



DEPARTMENT OF ENERGY

**Waste Isolation Pilot Plant (WIPP);
Record of Decision**

This Record of Decision has been prepared on the Waste Isolation Pilot Plant (WIPP) Project pursuant to Regulations of the Council on Environmental Quality, 40 CFR 1505.

Decision

The U.S. Department of Energy (DOE) has decided to proceed with the WIPP project at the Los Medanos Site in the Delaware Basin of southeast New Mexico as directed by the U.S. Congress in Public Law 96-164 "Department of Energy National Security and Military Applications of Nuclear Energy Authorization Act of 1980". The WIPP project, which is described as Alternative 2 in the Final Environmental Impact Statement (FEIS), DOE/EIS-0026, October, 1980, will be developed "as a defense activity of the DOE 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" / Public Law 96-164. Construction of permanent surface and underground facilities will proceed on a phased basis consistent with the evaluation of data obtained during the Site and Preliminary Design Validation (SPDV) program as defined in the FEIS. If significant new environmental data results from the SPDV program or other WIPP project activities, the FEIS will be supplemented as appropriate to reflect such data, and this decision to proceed with phased construction and operation of the WIPP facility will be reexamined in the light of that supplemental National Environmental Policy Act (NEPA) review.

The WIPP facility will dispose of defense transuranic (TRU) waste stored retrievably at the Idaho National Engineering Laboratory (INEL). By approximately 1990 all existing waste stored at INEL will have been removed to WIPP, and the WIPP facility would be in a position to receive and dispose of TRU waste from other defense waste generating facilities. In addition, WIPP will include an experimental facility for conducting experiments on defense wastes, including small volumes of defense high-level waste. The high-level waste used for experiments will be retrieved and removed from the site prior to decommissioning of the WIPP facility.



Description of Alternatives

The following alternatives were considered by the DOE for demonstrating the safe disposal of TRU waste resulting from United States defense programs that is currently stored or planned for storage at INEL:

Alternative 1

This no action alternative would permit the TRU waste presently stored in a retrievable fashion at the INEL to remain there in surface storage for an indeterminate period; waste would continue to be shipped there and held in storage throughout the same indeterminate period. No action would be taken at the Los Medanos Site or any other site relative to demonstrating the safe disposal of TRU waste from defense programs.

Alternative 2

This alternative involves the development of the authorized WIPP facility, consisting of both surface and underground facilities at the Los Medanos site in southeast New Mexico, designed to retrievably emplace approximately 6.2 million cubic feet of contact-handled TRU waste and as much as 250,000 cubic feet of remotely handled TRU waste in a mined repository. This facility also would include a 20 acre underground area for short-term experiments on all types of radioactive defense wastes to answer technical questions about the potential disposal of waste, particularly high-level waste, in salt. All the high-level waste used for the research would be removed at the completion of the experiments.

In order to provide final site validation and to verify the analyses used in the design of the underground facility, the construction of the WIPP facility would be preceded by the construction of two deep shafts and an underground geological experimentation site at the Los Medanos site. The shafts and underground area would be instrumented to measure rock response and various nu-²³⁸U-radioactive experiments conducted to observe waste-package performance under repository conditions. If significant new environmental data results from these site and design validation activities (or other WIPP project activities), the FEIS will be supplemented as appropriate by a further NEPA review and the decision to proceed with phased construction and operation of the WIPP facility will be reexamined in the light of that supplemental NEPA review.

Alternative 3

This alternative consists of the disposal of stored INEL TRU waste in the first available repository for high-level radioactive waste. In this alternative there would be no separate facility for demonstration of the safe disposal of defense TRU waste. A number of potential sites for repositories for both TRU waste and high-level waste would be located, characterized and evaluated in accordance with the procedure and schedule outlined in the DOE Statement of Position in the Nuclear Regulatory Commission Waste Confidence Rulemaking, PR 50, 51 (44 FR 61372). In this alternative, defense TRU waste would remain stored in a retrievable fashion at the INEL until the first high-level waste repository becomes available in the period now scheduled between 1997 and 2006.

Alternative 4

This alternative involves selection of a WIPP facility but the decision on the site for such a facility would be delayed until at least 1984 when two or three sites in addition to the Los Medanos site should be available for detailed consideration. During the evaluation of additional sites, TRU waste would remain in retrievable storage at the INEL. Additional sites in salt domes and basalt would be examined as potential facility locations.

Additional Alternatives

Alternative disposal methods to mined geological disposal for defense TRU waste were also evaluated by DOE and rejected as either impractical or infeasible due to the lack of necessary technology. These alternate disposal methods included emplacement in deep ocean sediments, emplacement in very deep drillholes, transmutation, and ejection into space.

Basis for Decision

In compliance with NEPA, DOE has analyzed the environmental impacts of the authorized WIPP project and alternatives thereto in the FEIS. Comments on the draft statement were considered in preparing the FEIS. Comments on the FEIS are evaluated in WIPP/DOE-81 and were considered in preparation of this Record of Decision.

DOE has determined that the long term impact on the human environment resulting from Alternative 1 (no action) is unacceptable. Leaving the TRU waste in surface storage at the INEL could lead to very high radiation exposures both to individuals and the general population as a result of future volcanic action or human intrusion after government

control of the site is lost. There are no suitable geologic environments for disposal of the waste permanently on the INEL site. Consequently, none of the options for leaving the waste at INEL indefinitely are environmentally acceptable.

Alternatives 2, 3 and 4 are each predicted to have environmental impacts that are acceptably small both in the short term during construction and operation and in the more distant future. None of these alternatives is so clearly superior environmentally to the others that it can be identified as environmentally preferable.

Alternative 3 was identified in the FEIS as DOE's preferred alternative. This preference was based on its consistency with the comprehensive radioactive waste management program described in the Presidential Statement of February 12, 1980. Alternative 3 would delay the removal of the INEL stored TRU waste until 1997 at the earliest.

Alternative 4 would result in delay in removal of the stored TRU waste from INEL until 1991 at the earliest. Otherwise, its environmental impacts would be identical to alternative 2 if the Los Medanos site were selected after comparison with other sites for construction of a WIPP-like facility.

In contrast, implementation of Alternative 2 could result in an operational facility by 1987 and thus solve the unacceptable long-term environmental problem of storing TRU waste at INEL in the shortest amount of time and avoid the inflationary costs attributable to delay in constructing the facility. More importantly, the WIPP project provides an opportunity for an early demonstration of the safe disposal of defense TRU waste and for experimentation on bedded salt as a disposal medium for defense high-level wastes.

The environmental impacts predicted for Alternative 2 are generally small and the Los Medanos site appears acceptable for long-term disposal of TRU waste with minimal risk of any release of radioactivity to the environment. There is no indication that an alternate site for the demonstration would pose reduced risks. Nevertheless, the use of the Los Medanos site in southeastern New Mexico would deny access to 3% to 10% of the known U.S. reserves of the mineral langbeinite for the operating life of the repository and may require controls on its extraction thereafter.

The consequences of extremely unlikely accidents during the transportation of transuranic and high-level waste to the Los Medanos site

could induce moderate radiation exposures and significant decontamination costs, but they would be similar regardless of when or where an experimental facility or combined repository is built. The probabilities and the overall population doses would change depending on the location of the repository, but the radiation doses received by the maximally exposed individual would be the same.

Mitigation

DOE will mitigate adverse impacts of the WIPP project on the quality of the human environment by implementing the proposed mitigation activities as described in Section 9.6 of the FEIS.

In addition to the active mitigation measures to be taken, the monitoring activities described in Section 2, Appendix J of the FEIS will be implemented. Some modifications of these programs may occur based upon data acquired during the Preoperational Environmental programs (Section J.1). DOE also intends to implement the Postoperational Monitoring Program described in Section J.3.

Conclusion

DOE has weighed the benefits of proceeding with the authorized WIPP project against its potential environmental impacts and costs, and after consideration of the benefits, impacts and costs of reasonably available alternatives, has determined to proceed with the phased construction and operation of the authorized WIPP project. Should the SPDV program or any other WIPP project activity result in significant new environmental information, a supplemental NEPA review will be undertaken as appropriate to reflect such information, and this decision to proceed with phased construction and operation will be reexamined in the light of this supplemental NEPA review.

Dated: January 22, 1981.

For the United States Department of Energy.

Duane C. Sewell,

Assistant Secretary for Defense Programs.

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Economic Regulatory Administration

Proposed Remedial Orders

Pursuant to 10 CFR 205.192(c), the Economic Regulatory Administration of the Department of Energy hereby gives Notice that the following Proposed Remedial Orders have been issued. These Proposed Remedial Orders allege