



ENVIRONMENTAL EVALUATION GROUP



AN EQUAL OPPORTUNITY / AFFIRMATIVE ACTION EMPLOYER

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STATEMENT OF

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BEFORE THE

SUBCOMMITTEE ON ENERGY AND THE ENVIRONMENT
COMMITTEE ON INTERIOR AND INSULAR AFFAIRS

and

SUBCOMMITTEE ON ENERGY AND POWER
COMMITTEE ON ENERGY & COMMERCE

U. S. HOUSE OF REPRESENTATIVES

on

WIPP LAND WITHDRAWAL LEGISLATION

MAY 8, 1990



Mr. Chairman, Members of the Committee:

Background

The New Mexico Environmental Evaluation Group (EEG) was established in 1978 to conduct an independent technical evaluation of the impact on the health and safety to the people of New Mexico from the proposed WIPP Project. With a staff of 16 in Albuquerque and Carlsbad, it is the only full-time non-DOE review group overseeing WIPP. To date we have published 45 major reports of our analyses. Our work, mandated by PL 100-456, includes environmental monitoring on-site and off-site. The Group has been funded by the DOE since 1978 and our current budget is \$1.5 million per year.

EEG's responsibilities are particularly important since Congress exempted defense transuranic (TRU) waste disposal from NRC licensing, but required NRC licensing for both defense high level waste and defense uranium mill tailings.

While CH-TRU waste disposal was handled similarly to Low Level Waste (LLW) before 1970, TRU waste has subsequently been considered to have an overall long-term toxicity more comparable to High Level Waste (HLW) and standards developed by EPA for disposal are identical for both waste types. Also, DOE's plans require similar geological isolation for disposal of both transuranic and high-level wastes.

Accomplishments of EEG

Among our accomplishments, EEG has convinced DOE to

1. Relocate the repository site 1 1/4 miles south after a 17 million barrel brine reservoir was found to be 800 feet below the repository horizon;
2. Abandon the rectangular shipping container design which did not meet DOE's standards for safe transportation;
3. Participate in meetings organized by EEG to provide a forum for discussion of different views to resolve key geological issues for long-term repository stability;
4. Recognize hydrogen gas generation as a problem in transportation of waste to WIPP;
5. Discard inadequate equipment for the detection of radioactivity in the air and also redesign the monitoring stations in the air exhaust shaft.

Is WIPP safe?

The demonstration of safe management of these radioactive materials is quite different than the demonstration of safe disposal. For disposal, DOE has scheduled the demonstration of compliance with the EPA standards at the end of 1994. Until that occurs, it is scientifically and administratively speculative to state that it is safe for disposal.

With respect to the management of such wastes, considerable experience has been developed since 1970 at the various waste generating sites in packaging, certification and handling TRU waste in 200,000 drums and boxes. WIPP, however, has not completed all required radiation protection activities. The continuous air monitors for the detection of radiation have yet to be made fully operational and tested for sensitivity. DOE has not turned over the monitoring station to EEG that they agreed to provide in the Consultation and Cooperation Agreement between NM and DOE. Standards for occupational protection and radiation protection exist and we do believe that the necessary radiation protection activities can eventually be established at WIPP.

*do we
agree with
this*

Decision Plan

DOE has not yet addressed our concerns on the Decision Plan on operational readiness, availability of the report on waste characterization for experiments, the overly optimistic date of February 28, 1991 for a decision on waste form modification, and lack of specificity on retrievability.

DOE Proposed Land Withdrawal Legislation

Principal problems include

1. Failure to establish a ceiling on the amount of TRU waste that can be brought to WIPP prior to demonstrating compliance with EPA standards for safe disposal. DOE has not stated where they would take these TRU wastes if WIPP does not meet the standards in late 1994.
2. Self-regulation by DOE. While the bill provides for external oversight by groups such as EEG, the determination whether the DOE facility meets the EPA Standards will be made by DOE. Many of the environmental contamination problems at the DOE waste generating sites stem from such self-regulation.
3. No provision to prevent mining after decommissioning.

4. Failure to support necessary road funding for Congressional authorization and appropriation as agreed in the NM/DOE Consultation and Cooperation Agreement.

As requested, specific comments follow on two sections of the proposed legislation.

SEC. 5 PERFORMANCE ASSESSMENT TEST PLAN

CH-TRU Waste Experiments

The primary method to determine whether WIPP meets the EPA Standards for safe disposal of transuranic waste is to conduct probabilistic risk assessment analyses. The total amount of CH-TRU waste that has been identified by DOE for experiments in support of performance assessment is 4,500 drum-equivalents (0.5%). That amount should be established by legislation as an upper limit at WIPP until completion of the demonstration of compliance with standards for safe disposal.

Since DOE has indicated an urgent need to obtain data on the rates of gas generation for performance assessment, and the earliest date to begin shipment is still unknown, EEG has urged DOE since mid-1989 to begin measuring gas at the generating sites to avoid any delay in obtaining the information. Hence, we believe DOE could be obtaining data now for performance assessment.

Problems with the proposed experiments that have yet to be resolved include

1. Successful seal for the alcoves to be able to measure gas.
2. While DOE wishes to use waste from Rocky Flats and INEL for these experiments, it may be after the first of the year before waste at those locations can be transferred from drums to bins.
3. Availability of processed waste to conduct experiments.
4. Construction of new CH-TRU waste shipping containers since the existing TRUPACTS do not appear to be certifiable by NRC.
5. Date of availability of the data for performance assessment.
6. Calculation of the unacceptable level of gas generation through consequence analysis of gas pressurized repository scenarios.

7. Identification of a site to perform the solubility tests of the transuranics with brine since WIPP was not designed to permit sampling of plutonium contaminated liquid samples.

We believe that analyses and experiments to address the prevention of gas generation and the dissipation of gas after being produced will be more helpful and should receive top priority. The most important issue to be resolved before one can dispose of waste will probably be the determination of any required waste form modification in order to meet the EPA standards. The decision will be dependent on the ability to predict room dynamics that address the interdependence of gas and brine quantities and rates and will be determined by analyses of models and not by experiments.

We see no reason for the emplacement of 13,500 drums (1.5%) in two rooms as recommended by EPA before demonstrating compliance with 40CFR191, since neither justification nor analyses have been provided by DOE. The parameters identified by EPA to be studied (room deformation, brine inflow, gas inflow from the rock, temperature, humidity, porosity and permeability) do not require waste. Such monitoring will not represent actual repository conditions until after the decisions on waste-form modification, backfill and repository design changes have been made.

RH-TRU Waste Experiments

Since DOE has not identified any need for experiments with Remote Handled Transuranic (RH-TRU) waste, none should be permitted. Although RH-TRU waste has been slated for disposal at WIPP since 1978, a shipping container for that purpose has yet to be built.

SEC. 6 OPERATIONAL PERFORMANCE DEMONSTRATION

*Dependent
EPA*

We do not believe that any TRU waste should be brought to WIPP for operational performance demonstration prior to proving that the facility can meet the EPA Standards for safe disposal of transuranic waste (scheduled for late 1994) for the following reasons:

1. There is little technical knowledge or experience to be gained in conducting waste handling activities at WIPP before determining whether it is necessary to modify the waste form or the repository design. Waste packaging, certification, and handling are all occurring at the generating sites. Since 1970, DOE has transported more than 200,000 CH-TRU waste drum-equivalents from the generating sites to INEL.

2. If processing of the waste form is required, a facility would have to be built for this purpose at WIPP, or the waste transported back to Rocky Flats or elsewhere for processing. Therefore, the emplacement of a large number of drums before making the decision on the need to process wastes (e.g., cementation, crushing, incineration, vitrification, etc.) could result in needless transportation and operations related occupational radiation exposure.
3. Until DOE commits to actual waste emplacement conditions including backfill, getters, or other engineering modifications, waste emplacement will not represent actual conditions. And these commitments will need to be based on the results of the 1994 performance assessment.
4. Operational demonstration is unrelated to the demonstration of compliance with the disposal requirements of the EPA Standards.
5. If the scientific experiments with 4,500 drum-equivalents are conducted, it will require more than 100 truck shipments. Unloading more than 300 TRUPACTS and moving the material through the system will provide considerable operational experience.
6. It is important to demonstrate an ability to emplace increasing amounts of waste safely, but we see no purpose to doing it twice, now and when the disposal phase begins.
7. DOE has not identified any need to conduct operational demonstrations at the HLW facility in Nevada and has no plans to do so prior to demonstrating compliance with the EPA and NRC Standards for disposal. Experiments and operational demonstration with HLW at the Climax Mine in Nevada involved a dozen shipments, which is insignificant compared to the 1,500 planned shipments to WIPP for operational demonstration.

When will WIPP be ready to dispose of TRU waste?

Disposal (with no intent to retrieve) cannot begin until DOE demonstrates compliance with the EPA safety standards, (scheduled to occur in late 1994). Such demonstration requires analytical calculations to predict the long-term behavior of the radioactive actinides in returning to the biosphere. Preliminary analyses by Sandia National Laboratory suggest a high likelihood of the need to modify the waste form to either change the rate of gas generation (compaction, shredding) or eliminate the gas (vitrification, incineration or elimination of steel drums) in order to meet the standards. Since it may require several years

to design, construct, license, and test such a facility, a decision made in 1993 may not have waste available for shipment until considerably later than 1995.

What needs to be completed?

In September 1989 EEG identified 14 scientific stipulations to be met prior to the first shipment of waste to WIPP. The following have yet to be resolved

1. Complete the EPA approval of a variance petition of no migration of the mixed wastes slated for WIPP in order to ship representative mixtures of waste for experiments;
2. Publish a report summarizing the status of compliance with Subpart B of the EPA Standards for the human intrusion scenario involving gas and brine. No progress has been reported yet in the Assurance Requirements of the Standard which do not require quantification;
3. Perform the analyses and develop plans for tests designed to prevent and dissipate gas generation from radioactive waste. All estimates indicate that the expected amounts of gas will require engineering modifications to either prevent the generation or to reduce the amount of gas after generation.
4. While progress is being made daily, the facility is not yet operationally ready to receive wastes for the following reasons
 - o The airborne radioactivity detection equipment has not yet been proven capable of detecting radiation underground with the necessary sensitivity;
 - o Radiation protection operating procedures have not all been completed and verified;
5. The Draft Final Safety Analysis Report (Final SAR), does not include analysis of all safety issues. To avoid undue expectations by the public that it does, EEG has urged DOE to include a preface stating that the Final SAR does not include an analysis of the
 - o Safety of long-term disposal;
 - o Safety of the workers during the test phase experiments, or
 - o Operational readiness of WIPP to receive waste.

6. While the Supplement to the Environmental Impact Statement (SEIS) has been issued, there are still a number of issues to be resolved.
7. Technical concerns on the ability to get meaningful data in a timely manner from alcove tests need to be addressed.
8. Purchase the existing mineral lease at the site.
9. Aid the State in designating "Preferred Routes" as specified by the U. S. Department of Transportation (49 CFR 177.825).
10. If measurements of gas production from CH-TRU wastes cannot begin at WIPP this year, and results are needed as soon as possible, conduct some tests at the generating sites. Gas measurements were made at INEL in 1984 and 1989.
11. EEG needs to receive the validation plans for Rocky Flats Plant and the other waste generators to provide assurance that waste from the generating sites does meet the acceptance criteria for WIPP. The system relies on self certification and measurements by the generators with an annual visit by the WIPP Waste Acceptance Criteria Committee to review their procedures. Unfortunately, the last WIPP audits of RFP and Idaho National Engineering Lab (INEL) occurred in January 1989 and are not scheduled again until January 1991 -- a 2 year interval.

The amount of plutonium recently reported in the air ventilation duct work at the Rocky Flats Plant (RFP) is 28 kilograms. Since the transuranic waste from RFP scheduled to be shipped to WIPP contains 7.5 grams Pu/drum, the duct work appears to contain the equivalent plutonium found in 3700 drums of RFP WIPP waste. That is not much different than the amount of plutonium in the 4500 drums (0.5%) requested by DOE for bin and alcove experiments during the first five years.

While there are no data on the particle size distribution of the plutonium in the RFP ducts, the amount of inhalable plutonium at RFP appears comparable to the maximum amount of 21 kilograms of inhalable plutonium that could be present in the 2 million cubic feet of TRU waste (290,000 drums) to be shipped to WIPP from RFP over the next 25 years. And two-thirds of that waste has yet to be generated.

While this plutonium will probably be recovered and not shipped to WIPP, the comparison is intended to provide a perspective on the need of a plan (which is not available) to create confidence that the measurements of TRU waste for WIPP are correct through a formal system of verification.

12. State of New Mexico must receive a delegation of authority from EPA to regulate mixed waste shipments for WIPP and then approve DOE Part B Application.
13. Publish plans for alternate storage and disposal of wastes brought to WIPP during first five years if the facility does not meet EPA Standards for disposal.
14. Complete NEPA documentation for the Los Alamos National Laboratory in order to ship waste from that facility.

Record of Decision

We have suggested that DOE delay issuance of the WIPP Record of Decision that the facility is ready to receive waste until

- o Completion of operational readiness issues and a report to demonstrate that the facility is ready to safely handle radioactive materials;
- o Analysis of engineered modification options and their incorporation in the test plan;
- o Acquisition of the mineral lease on the site;
- o Resolution of retrievability and retrieval options;
- o Completion of NEPA documentation for the generator sites;
- o Resolution of waste certification verification at the Rocky Flats Plant.