to final issuance:

- 1) Waste Characterization Program Plan for WIPP Experimental Waste, (Reference 33).

The Waste Characterization Program Plan (WCPP), identifies the general waste characterization activities required to characterize WIPP experimental-waste at the generator storage sites. The specific activities required for each waste type are based on the data needs for the WIPP bin-scale and alcove test programs as well as regulatory data requirements.

- 2) Quality Assurance Program Plan for WIPP Experimental-Waste Characterization Program, (Reference 34).

The Quality Assurance Program Plan (QAPP) is the parent document for all implementing quality assurance documents such as the site-specific Quality Assurance Project Plans (QAPjP). The QAPP identifies the quality of data necessary to meet the objectives associated with the WIPP Experimental-Waste Characterization Program. The QAPP specifically addresses: 1) the data quality requirements for each DOE generator/storage facility conducting waste characterization activities; 2) the data quality requirements for compliance with EPA's No-Migration Determination; and 3) the data quality requirements associated with WIPP's RCRA waste analysis requirements.

The QAPP was submitted to EPA-OSW for review and the EPA formally stated they had no comments. EPA Region VI, the EEG, and NMED also reviewed the QAPP and provided comments, which were addressed. The QAPP was approved to use as a working document and all implementing procedures

have been developed based on its requirements. These procedures were approved through standard protocols and available for use in March, 1991 as working drafts to guide the bin loading activities at the INEL. The QAPP was revised in July 1991 to include inner bag sampling procedures and other No Migration Determination requirements.

- 3) Idaho National Engineering Laboratory Quality Assurance Project Plan for Waste Isolation Pilot Plant Experimental Waste Test Program (Reference 35).

The QAPjPs are the implementing site-specific documents that address site operating procedures to attain the Quality Assurance (QA) requirements in the QAPP. The QAPjPs reference the site-specific operating procedures which will be implemented to conduct the required waste characterization activities. Each of the facilities at INEL participating in bin loading activities has prepared a QAPjP for approval by DOE. In addition, the NMED reviewed the QAPjP and stated that "this document should serve as a model for other facilities to follow."

- 4) Rationale for Revised WIPP Bin-Scale Gas-Generation Tests with Contact-Handled Transuranic Wastes at the Waste Isolation Pilot Plant (Reference 36).

This report outlines the rationale, justification, and statistical approach for conducting the bin-scale test program for WIPP. The report discusses the various gas-generating parameters to be assessed as part of the test program and details the waste types required at INEL and RFP to complete the experiments.

Test bin preparation, loading, and sampling are accomplished at the INEL and will be transported from the INEL to the WIPP facility. These activities involved the development of quality assurance documentation, standard operating procedures and training programs for waste examination prior to bin loading, sampling and analysis of the waste headspace gas samples, and transport of the wastes. All aspects of the INEL program, including facility preparation, hot cell modifications, and the implementation of an approved quality assurance transportation program have been subjected to readiness reviews by the DOE as well as external organizations. Each element of the INEL program has been approved and audited by the DOE Waste Acceptance Criteria Certification Committee (WACCC) for compliance to the Waste Acceptance Criteria (WAC) and relevant applicable regulatory requirements.

The WACCC was established to maintain the WIPP WAC. The WACCC charter and management plan are contained in the Waste Acceptance Criteria Certification Committee Management Program (Reference 37) and were developed in response to a BRP recommendation. The WAC are the criteria used to certify compliance of waste being shipped to the WIPP, and to assure that all TRU waste shipped between TRU waste generator/storage sites and to the WIPP meets all applicable criteria. Criteria include requirements for shipment and transportation of NRC

certified packages and all other applicable criteria for the receipt of the waste at WIPP.

#### 3.4.1 PERFORMANCE DEMONSTRATION PROGRAM PLAN/LABORATORY QUALIFICATION

A Performance Demonstration Program (PDP) was developed to ensure compliance with the quality assurance objectives for the analytical laboratories, identified in the Quality Assurance Program Plan for the WIPP Experimental Waste Characterization Program.

The WIPP Performance Demonstration Program Plan (PDPP) (Reference 38), issued February 28, 1991, is administered by the DOE WIPP Project Office to approve the laboratories participating in the waste characterization program for WIPP. The PDPP identifies the criteria that will be used for the evaluation of laboratory performance, the responsibilities of the Program Coordinator, and the responsibilities of the participating laboratories.

The initial phase of the PDP encompassed the analysis of gas samples for inorganic and organic components. Test gas samples were shipped to the following laboratories participating in the PDP for headspace gas analysis on March 7, 1991:

- EG&G Idaho, Inc.
- ANL-W
- ANL-E
- EG&G Rocky Flats, Inc.
- WID
- EPA Region 6
- EPA Motor Vehicle Emission Laboratory

Each laboratory was evaluated based upon the acceptance criteria of the PDPP. The resulting report recommended the following laboratories be qualified for the analysis of volatile organic compound (VOC) gases: EG&G Idaho, Inc. and ANL-E. The report also recommended that the ANL-W laboratory be qualified for the analysis of inorganic gases. Based upon the recommendation of the PDP Coordinator, these laboratories were qualified by the DOE WIPP Project Office on April 22, 1991 to perform VOC and gas analyses. The laboratories will be required to participate in the PDP every 6 months to assure that the quality assurance objectives are continually achieved.

### 3.4.2 BIN LOADING ACTIVITIES

During the bin preparation program several unique engineering obstacles have been encountered. Among the engineering accomplishments are the development of leak testing equipment and the bin manifold system.

The first bin contains five drums of Raschig rings waste which have been in storage at the INEL RWMC facility since the mid 1980's. The drums were shipped to the ANL-W Hot Fuel Examination Facility which is approximately 20 miles across the INEL complex. The actual bin loading was initiated on March 29, 1991 and completed on April 17, 1991. Representatives from the WACCC and SNL observed the entire loading and waste characterization process to assure the correct procedures were implemented. Portions of the loading were observed by representatives from EPA Region VI, the NMED, and the EEG. The WACCC conducted an extensive audit of the program in August 1991 at the INEL to compare the procedures and activities carried out in bin loading to those detailed in the final documentation. All prestart findings were closed out in August 1991. These audits assure that the data quality objectives in the QAPP have been attained and that all specified standard operating procedures were demonstrated.

### 3.5 TRANSPORTATION

#### 3.5.1 TRUPACT-II CERTIFICATE OF COMPLIANCE AND SAFETY ANALYSIS REPORT FOR PACKAGING

The TRUPACT-II is a container that will be used to ship CH TRU waste to the WIPP site. The TRUPACT-II complies with all applicable Federal regulations, including certification by the NRC for meeting the requirements for packaging and transportation of radioactive material. On March 3, 1989, the DOE submitted to the NRC the TRUPACT-II design application and the Safety Analysis Report for Packaging (SARP). Over the period from May to August 1989, in response to NRC requests for clarification and additional data, four revisions to the SARP were submitted.

The NRC conducted a thorough review of the SARP analysis and the DOE submitted the container to rigorous testing for both "normal" and "hypothetical accident" conditions to demonstrate that there would be no release of contents and that the container would remain leak-tight. The tests were designed to meet Federal requirements of 10 CFR 71 which covers the shipment of nuclear waste. The requirements included the ability to survive a series of 30-foot drop tests, puncture tests, thermal behavior tests and submersion under an equivalent of 50 feet of water.

On August 30, 1989, the NRC issued to the DOE Certificate of Compliance No. 9218, Revision 0, for the TRUPACT-II shipping container (Reference 39).

Since September 1989, the NRC has made three inspections of the manufacturer to verify that the requisite quality assurance program was established and that the fabricated packages were manufactured in accordance with the approved design. Additional audits were also performed by the DOE. In summary, as a result of the NRC inspections and DOE audits, the initially fabricated containers were not accepted by DOE, due to fabrication defects. New units were subsequently fabricated.

On April 29, 1991, the DOE requested an amendment to the Certificate of Compliance for the TRUPACT-II shipping package for the new units. The Amendment involved minor dimensional changes in the outer containment assembly, the outer containment vessel, modifications to the tie-down system and locking ring, and specified tolerances for foam thickness at the sides and top and bottom of the outer containment assembly.

The application showed by analyses and comparisons with test results that the worst case reduction in foam thickness in the outer containment assembly will not significantly affect the ability of the package to meet the structural and thermal requirements of 10 CFR Part 71.

The NRC concluded that the design modifications were minor, and also agreed that the package modifications requested by the DOE did not affect the ability of the package to meet the requirements of 10 CFR Part 71. Accordingly, in a letter to the DOE dated August 1, 1991, the NRC approved the application and gave DOE the authority to use the TRUPACT-II package for shipment of radioactive material and for the TRUPACT-II to be shipped in accordance with the provisions of 49 CFR 173.471 (Reference 40). With this approval, WIPP accepted the initial TRUPACT-II units for use in the Test Phase.

Three TRUPACT-IIs will be carried on a specially designed flat-bed trailer transported by a conventional tractor. All shipments will be monitored by a transportation tracking and two-way communications system (TRANSCOM) to ensure location, status, and to support emergency response, if needed. This computer tracking system has been provided to the WIPP corridor States and Indian Tribes for their use. The DOE and the States demonstrated the successful use of TRANSCOM during the end-to-end demonstration performed as part of the EM-ORR.

### 3.5.2 QUALITY ASSURANCE FOR TRANSPORTATION

DOE was responsible for establishing and implementing a QA Plan for the loading, transportation, and receipt of TRU waste using the TRUPACT-II system. The QA Plan outlines procedures to ensure the safe loading and packaging of radioactive/hazardous materials to WIPP. The WACCC approves the plan which in turn is reviewed by the State under the current Consultation and Cooperation (C&C) agreement concerning QA documentation. The WIPP QA Plan for TRUPACT-II is a WIPP document from which the Idaho Quality Program Plan (QPP-130) and the TRUPACT-II

Authorized Methods for Payload Control (TRAMPAC) documents were derived (Reference 41). The Idaho QPP-130 implements DOE Order 5700 and NQA-1 requirements for the RWMC at INEL. The RWMC facility is responsible for the waste certification and to ensure requirements for TRUPACT-II are met. The Idaho TRAMPAC document assures compliance with all payload control and transportation criteria pursuant to NRC requirements for the TRUPACT-II shipping container. The WACCC audited the WIPP QA Plan for TRUPACT-II and found the document to be in compliance with all State and Federal regulations.

### 3.5.3 COOPERATIVE AGREEMENT BETWEEN DOE AND WESTERN GOVERNORS' ASSOCIATION

Since 1989, the Western Governors' Association (WGA) has been working with DOE and Congress to assure that Western State concerns about TRU waste shipments to WIPP are adequately resolved. The WGA has expressed concerns about accident prevention, emergency preparedness, public involvement, and public information.

In June 1989, the WGA submitted a report to Congress detailing their concerns. In a July 1989 meeting with the Governors, Secretary Watkins endorsed the WGA report and committed to work with affected States to resolve the WGA issues.

In 1990, DOE entered into a cooperative agreement with the WGA (Reference 42). WGA, in turn, entered into agreements with the ten western States that will be affected by TRU waste shipment.

Funds are distributed among States cooperatively and as needed. States affected by imminent Test Phase shipments receive more funds for more intensive planning. The level of funding will be negotiated each year as well as the focus of activity.

### 3.5.4 NEW MEXICO DESIGNATION OF TRANSPORTATION ROUTES

DOT regulations stipulate that shipments of certain types of higher level radioactive materials must use the most direct Interstate Highway routes unless a State has designated alternate routes. Although very little of the material to be transported to WIPP meets these levels, DOE has committed that the routing requirements will be used for all WIPP shipments. New Mexico first designated its alternate routes under a Supplemental Stipulated Agreement signed by the DOE and the State of New Mexico in 1982.

In 1988, DOE, in coordination with State personnel, undertook to train emergency response personnel along the State-designated routes. In September 1989 the State Attorney General reexamined the issue of what constitutes appropriate State designation of alternative routes in light of a 1988 repromulgation of the pertinent DOT routing regulation. He determined that further action would be required under State law to

properly designate the alternative routes and recommended that the New Mexico Environmental Improvement Board (EIB) carry out the necessary actions.

After more than a year of analysis and public hearings, the New Mexico EIB identified alternate routes in October 1990, but failed to complete the formal designation process. The New Mexico State Highway and Transportation Department challenged the EIB routes on the basis that one segment of the route (S.R. 360) was unsafe. In addition, the State of New Mexico enacted legislation in April 1991 transferring authority for route designation from EIB to the State Highway Commission. The Commission subsequently held meetings and hearings on the route designation process and on August 14, 1991, designated five transportation routes -- the Northern, Southern, Eastern, Western and Los Alamos routes. These designated New Mexico routes are identified below:

Northern Route: South I-25, south U.S. 285, east U.S. 62/180, WIPP north access road.

Western Route: East I-40, south U.S. 285, east U.S. 62/180, WIPP north access road.

Eastern Route: West I-40, south U.S. 54, south U.S. 285, east U.S. 62/180. WIPP north access road.

LANL Route: Los Alamos truck route, north NM4, east NM 502, south U.S. 84/285, north I-25, south U.S. 285, east U.S. 62/180, WIPP north access road.

Southern Route: North U.S. 285, east U.S. 62/180, WIPP north access road.

The initial waste shipments for the Test Phase will use the Northern Route from INEL. The DOT reviewed and accepted this route in September, 1991.

### 3.5.5 EMERGENCY RESPONSE TRAINING

WIPP training programs have been provided to emergency response personnel along waste transportation routes from Idaho to WIPP. These training courses provide emergency units with the knowledge and skills to properly assess the impact of a potential transportation accident and to provide protection to the public and the environment. The WIPP States Training and Education Program (STEP) is intended to enhance existing emergency response programs to include TRU waste and radiological materials response capabilities.

Three training courses are offered by the DOE to safety personnel in the States through which waste shipments will be transported to the WIPP.

One course is designed for the State and local safety, health, environmental, and radiological professionals who will be evaluating and assessing the environmental and human impacts of a TRU transportation accident. A second course is intended for the individual(s) who will be in overall command or control at the scene of an incident. The third course emphasizes training for the first-arriving emergency units not working under a formal incident command system, and without Health Physics (HP) professionals to guide them. These units need a basic knowledge of WIPP, waste transportation shipments, radiological hazards, and the potential impacts of an incident so as to effectively perform initial emergency response tasks.

An important goal of these courses is to provide personnel with the skills and knowledge to train other emergency personnel in their communities after the DOE training programs have been completed.

As of August 31, 1991, approximately 5,200 emergency response personnel have been trained along the Idaho-to-New Mexico route, and a total of approximately 7,000 people have been trained nationwide.

Emergency response training has been completed in Idaho, Wyoming, Colorado, Utah, and New Mexico. Training in Texas (as a contingency) has also been completed.

Additional training will be available to all States along the transportation routes, upon States' requests.

Many States along the WIPP shipping corridor have requested an exercise program to test DOE and local response capabilities in the event of a TRU waste transportation accident. Colorado agreed to be the lead State on emergency preparedness matters. In November 1990, the DOE and the State of Colorado jointly conducted an emergency response exercise (TRANSAX-'90) to demonstrate DOE's commitment to this undertaking. The success of this exercise and the cooperative agreement with the WGA have established the framework and experience for conducting additional exercises in the future. DOE has developed a transportation emergency exercise program, designed to improve State readiness and to provide the public with increased familiarity and information about the TRUPACT-II transporter.

As a result of these training courses and safety programs developed with resources provided by the DOE to the impacted states, the five western states through which the first waste shipments will travel now have the resources to inspect and track shipments and respond to an emergency.

### 3.6 LAND WITHDRAWAL

The withdrawal of public lands is one of the prerequisites for initiating the WIPP Test Phase. A legislative land withdrawal, which allows emplacement of Test Phase waste, is DOE's preferred approach, and DOE is continuing to work with Congress in its efforts to enact a

legislative land withdrawal. However, because a legislative land withdrawal has not been enacted as of this time, DOE may choose to proceed under an administrative land withdrawal issued by the Secretary of the Interior.

Public lands were withdrawn by the Department of the Interior (DOI) for the WIPP site in July 1983 via Public Land Order (PLO) 6403. PLO 6403 prohibited any waste at WIPP and was originally due to expire on June 29, 1991. Since 1987, DOE has been working closely with the key oversight committees in Congress to develop a legislative land withdrawal package that would allow waste to be emplaced at WIPP for test purposes and would extend the withdrawal period. A number of draft land withdrawal bills have been proposed each year by DOE and/or the Congress. Congressional committees involved since 1987 have included: the House Committee on Interior and Insular Affairs, the House Committee on Energy and Commerce, the House Committee on Government Operations, the House Committee on Armed Services, the Senate Committee on Energy and Natural Resources, and the Senate Committee on Armed Services. However, Congress has not yet passed legislation on land withdrawal for WIPP.

In January 1991, PLO 6826 was issued by DOI to modify PLO 6403. PLO 6826, which expires in June 1997, allows for Test Phase waste to be received and emplaced at WIPP once DOE certifies that WIPP has met all environmental requirements. However, to accommodate a March 6, 1991, House Committee on Interior and Insular Affairs resolution, DOI issued a proposed modification to PLO 6826 on April 1, 1991 that would impose the waste emplacement prohibition for 90 days. DOI has taken no additional action on the PLO as of September 30, 1991. As required by PLO 6826, if DOE wants to pursue administrative land withdrawal, DOE must certify to DOI that it has met all environmental permitting requirements for WIPP. DOE has met these requirements, but has not certified this to DOI as of September 30, 1991. Following this certification, DOI would complete its administrative land withdrawal review process for WIPP and publish a Notice to Proceed in the Federal Register.

DOE will continue to work with Congress to enact land withdrawal legislation in a timely manner.

## 4. READINESS SUMMARY

### 4.1 PREREQUISITE STATUS

All actions identified as prerequisites to WIPP startup have been shown in the various revisions of the WIPP Draft Decision Plan. Section 3 summarized the steps taken by the Department to address these actions. All the identified prerequisite activities have now been completed, except for land withdrawal.

### 4.2 CONCLUSIONS

The DOE has consistently maintained that WIPP will not begin receiving radioactive waste for the Test Phase until it can be shown that it is safe.

Safety at the WIPP remains the Department's highest priority. The FSAR Addendum, which covers initial Test Phase activities, has been issued following extensive review by both internal and external reviewers. All issues related to the safety of the initial portion of the test program have been resolved. The DOE, the ACNFS, and the DNFSB believe that the dry bin tests can be conducted with no significant risks to the workers, the public, and the environment beyond those estimated in the FSAR.

The WIPP has been the focal point of numerous external appraisals conducted since October 1988 to evaluate the site's ability to safely and effectively accomplish the mission of emplacement of defense TRU wastes. These external appraisals, or ORR's, were conducted by a varied group of expert oversight organizations.

The following appraisals have been completed to date. A listing of the number of findings and status for each ORR is shown in Figure 4-1.

- Westinghouse (WID) Pre-Operational Appraisal - Phase I 10/10-14/88
- DOE-AL Pre-Operational Appraisal - Phase I 10/17-28/88
- Westinghouse (WID) Pre-Operational Appraisal - Phase II 2/5-10/89
- Westinghouse Environmental Affairs (EA) Audit 2/14-17/89
- DOE-WPO Operational Readiness Appraisal 2/28-3/2/89
- DOE-AL Pre-Operational Appraisal - Phase II 3/13-24/89
- Environmental Evaluation Group (EEG) Review - 3/13-24/89
- WID Nuclear Safety and Environmental Oversight Committee Appraisal (Witzig Committee) 4/4-6/89
- DOE-EH Readiness Review Inspection 5/8-15/89
- Advisory Committee on Nuclear Facility Safety (ACNFS) Appraisal (Ahearne Committee) 6/29-30/89
- DOE-AL Safety Appraisal 2/12-13/90
- WID Nuclear Safety and Environmental Oversight Committee Appraisal (Witzig Committee) 4/2-5/90
- DOE-AL Environment Safety and Health Management Appraisal 12/2-7/90

*Figure 4-1*  
*Operational Readiness Reviews*

<i>Review</i>	<i>Date</i>	<i>Total Findings</i>	<i>Prestart Findings</i>	<i>Prestart Findings Remaining</i>
1. WID	10/10-14/88	41	0	0
2. DOE-AL	10/17-28/88	129	8	0
3. WID	2/5-10/89	147	0	0
4. EA	2/14-17/89	46	0	0
5. DOE-WPO	2/28-3/2/89	122	55	0
6. DOE-AL	3/13-24/89	193	69	0
7. EEG	3/13-24/89	11	0	0
8. WID	4/4-6/89	9	0	0
9. DOE-EH	5/8-15/89	194	77	0
10. ACNFS	6/29-30/89	29	8	0
11. DOE-AL	2/12-13/90	9	0	0
12. WID	4/2-5/90	13	0	0
13. DOE-AL	12/2-7/90	22	0	0
14. WID-I	10/90-3/91	611	75	0
15. WID-II	3/91-8/91	288	202	0
16. DOE-WPO	3/91	3	0	0
17. DOE-EH	5/91-9/91	0	0	0
18. DOE-NS	5/91-9/91	45	18	0
19. DOE-EM	5/91-9/91	97	38	0
<b>TOTAL</b>		<b>2,009</b>	<b>550</b>	<b>0</b>

Abbreviations: Westinghouse Waste Isolation Division (WID); DOE Albuquerque Operations Office (DOE-AL); Westinghouse Environmental Affairs Group (EA); DOE WIPP Project Office (DOE-WPO); Environmental Evaluation Group (EEG); DOE Office of Environment, Safety and Health (DOE-EH); Advisory Committee on Nuclear Facility Safety (ACNFS); DOE Office of Nuclear Safety (DOE-NS); and DOE Office of Environmental Restoration and Waste Management (DOE-EM)

- Westinghouse (WID) Base Facility Internal Operational Readiness Review, Phase I, 10/90 - 3/91
- Westinghouse (WID) Phase II Internal Operational Readiness Review, 3/91 - 8/91
- DOE WPO 3/91
- DOE-EH Oversight Assessment 9/91
- DOE Office of Nuclear Safety (NS) Readiness Assessment 9/91
- DOE-EM Operational Readiness Review 9/91

A total of 2009 findings were registered in these appraisals. All 550 prestart findings identified were resolved and any associated corrective actions were completed. The numerous findings and subsequent resolutions of the ORR appraisals demonstrate the scope and detail of the WIPP assessment process currently in place, and demonstrate that a process is well established for identification and resolution of issues relating to the safe and environmentally benign operation of the facility.

Several other groups and individuals have expressed concerns regarding portions or all of the DOE strategy to start WIPP Test Phase activities, including the State of New Mexico, the EEG, the Natural Resources Defense Council, Concerned Citizens for Nuclear Safety, Southwest Research and Information Center, and various Members of Congress. These concerns related to test programs, regulatory issues, operational readiness, transportation, and institutional issues. However, there are no remaining unresolved issues that DOE believes need to be addressed prior to the start of the dry bin test program.

In summary, WIPP and the supporting sites and systems are ready (except for land withdrawal) to begin the dry bin portion of the Test Phase with TRU waste to determine WIPP's suitability as a disposal facility for defense TRU waste. Prior to initiating subsequent portions of the Test Phase, DOE will perform similar readiness evaluations to assure worker and public health, safety, and environmental protection.

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