Department of Energy
Field Office, Albuquerque
P.O. Box 5400
Albuquerque, New Mexico 87115

APR 1 2 1993

Dear Colleague:

I am pleased to provide the Strategic Plan for the Waste Isolation Pilot Plant (WIPP). This is an update of the October 1991 strategy for the WIPP Test Phase, DOE/EM/48063-2. The WIPP Strategic Plan addresses primarily the Test Phase and the Disposal Decision process. The purpose of this document is to provide the WIPP Program participants, decisionmakers, and interested parties with a high-level overview of the objectives, issues, and strategies that impact a decision on the suitability of WIPP as a permanent, safe disposal facility for transuranic (TRU) waste that has resulted from defense activities and related programs. In addition, it describes the planning that the DOE will conduct to ensure that WIPP will comply with applicable, relevant, and appropriate requirements of the Environmental Protection Agency and other regulations.

This plan addresses the high-level strategy, its related objectives, and the most significant issues associated with the transuranic waste management program. The Strategic Plan was formulated based on a number of assumptions the Department believes are valid in today's regulatory, technical, and institutional climate. As assumptions change, the plan will be reexamined to determine whether it will continue to meet the goals of the program.

We wish to make the Strategic Plan of maximum benefit to both the WIPP program and program stakeholders and we value your participation. Please provide any suggestions and recommendations for this document to Jeanette Norte of the WIPP Project Integration Office, One Park Square, Suite 903, 6501 Americas Parkway N.E., Albuquerque, New Mexico 87110.

We are considering regular forums to discuss DOE's initiatives on the WIPP. If you would be interested in participating in these forums, please contact Tracy Loughead of my staff at (505) 845-5977.

W. John Arthur, III
Project Director
WIPP Project Integration Office

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WASTE ISOLATION PILOT PLANT

STRATEGIC PLAN

U.S. DEPARTMENT OF ENERGY

March 1993

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WIPP STRATEGIC PLAN

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The Purpose and Scope of the WIPP Strategic Plan

The purpose of the Waste Isolation Pilot Plant (WIPP) Strategic Plan is to provide decision makers, project participants, and the public with a high-level overview of the objectives, issues, and strategies that impact a decision on the suitability of WIPP as a permanent, safe disposal facility for transuranic (TRU) waste that has resulted from defense activities.

This document is a component of an integrated planning process and is a key management tool that is coordinated and consistent with the Secretary's Disposal Decision Plan and the Environmental Restoration and Waste Management (EM) Five-Year Plan. This document supports other U.S. Department of Energy (DOE) planning efforts, including the TRU Waste Program.

Figure 1 graphically presents the overall hierarchy of WIPP strategic planning and the interrelationship of WIPP planning with the TRU Waste Program and other EM programs and related activities.

The WIPP Strategic Plan addresses the WIPP Program Test Phase, Disposal Decision, Disposal Phase, and Decommissioning Phase (decontamination and decommissioning). It describes the actions and activities that the DOE will conduct to ensure that WIPP will comply with applicable, relevant, and appropriate requirements of the U.S. Environmental Protection Agency (EPA), State of New Mexico, and other applicable federal and state regulations. It also includes the key assumptions under which the strategy was developed.

A comprehensive discussion of the multitude of activities involved in the WIPP Program cannot be adequately presented in this document. The specific details of these activities are presented in other, more detailed WIPP planning documents. For example, the issues associated with applicable federal and state environmental regulations are addressed in documents such as the Final Safety Analysis Report (FSAR) (DOE, 1990a), the No-Migration Variance Petition, the Test Phase Plan, the Resource Conservation and Recovery Act (RCRA) Part B permit, and the Final Supplemental Environmental Impact Statement (FSEIS) for the Waste Isolation Pilot Plant (DOE, 1990b). Environmental, safety, and health activities and quality assurance issues are directed by various DOE orders. Only the high-level strategy, its related objectives, and the most significant issues are addressed herein.

The Purpose of WIPP

In 1980, with the passage of Public Law 96-164: The U.S. Department of Energy National Security and Military Application, the WIPP facility was authorized and funded by Congress "for the express purpose of providing a research and development facility to demonstrate the safe disposal of radioactive wastes resulting from the defense activities and programs of the United States exempted from regulation

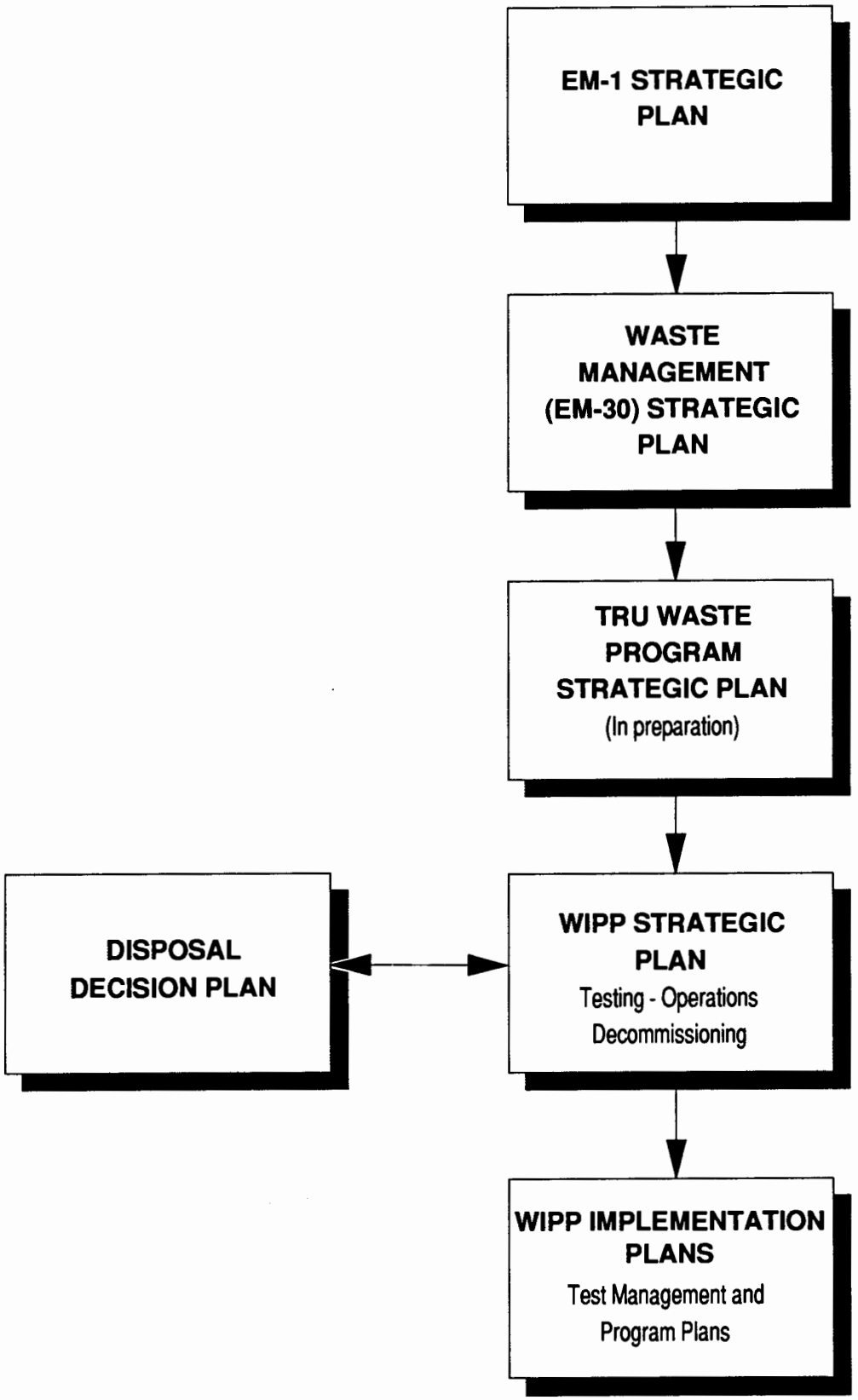

Figure 1. WIPP Strategic Planning

by the U.S. Nuclear Regulatory Commission." The WIPP facility has been developed in southeastern New Mexico to serve as the nation's first geologic repository for defense TRU waste. It is an underground facility excavated more than 2,150 feet below the earth's surface in a natural salt formation.

The WIPP site was chosen through a selection process that started in the 1950s, when the National Academy of Sciences (NAS) conducted a nationwide search for geological formations stable enough to contain wastes for thousands of years without releasing them into the environment. In 1955, after extensive study, salt deposits were recommended as a promising medium for the storage of radioactive wastes. Since that time bedded salt has been one of the leading rock candidates for the permanent storage of radioactive wastes.

In 1962, the U.S. Geological Survey (USGS) reported that the Permian Basin with its extensive salt beds was one of the most likely locations for a radioactive waste repository. Based upon that USGS report and salt bed experiments conducted by Oak Ridge National Laboratory, the Permian Basin near Carlsbad, New Mexico, was selected as the location best meeting site selection guidelines.

The WIPP is the only facility in the United States that has been specifically designed and constructed for the disposal of TRU waste. For more than 13 years, the DOE has viewed and continues to view the development of the WIPP facility as a principal component in its approach to managing TRU waste.

To preclude premature decisions and to ensure that adequate information exists to support the commitment of resources to develop a facility that must remain safe, both in the near term and over the thousands of years needed for waste isolation, the DOE decided to develop the WIPP Program in several phases: Siting Phase, Validation Phase, Construction Phase, and Test Phase. The Test Phase will be accompanied by a Retrieval Plan and followed by a decision process. If the WIPP site is found to be suitable, a Disposal Phase and Decommissioning Phase will be developed.

During the Siting Phase, several sites were evaluated, and a preferred site was selected. Extensive surface-based testing was subsequently conducted to evaluate the suitability of the preferred site. The WIPP facility was designed and analysis was begun to determine the safety of the WIPP facility. The Siting Phase was concluded and documented by the 1980 publication of the WIPP Final Environmental Impact Statement (FEIS) and a decision to proceed with site and preliminary design validation.

The Validation Phase followed the Siting Phase. During this phase various experiments were conducted, two shafts were constructed, and an underground testing area was excavated at the WIPP site. Activities conducted during the Validation Phase included the extensive collection of data and continued geologic, hydrologic, and geotechnical investigations. Methods for assessing the long-term safety performances of the WIPP were also advanced.

A Construction Phase followed the Validation Phase and included construction of surface facilities

necessary to receive TRU waste and excavation of underground rooms to be used for further experimentation. In 1989, the major physical construction of the WIPP facility was completed. This Phase ended with the publication of a FSAR (DOE, 1990a) and a FSEIS (DOE, 1990b), which used the data collected since 1980 to examine the potential near- and long-term impacts of the WIPP.

On November 14, 1990, the EPA granted DOE a 10-year No-Migration Determination to conduct a test program. The Test Phase is ongoing currently. During the Test Phase, engineers and scientists are gathering technical data to determine if WIPP can comply with long-term waste disposal standards and applicable EPA, State of New Mexico, and other laws and regulations. Additionally, test activities will determine what waste may require additional treatment, and the types of treatment needed, to result in an acceptable waste form for regulatory compliance. This strategy complies with dual regulatory requirements that are applicable to TRU-mixed wastes, as well as legal, technical, environmental, and logistical requirements that must be satisfied before shipping waste to WIPP.

The WIPP Mission

The WIPP facility serves as a research and development facility to demonstrate the safe disposal of radioactive wastes resulting from the defense activities and programs of the United States exempted from regulations by the Nuclear Regulatory Commission (NRC). The WIPP facility will become a critical component of the larger DOE vision to clean up the DOE Weapons Complex by the year 2019.

The WIPP Program Vision

The WIPP Program provides a technically, scientifically, and institutionally sound disposal decision recommendation to the Secretary of Energy. The recommendation is based on a thorough evaluation of repository and system performance (including operational excellence, transportation, packaging, characterization, and certification), informed public participation, and institutional and regulatory acceptance. The program reaches this recommendation in a timely, cost-effective, and environmentally sound and safe manner with pro-active public, institutional, and regulatory interactions. The WIPP Program coordinates with the TRU waste management system to assure readiness to implement the disposal decision, whether that decision is to proceed with disposal or not.

Current Situation Analysis

As a result of a dramatic change in superpower relations, the United States will be maintaining a smaller nuclear weapons arsenal in the future. In addition to a change in our nation's defense mission, there is the recognition that the decontamination and decommissioning and dismantling of old weapons will produce a significant amount of TRU waste.

Currently, no viable technologies are available for the segregation of radioactive and hazardous components of generated TRU waste. The only current option available for long-term management of TRU waste is safe packaging, transport, storage, and disposal. The WIPP facility is the only facility in the United States that is sited and constructed for the disposal of defense TRU waste.

In accordance with an agreement between the DOE and the State of New Mexico, the WIPP Program has been using the original EPA 40 Code of Federal Regulations (CFR) Part 191, "Environmental Radiation Protection Standards for Management and Disposal of Spent Nuclear Fuels, High-Level, and Transuranic Radioactive Wastes," standard for the management and disposal of spent nuclear fuel, high-level, and TRU-radioactive wastes for planning purposes until the final compliance standard is issued. The Test Phase Plan prepared, as required by the WIPP Land Withdrawal Act (PL 102-579, dated October 30, 1992) (Act), used the reinstated proposed rule issued by EPA on February 10, 1993. The Act requires the EPA to issue final disposal regulations no later than six months from the date of enactment (i.e., April 30, 1993). It is assumed that the repromulgated standard will not have a significant impact on the Test Phase Program.

To date, no waste has been shipped to WIPP. The delay in WIPP's initiation of testing with TRU waste is the result of litigation which needed to be resolved before shipment of TRU waste to the WIPP site could begin. Delays in reaching a disposal decision for the WIPP site have impacted TRU waste operations and planning at all DOE sites.

The DOE plan to continue the Test Phase pursuant to an administrative land withdrawal and RCRA interim status was challenged in litigation filed in the District Court for the District of Columbia by the Attorney General of the State of New Mexico and by intervenors, including the State of Texas, four environmental public interest groups, and three Congressmen. As a result, the District Court issued a permanent injunction prohibiting the DOE from commencing the Test Phase with regard to radioactive waste disposal. The DOE appealed the injunction to the Court of Appeals for the District of Columbia. The Court of Appeals reversed the District Court's decision that WIPP could not qualify for interim status under RCRA, but affirmed the District Court's granting of the permanent injunction on the basis that the Secretary of the Interior exceeded his authority in extending the administrative land withdrawal for radioactive waste tests.

In October 1992, Congress passed and the President signed the Waste Isolation Pilot Plant Land Withdrawal Act to legislatively withdraw the lands from public use. The Act authorized DOE to emplace a limited amount of TRU waste at WIPP to conduct critical experiments necessary to determine the facility's suitability as a permanent disposal facility, after certain prerequisites are accomplished. The Act further specifies requirements for starting and conducting the Disposal and Decommissioning Phases of the WIPP Program. Jurisdiction over the land was transferred from the Secretary of the Interior to the Secretary of Energy. The passage of this Act, in effect, negated the litigation concerns regarding the adequacy of the administrative withdrawal.

General Planning Assumptions

The Act has set the WIPP facility capacity at 6.2 million cubic feet of contact-handled waste. Recent international events, the growth of DOE's Environmental Restoration Program, and the expansion of the decontamination and decommissioning program will change assumptions about

the composition of newly generated waste. The Programmatic Environmental Impact Statement (PEIS) will also address the issue of pre-1970-generated TRU waste which is not currently slated for disposal at WIPP.

DOE and other federal agencies will comply with all Act requirements for the commencement of Test Phase activities. This includes EPA approval of the WIPP Test Phase Plan and the Retrieval Plan.

The Act prohibits emplacement of remote-handled (RH) TRU waste at WIPP during the Test Phase. Although a specific RH TRU waste test program effort will not be required to document compliance with 40 CFR Part 191 or RCRA, it is anticipated that RH TRU waste will be emplaced at the WIPP facility during the Disposal Phase. DOE will conduct a study to analyze the impacts of RH TRU waste on the WIPP performance assessment. The current contact-handled (CH) TRU waste test program will provide sufficient information to estimate pertinent RH TRU waste properties for performance assessment.

The DOE has high confidence in the assumption that WIPP will qualify as a disposal facility. Another Supplemental Environmental Impact Statement (SEIS) will be prepared to analyze the long-term performance of the WIPP in light of information generated during the Test Phase.

The DOE will update, as needed, the WIPP FSAR, which provides the WIPP reference design, and other documentation related to the operation of the WIPP or to waste transportation. The Secretary of Energy will use this documentation to certify the safety of WIPP Test Phase activities.

Technical evaluations of alternative waste forms have been initiated and will be continued if the Test Phase results indicate that an alternative waste form is required to meet compliance with the final disposal regulations as defined by the EPA. If necessary, DOE is committed to continue tests beyond the Disposal Decision for ongoing confirmation of site performance.

Stakeholders

The Public Years of classified operations, compounded by public apprehension concerning DOE's nuclear weapons mission, have resulted in concerns regarding DOE's commitment to human and environmental health and safety. The public, including interested parties (such as conservation groups and public interest groups), must be provided with information and understanding of the complexities and rigor of the compliance demonstrations. This understanding should lead to increased public confidence in the WIPP facility as a safe disposal facility.

Even with continuous public relations, training exercises, and education programs, there continues to be public concern about transporting nuclear waste through communities. Moreover, the public needs to be made aware of the June 1989 NAS conclusion that "... the system proposed for transportation of TRU waste to WIPP is safer than that employed for any other hazardous material in the United States today and will reduce risk to very low levels."

The public perception concerning the safety of waste transportation to, and operation of, WIPP can likely be improved through increased public participation in the decision making process and by further educating the

public on the environmental and safety advantages associated with deep geologic disposal of TRU waste.

Congress Due to the many requirements contained in the Act for special studies, program documents, and topical reports that must be submitted to Congress, the level of congressional oversight can be expected to increase in the years ahead. Members of both the House and Senate continue to be actively interested in the economic and environmental impacts associated with DOE facilities and activities in their home districts and states. Many states can anticipate the permitting and construction of waste storage facilities in their states if the WIPP facility does not become operational. In general, Congress must be convinced that funding for the WIPP Program is being expended prudently and that technical progress is being made toward a credible evaluation of the WIPP facility as a disposal facility.

State and Tribal Governments Each state hosting a generator or storage site, and tribal governments with reservations bordering those sites, have a vested interest in reducing the backlog and projected inventory of TRU waste being stored. As mentioned previously, many host states are permitting and constructing waste storage facilities in their states because of delays in opening WIPP. These concerns are being addressed through cooperative agreements.

Many of the corridor states and tribal governments have transportation concerns regarding the adequacy of a transportation program and emergency response capabilities. These concerns are primarily related to the possibility of an accident, the adequacy of hospital facilities and ambulance services (should an accident occur), and the training of local fire and police department response teams.

State of New Mexico The State of New Mexico is permitting the WIPP facility pursuant to that portion of its EPA-authorized state program which corresponds to 40 CFR Part 270, "EPA Administered Permit Programs: The Hazardous Waste Permit Program." New Mexico also has an interest in ensuring that the waste received at the facility has been adequately characterized and that the "chain of custody" process is adequate. The Act specifies that DOE consult with the State in the management of the land withdrawal, emergency preparedness training, final decommissioning of the site, and for DOE to provide the Performance Assessment Report to the State for review and comment. Other prime concerns of the State include completion of highways and bypasses around Santa Fe and Carlsbad, New Mexico; upgrading highways along the WIPP transportation corridor; and the adequacy of resources and preparation plans to manage a transportation accident.

Generator/Storage Sites Each of the 10 major DOE TRU waste generator/ storage sites is expected to ship waste to WIPP. This will include previously generated waste as well as waste from ongoing program activities. In many instances, the ability of generator sites to conduct future programs will be predicated on their ability to manage and dispose of waste.

Other Federal Agencies The WIPP Program is working with other government agencies (e.g., EPA, NRC, Department of Interior, Department of Labor, and others) to resolve

programmatic, safety, and regulatory issues. The Act establishes a new regulatory framework in which EPA must certify WIPP's compliance with the radioactive waste disposal standard (40 CFR 191) prior to establishing WIPP as a disposal site. EPA must also approve the Test Phase Plan and the Retrieval Plan in a rulemaking process, and publish a final rule in the Federal Register. The EPA also approves modifications to the Test Phase Plan or Retrieval Plan.

The EPA will be the issuing agency for the final disposal regulations and No-Migration Determination for permanent disposal. The NRC serves as the certifying agency for the TRU waste transportation packages (the TRUPACT II). The Department of Interior will work with the DOE to develop a management plan for use of the land involved in the Act. Other agencies involved by the Act are: the Mine Safety and Health Administration (MSHA), the Occupational Safety and Health Administration (OSHA), the National Institute for Occupational Safety and Health (NIOSH), and the Bureau of Mines (BOM).

The Courts It is likely that WIPP disposal decisions, based upon an assessment of compliance, will be challenged in various courts by special interest groups. The Act places restrictions on the judicial review of certain federal agency actions.

National Academy of Sciences Since 1959, the NAS has been advocating a stable, underground, geologic formation (e.g., salt) for storage and disposal of radioactive wastes. The WIPP Panel of the NAS serves as a technical advisory group, primarily on the topic of the radiological safety of the WIPP. The NAS receives WIPP performance assessment reports for review and comment.

Environmental Evaluation Group (EEG) The EEG is an organization funded by the DOE to provide independent technical review of all WIPP activities. The EEG will provide review and comment on documents relating to health, safety, and/or environmental issues at WIPP. The EEG receives WIPP Performance Assessment Reports for review and comment.

Private Sector The size and scale of the efforts facing the WIPP Program clearly require extensive participation of private sector contractors. It is anticipated that unique technology, expertise, and additional efforts will contribute to the overall success of the WIPP Program.

National Laboratories The WIPP Program has access to talented scientists and engineers at the national laboratories. The labs are a resource to the WIPP Program for attaining high quality and technical excellence.

Trends

- WIPP Land Withdrawal Act passage by the Congress has reaffirmed continuing Congressional support for the WIPP mission and has raised Congressional awareness that the WIPP facility is a key element toward a solution for managing the nation's defense TRU waste.

- The new regulatory framework established by the Land Withdrawal Act will result in an increasingly complex regulatory process for certifying WIPP safety and environmental compliance.

- Because of this currently undefined regulatory process, the schedule and cost uncertainties for WIPP startup and operation have increased substantially.

- The increased Congressional, federal agency, state and independent group involvement in WIPP activities prescribed by the Land Withdrawal Act is expected to lead to increased public participation and ultimately increased public confidence for disposing mixed TRU waste in the WIPP facility.

Objectives, Issues, Strategies, and Success Indicators

The following six objectives are broad goals for the WIPP Program. They take the planning process through to the Disposal Phase and include disposal operations and final decontamination and decommissioning.

OBJECTIVE I: Arrive at a Disposal Decision after executing a well-documented test and information gathering program that demonstrates the WIPP facility complies with applicable regulatory requirements.

Issue A well-defined decision process is needed to facilitate a smooth and timely transition from the Test Phase to the Disposal Decision and beyond. All environment, safety, and health (ES&H) and regulatory requirements specified by the Act need to be met and an exemplary compliance record maintained to achieve public confidence and regulator approval of the WIPP Program.

Strategies

- Develop a decision process based on rigorous performance assessment and other activities necessary to document compliance with applicable regulations, to complete necessary institutional interactions, and to prepare a Disposal Decision Readiness Report and recommendation for the Secretary of Energy.

- Coordinate openly with regulatory agencies in implementing the evolving regulatory compliance process. Gaining timely approval of the Test Phase Plan and the Retrieval Plan will be crucial to establishing the technical basis for the program and to maintaining program schedule and cost.

- Develop a Memorandum of Understanding with the EPA (as the regulating/certifying agency of DOE's compliance determination with RCRA and 40 CFR Part 191) that outlines roles, interfaces, etc., and fosters an open working relationship between the WIPP Program and the regulators.

- Provide the opportunity for public participation in the Disposal Decision Process by: (1) requesting the public's help in identifying TRU Waste Program issues, (2) requesting the public's involvement in identifying alternative approaches for addressing these problems and issues, and (3) increasing public understanding of the complex environment in which the WIPP Program operates and work toward the development of a broad-based consensus for the resolution of identified issues.

- Facilitate the preparation of documents needed to demonstrate that WIPP complies with RCRA, 40 CFR Part 191, and other applicable state and federal regulations.

- Develop an updated SEIS and update the Safety Analysis Reports for the facility and the shipping containers.

- Foster timely review of all documents by the necessary reviewing organizations to ensure it is adequate and appropriate to support a compliance determination and to obtain the necessary permits and approvals.

- Enter into a Memorandum of Understanding with the Secretary of the Interior to implement the management plan for use of the Withdrawal until the end of the Decommissioning Phase.

- Aggressively drive the Test Phase to obtain the necessary levels and integrity of data acceptable to regulators and oversight groups.

- Develop an internal DOE process and protocol for the regulatory compliance demonstration process. Define roles, responsibilities, and procedures. Identify and prepare the required documentation.

- Resolve the problems associated with establishing and maintaining compliance with RCRA, the Clean Air Act (CAA), Safe Drinking Water Act (SDWA), Toxic Substances Control Act (TSCA), Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), 40 CFR Part 191, and other applicable laws and federal regulations.

- Conduct a detailed analysis of the characteristics of future waste generated as a result of decommissioning defense plants and environmental restoration activities. This analysis will allow the DOE to establish a technical baseline from which cost-effective waste management decisions can be made.

- Perform a survey identifying all TRU waste types at all sites from which wastes are to be shipped to WIPP.

- Work with the EPA to evaluate the value of risk-based regulations. Develop quantitative criteria for both radioactive and hazardous waste constituents.

- Work closely with the EPA, EEG, NAS, and the New Mexico Environment Department (NMED) to resolve issues pertaining to WIPP and to ensure testing and analyses are properly scoped and of sufficient quality to satisfy the regulatory requirements.

- Work closely with other DOE programs toward achieving more cost-effective and efficient waste characterization programs.

- Enhance centralized logistical support to generator sites to ensure cost-effective waste management practices that take advantage of intersite technical exchange, lessons learned, and standardization of practices and procedures related to characterization, packaging, and transportation of TRU waste.

- Use well-documented, peer-reviewed Performance

Assessments to define the envelope for acceptable waste that can be disposed safely at WIPP. The Performance Assessments will be based on data gathered during the Siting Phase and the Test Phase. The Performance Assessments for 40 CFR Part 268, "Transportation Merger and Consolidation Procedures," and 40 CFR Part 191 will be comprehensive and consistent in assumptions, concepts, and modeling to ensure consistency in approach and eliminate contradictions. The DOE will document and publish the acceptable waste envelope in the WIPP Waste Acceptance Criteria (WAC).

Success Indicators

- The statutory due dates prescribed by the Act are met.
- Regulators, oversight groups, and the public are satisfied that the data gathered during the Siting, Validation, Construction, and Test Phases adequately address environmental, safety, and health concerns, and they support the decision to dispose of TRU waste at WIPP.
- Documents to support compliance determinations and to obtain permits and approvals are reviewed in a timely manner.
- Updated Safety Analysis Reports and a Supplemental Environmental Impact Statement are published on schedule.
- Establishment of an effective two-way public participation program that serves as a forum for effective communication and builds consensus regarding major issues, problems, and concerns.
- Good communication exists between the WIPP Program and the regulators, generators, and the public.
- As a result of the completion of a detailed survey, a comprehensive understanding of TRU waste types stored/generated at all sites is achieved.
- Cost effective, standardized waste management practices exist at DOE sites.

OBJECTIVE II: Ensure continued safe transportation of TRU waste to the WIPP facility in a manner that meets WIPP facility operations needs and earns the acceptance of regulators and the public.

Issue The waste transportation system that will be used to ship waste to WIPP during the Test Phase is not adequate to support full-scale disposal operations.

Strategies

- Develop and submit to Congress a shipping schedule for transferring TRU waste from generator and storage sites to the WIPP facility.
- Inform the public, states, and Indian tribes about DOE's commitment to public health and safety as evidenced by more than 30,000 routine shipments of hazardous waste and 15,000 shipments of radioactive waste that are made each year without incident. Describe the historical 40-year safety record of radioactive

material shipment and the absence of incidents (no deaths, serious injuries, or significant impacts to the environment).

- Continue coordination with the DOE TRU Waste Program in the areas of planning, designing, and testing waste containers and shipping casks to continually improve shipment and handling systems for both CH and RH TRU waste.

- Investigate the feasibility of modifying the current TRUPACT II design to optimize efficiency and to accommodate additional waste forms, types, and container shapes.

- In order to develop optimum efficiency, maximize payload, and reduce the number of trips to the WIPP facility, analyze the length of time necessary for loading/unloading TRUPACT II containers.

- Periodically evaluate current and future transportation needs and modify TRUPACT II production schedules and staffing levels to maintain the appropriate fleet size needed for operations.

- Conduct a study comparing health, safety, environmental, and cost impacts and emergency response capabilities associated with shipping TRU waste to the WIPP facility by truck and by rail.

- Ensure system-wide communication between WIPP and the DOE Office of Technology Development Transportation Management Program regarding unclassified DOE waste transportation.

- Receive NRC determination that WIPP transportation packages were fabricated under a quality assurance program that satisfies NRC requirements as required by the Act.

- Support the development of transportation safety programs for state and Indian tribes through whose jurisdiction TRU waste will be shipped to or from WIPP.

- Provide an opportunity for meaningful public participation in the WIPP transportation safety decision making process by soliciting the public's help in identifying TRU waste transportation problems and issues.

- Continue to use the multibarrier system that starts with package selection, careful preparation of the package, inspection before shipment, and properly marked and labeled shipping papers. Ensure highway transporting vehicles clearly identify shipment contents and allow only the most qualified carriers to ship DOE radioactive materials. To ensure highway safety, continue to use the DOE Motor Carrier Evaluation Program that evaluates carriers' overall records in areas such as safety, driver training, and compliance with federal regulations for transporting hazardous materials.

- Maintain DOE's role as part of a national system of emergency preparedness that can safely handle any transportation accident to protect both the public and environment. Provide technical assistance and funds for training public safety officials and other emergency response personnel.

Emphasize the steps that have already been taken to ensure that the waste transportation system protects public health and safety.

- Through cooperative agreements with the State of New Mexico, the Western Governors' Association (WGA), and tribal governments, continue efforts to ensure that the emergency response community is well trained and equipped in the event of a WIPP-related transportation accident.

- Plan and conduct transportation accident exercises (TRANSAXs) in coordination with local, state, and tribal governments.

- Work through cooperative agreements with the WGA and tribal governments to coordinate and implement activities to help ensure the safe transportation of TRU waste to the WIPP facility. Activities should include public information, accident prevention, and emergency preparedness.

- Assist the New Mexico WIPP medical working group to identify and resolve specific issues of concern.

- Provide opportunities for exchange of information between the public and DOE to address general questions, concerns, and suggestions.

- Provide an active public information program that includes workshops and meetings and educates interested parties on how TRU waste will be shipped to or from WIPP.

Success Indicators

- As a result of the completion of various analyses, the optimum design, use, and production requirements of TRUPACT II shipping containers are known.

- A shipping schedule for the transfer of TRU waste from the generator sites to WIPP is published.

- As a result of effective communication programs, the public, states, WGA, and Indian tribes have been constructively involved in TRU waste transportation-related activities and have the confidence that transportation activities and the transportation routing system are safe.

- There is a measurable and acceptable increase in the number of trained public safety officials and emergency response personnel who could effectively manage any transportation accident.

OBJECTIVE III: Ensure safe operational readiness through a formal process of safety analysis and operational readiness review.

Issue In order to accomplish its mission, the WIPP facility must continuously operate safely and with operational excellence.

Strategies

- Conduct a comprehensive operational readiness review (ORR) process and safety analysis prior to initiating operations. For the Test Phase with TRU waste, DOE has met all operational readiness requirements and prerequisites.

Nineteen readiness reviews were conducted by a variety of oversight groups (both internal and external). All prestart readiness issues have been resolved for the dry bin portion of the Test Phase. A similar process will be utilized for each new waste test in order to certify the safety of Test Phase activities.

- Develop a plan for ensuring that the mined rooms in which TRU waste may be emplaced will remain sufficiently stable and safe to permit uninterrupted testing for the duration of such activities.

- Conduct scientific and regulatory compliance programs during the Test Phase that will address and resolve all operational issues (e.g., Test Phase data gathered underground will confirm facility design predictions, room stability, and room and shaft seals performance).

- Once the process of documentation and review (both internal and external) has been completed and regulatory compliance demonstrated, prepare a Disposal Decision Readiness Report for the Secretary of Energy. This report will include a recommendation as to whether waste disposal at WIPP should begin.

- Work closely with the Defense Nuclear Facilities Safety Board (DNFSB) to ensure that WIPP activities are independently reviewed on a continuing basis. Implement DNFSB Recommendation 90-2 which requests that certain tasks be carried out at the WIPP facility including the identification of specific standards considered to apply to the design, construction, operation, and decommissioning of DOE facilities including the identification of applicable DOE Orders, regulations, and requirements; providing DOE's views on the adequacy of the standards identified for protecting public health and safety; and assessing the extent to which the standards have been implemented.

Success Indicators

- Timely approval of Safety Analysis Reports for the various phases of the Test Program.

- Minimal number of prestart findings identified during ORRs and Operational Readiness Evaluations (OREs).

- Publication of a Disposal Decision Readiness Report that documents the resolution of technical, regulatory, operational, and safety issues.

OBJECTIVE IV: Ensure safe disposal operations over the projected life of the WIPP facility.

Issue The WIPP facility represents a first-of-a-kind disposal facility and therefore requires a careful analysis of start-up conditions, and dedication to rigor in conduct of operations.

Strategies

- Notify the Congress of compliance with all applicable environmental laws and regulations.

- Submit to the Congress recommendations for the disposal of all TRU waste under DOE control, including a timetable for the disposal of such waste.

- Provide for public participation in the disposal operations decision making process by obtaining public input concerning disposal operations problems and issues and working toward the development of a broad-based consensus for the resolution of these issues.

- Conduct audits and inspections to determine the long-term stability of the underground WIPP repository.

- Perform additional performance confirmation testing, as necessary, during the Disposal Phase.

- Safely excavate, emplace waste, and backfill rooms and panels during the Disposal Phase.

- Provide timely guidance to the TRU waste generator/storage sites to ensure a sufficient inventory of waste certified for disposal.

- Promote the philosophy of continuous improvement and continue to develop and implement training programs for excellence in conduct of operations for the WIPP facility work force.

- Submit to the EPA and the State of New Mexico documentation of continued compliance with the final disposal regulations.

Success Indicators

- After an acceptable number of audits, inspections, and tests are performed, regulatory agencies and the public have gained confidence that WIPP is a safe and acceptable solution for the long-term disposal of TRU waste and that it operates in a safe and environmentally sound manner.

- Training of WIPP personnel results in a measurable increase in the conduct of operations excellence.

- The public's confidence in WIPP is maintained at a high level as a result of the WIPP facility continuously complying with the final disposal regulations. Good communication exists between the WIPP Program and public participants.

OBJECTIVE V: Ensure safe closure and decommissioning of the WIPP facility and place institutional markers when the Disposal Phase is complete.

Issue Closure requirements and long-term monitoring requirements for the WIPP facility need to be more fully defined and developed.

Strategies

- Consult with the Secretary of Interior and the State of New Mexico to develop a management plan for use of the withdrawal as directed by the Act.

- Prepare a plan for the decommissioning of WIPP. Commence detailed decontamination and decommissioning planning activities. These activities will incorporate currently available technologies and prescribed decontamination limits.

- Solicit public participation in the WIPP closure and decommissioning process to help identify problems and issues and to achieve consensus for the resolution of these problems and issues.

- Conduct decontamination operations and surveillance checks during the decommissioning so that personnel and public exposure limits are maintained as low as reasonably achievable and within the limits of DOE Order 5480.11, "Radiation Protection for Occupational Workers," (or current at that time).

- Establish post-closure monitoring requirements, if applicable.

- Develop and demonstrate a repository seal system that meets system and functional requirements.

- Construct WIPP surface and underground facilities that are amenable to efficient decontamination and decommissioning.

- Develop institutional marker and control requirements and implement the emplacement.

Success Indicators

- Management plans for the Land Withdrawal Act and the decommissioning of WIPP are accepted by the regulatory agencies.

- Independent oversight groups and the public are satisfied that the WIPP site closure and decommissioning process is safely and efficiently implemented.

- A repository seal system is developed that effectively demonstrates it meets all necessary requirements.

- Institutional marker and control requirements are established, emplaced, and performed per specifications.

OBJECTIVE VI: Define and implement WAC and waste characterization requirements to identify waste streams that can be sent to the WIPP facility for disposal.

Issue The State of New Mexico and EPA have not yet established waste characterization requirements for the WIPP facility. Sampling of solidified waste forms are under development and performance assessment requirements for the waste forms have not yet been developed.

A large majority of the retrievable stored waste is not readily accessible for characterization due to the storage configuration. Additionally, the facility infrastructure needed to conduct waste characterization is not yet available.

Strategies

- Develop waste form requirements using bounding analyses from Performance Assessment.

- Define waste characterization requirements that will be required of all waste streams regardless of waste form.

- Implement a Quality Assurance Program Plan that defines the analytical requirements and data quality objectives necessary to comply with applicable WIPP standards.

- Pursue an engineered alternatives program to develop engineered waste forms for those waste streams that do not meet the bounding performance assessment requirements.

- Use engineered and natural barriers and/or waste form modifications to isolate the waste after disposal as necessary to meet the final disposal regulations.

- Implement a program to examine special case or new inventory waste streams for consideration for acceptance into the WIPP facility disposal inventory.

- Certify generator waste characterization programs through implementation of audit programs to include analytical laboratory qualifications, quality assurance standards, and waste certification practices.

- Perform a survey identifying all TRU waste types at all sites from which wastes are to be shipped to WIPP. Submit to Congress comprehensive recommendations for the disposal of all TRU waste under DOE control, including a timetable for the disposal of such waste. Develop future inventory projections that consider the Environmental Restoration Program and the Decontamination and Decommissioning Program.

- DOE will require generators to develop and implement a characterization program that complies with the Waste Characterization Program Plan and verifies compliance with applicable regulations.

- Evaluate the commercial industry's involvement in analysis of waste samples from the Waste Characterization Program.

Success Indicators

- Waste Acceptance Criteria and waste characterization requirements are developed for all waste streams and waste forms.

- A strategy is developed and accepted by the regulators for the management of waste that is not accessible for characterization. This strategy is understood and implemented by the generators.

- An engineered alternatives program is developed and implemented to manage waste streams that do not meet performance assessment requirements.

- A Waste Characterization Program to certify generator waste and comply with WAC is created and implemented. This program effectively addresses both generator and regulatory needs.

- A comprehensive TRU waste system survey is conducted. This survey includes future inventory projections and recommendations for disposal.

- A study is published that evaluates the commercial industry's ability to support the analysis of waste samples.

- Analytical requirements and data quality objectives for sampling waste are developed as part of a comprehensive Quality Assurance Program.

GLOSSARY OF TERMS

Act: Refers to the "Waste Isolation Pilot Plant Land Withdrawal Act", Public Law 102-579, dated October 30, 1992. This withdraws the land at the WIPP site from "entry, appropriation, and disposal"; transfers jurisdiction of the land from the Secretary of the Interior to the Secretary of Energy; and reserves the land for activities associated with the development and operation of the WIPP.

contact-handled (CH) TRU waste: TRU waste that has a measured radiation dose rate at the container surface of 200 millirems per hour and can be safely handled without special equipment when drummed.

Decision Plan: A high-level plan that identifies prerequisites for initiating a new phase in the WIPP Program.

decommissioning: Actions taken upon abandonment of the repository to reduce potential environmental, health, and safety impacts, including repository sealing as well as activities to stabilize, reduce, or remove radioactive materials or to demolish surface structures.

decontamination: The removal of radioactive contamination from facilities, equipment, or soils by washing, heating, chemical, or electrochemical action, mechanical cleaning, or other techniques.

Disposal Phase: Follows the WIPP Test Phase, after the Disposal Decision regarding the WIPP is made. The term "Disposal Phase" means the period of time, during which TRU waste is disposed of at WIPP, beginning with the initial emplacement of TRU waste underground for disposal and ending when the last container of transuranic waste, as determined by the Secretary, is emplaced underground for disposal.

Emergency Plan: A document setting out an organized, planned, and coordinated course of action to be followed in case of fire, explosion, or release of hazardous waste or hazardous waste constituents that could threaten human health or the environment.

EM Five-Year Plan: A DOE plan that describes the goals, strategies, and specific efforts over a five-year period for assessment and cleanup of contaminated sites, facilities, and waste management operations required to meet standards described in federal and state laws.

generator facility: Refers to currently or previously operated facilities of the DOE that have produced, or continue to produce, transuranic waste.

geologic repository: A facility for disposal of radioactive wastes that uses natural geologic barriers to provide waste containment.

hazardous waste: Defined by EPA as generated wastes that can pose a substantial or potential hazard to human health or the environment when improperly managed. Possesses at least one of four characteristics: (1) ignitability, (2) corrosivity, (3) reactivity, and/or (4) toxicity, or appears on special EPA lists.

Implementation Plan: A description and/or schedule of detailed actions needed to achieve specific goals and objectives.

Memorandum of Understanding: A document stating the terms of agreement between two government agencies.

mixed waste: Mixed waste contains both radioactive and hazardous components, as defined by the Atomic Energy Act and the RCRA, respectively.

National Environmental Policy Act (NEPA): The act that established the requirement for conducting environmental reviews of major federal actions for evaluation of the potential impact on the environment.

No-Migration Determination: The Final Conditional No-Migration Determination for the WIPP, published by the EPA on November 14, 1990 (55 Federal Register 47700), and any amendments thereto, pursuant to the Solid Waste Disposal Act (42 U.S.C. 6901 et seq.).

No-Migration Variance: Section 3004 of RCRA allows the EPA to grant a variance from the land disposal restrictions when a demonstration can be made that, to a reasonable degree of certainty, there will be no migration of hazardous constituents from the disposal unit for as long as the waste remains hazardous. Specific requirements for making this demonstration are found in 40 CFR 268.6, and the EPA has published a draft guidance document to assist petitioners in preparing a variance request.

performance assessment: A term used to denote all activities (qualitative and quantitative) carried out to: (1) determine the long-term ability of WIPP to effectively isolate the waste and ensure long-term health and safety of the public by complying with 40 CFR 191 Subpart B and 40 CFR 268.6, and (2) provide the basis for demonstrating regulatory compliance.

Public Law 96-164: The U.S. Department of Energy National Security and Military Application of Nuclear Energy Act of 1980. Public Law 96-164 directed the DOE to proceed with the design and development of the WIPP.

radioactive waste: A solid, liquid, or gaseous material of negligible economic value that contains radionuclides in excess of threshold quantities.

Resource Conservation and Recovery Act (RCRA): The law that establishes a system for controlling solid waste, including hazardous waste, from generation to disposal.

RCRA Permit, Part B: The detailed portion of a RCRA permit issued by the state (if authorized by the EPA) or by the EPA which authorizes the owner/operator of a hazardous waste management unit to operate the unit.

remote-handled TRU waste: TRU wastes that have a measured radiation dose rate at the container surface of above 200 millirems per hour and must be heavily shielded with lead for safe handling.

Siting Phase: The first "phase" in the development of the WIPP facility. This phase began with the evaluation of several sites and the selection of a preferred site. Extensive surface-based testing was conducted to evaluate the suitability of the site. A repository appropriate to the conditions of the site was designed and analysis was conducted to determine the safety of the WIPP facility. This phase ended with the publication of an Final Environmental Impact Statement in 1980 and a decision to proceed with the next phase (site and preliminary design validation).

stakeholders: People who have, or perceive they have, a stake in the future success of the business or unit in question. Stakeholders include management and employees (internal) and executive, legislative, regulatory groups, public representatives, etc. (external), the general public, and special interest groups.

Test Phase: The term "Test Phase" means the period of time, during which test phase activities are conducted, beginning with the initial receipt of TRU waste at WIPP and ending when the earliest of the following events occurs:

(a) The requirements described in section 7(b) of the Act are met.

(b) The Administrator determines under Section 8(d)(1)(B) of the Act that the WIPP facility will not comply with the disposal regulations.

(c) The time period described in paragraphs (2) and (3) of section 8(d) of the Act expires.

(d) The Secretary is required by section 9(b)(2) of the Act to implement the retrieval plan.

transuranic (TRU) waste: The term "transuranic waste" means waste containing more than 100 nanocuries of alpha-emitting transuranic isotopes per gram of waste, with half-lives greater than 20 years except for:

(a) high-level radioactive waste

(b) waste that the Secretary has determined, with the concurrence of the Administrator, does not need the degree of isolation required by the disposal regulations

(c) waste that the NRC has approved for disposal on a case-by-case basis in accordance with CFR Part 61 of Title 10

Waste Acceptance Criteria (WAC): A set of conditions established for permitting TRU wastes to be packaged, shipped, managed, and disposed of at the WIPP facility.

waste characterization: Sampling, monitoring, and analysis activities to determine the extent and nature of the waste.

withdrawal: The term "withdrawal" means the geographical area consisting of the lands described in section 3(c) of the Act to be withdrawn from public access to be used for the disposal of TRU waste.

40 CFR Part 191: EPA standard for managing and disposing of spent nuclear fuel, high-level, and TRU wastes. Subpart A deals with managing and storing wastes, while Subpart B covers long-term isolation and disposal.

40 CFR Part 268: Part 268 restricts the land disposal of hazardous wastes and specifies strict treatment standards that must be met before these wastes can be land-disposed.

40 CFR Part 271: The RCRA hazardous waste program can be administered either by EPA or by any state that can meet certain minimum program requirements. Part 271 identifies the minimum requirements that states must meet in order to obtain authorization to administer the RCRA program.

ACRONYMS and ABBREVIATIONS

Act	WIPP Land Withdrawal Act (PL 102-579)
BOM	Bureau of Mines
CAA	Clean Air Act
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
CH	contact-handled
DNFSB	Defense Nuclear Facilities Safety Board
DOE	U.S. Department of Energy
EEG	Environmental Evaluation Group
EM	DOE, Office of Environmental Restoration and Waste Management
EPA	U.S. Environmental Protection Agency
ES&H	environment, safety, and health
FEIS	Final Environmental Impact Statement (1980)
FSAR	Final Safety Analysis Report
FSEIS	Final Supplemental Environmental Impact Statement (1990)
MSHA	Mine Safety and Health Administration
NAS	National Academy of Sciences
NEPA	National Environmental Policy Act
NIOSH	National Institute for Occupational Safety and Health
NMED	New Mexico Environment Department
NRC	Nuclear Regulatory Commission
ORE	Operational Readiness Evaluations
ORR	Operational Readiness Review

OSHA	Occupational Safety and Health Administration
PEIS	Programmatic Environmental Impact Statement
PL	Public Law
RCRA	Resource Conservation and Recovery Act
RH	remote-handled
SDWA	Safe Drinking Water Act
SEIS	Supplemental Environmental Impact Statement
TRANSAX	transportation accident exercise
TRU	transuranic
TRUPACT II	Transuranic Package Transporter, a package to transport contact-handled TRU waste.
TSCA	Toxic Substances Control Act
USGS	U.S. Geological Survey
WAC	Waste Acceptance Criteria
WGA	Western Governors' Association
WIPP	Waste Isolation Pilot Plant

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