UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

AUG 7 2001

OFFICE OF
AIR AND RADIATION

Dr. Inés R. Triay, Manager
Carlsbad Field Office
Department of Energy
P.O. Box 3090
Carlsbad, NM 88221

Dear Dr. Triay:

The Environmental Protection Agency (EPA) has completed an evaluation of the Department of Energy's (DOE) requests of April 26, 2001, and June 29, 2001, to consider an alternative use of Panel 1 of the Waste Isolation Pilot Plant (WIPP). Based on our review of the information that you provided, and in accordance with section 194.4(b)(3)(vi) of the Compliance Criteria, we hereby inform you of our determination that DOE's proposed alternative use of WIPP Panel 1 is compliant with the terms and conditions of EPA's WIPP certification. Therefore, you may implement the following specific changes set forth in the April 26 and June 29 letters:

Use of all, part, or none of the space in each of the rooms in Panel 1 for CH-TRU waste disposal, and

Closure of Panel 1 without emplacement of any RH-TRU waste.

As we explain in the enclosed report, we have determined that these changes will not adversely impact the ability of disposal system to contain transuranic radioactive waste. In addition, we do not believe that these changes affect any other conditions of our May 1998 Certification Decision.

We appreciate your efforts in responding quickly to our requests for more information, thus enabling us to make this determination. In accordance with section 194.4(b) of the Compliance Criteria, DOE is required to inform EPA of any further design modifications that

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differ from the Compliance Certification Application. If you have any questions about this determination, please contact Agnes Ortiz at (202)564-9310.

Sincerely,

Frank Marcinowski, Director
Radiation Protection Division

Enclosures
cc: Cindy Zvonar, CBFO
Matthew Silva, EEG
Steve Zappe, NMED

Enclosure: EPA Review of 4/26/01 and 6/29/01 Panel 1 Use Proposal

1. Introduction

This report summarizes the Environmental Protection Agency's (EPA's) review of the Department of Energy's (DOE's) request for alternative use of Panel 1 of the Waste Isolation Pilot Plant (WIPP). In an April 26, 2001, letter (Attachment 1), DOE proposed three changes to the use of Panel 1:

1) Place CH-TRU waste containers in either 1-, 2-, or 3-high stacks. MgO backfill will be emplaced with the waste so that the ratio of backfill to waste remains consistent with ratios described in the CCA.

2) Use all or only part of the space in each of the seven Panel 1 rooms for waste disposal. Some rooms could be bypassed and left void of waste.

3) Close Panel 1 without emplacing any RH-TRU waste.

Based on this proposal, on June 22, 2001, EPA requested additional information on the proposed changes (Attachment 2). DOE responded with additional data and information related to requests 2 and 3, and revised the initial proposal to rescind the request for approval to stack waste containers in 1- or 2-high stacks (Attachment 3).

Therefore, this evaluation considers the proposed changes of using all, part, or none of space in each of the rooms of Panel 1 and closing Panel 1 without RH-TRU waste (items 2 and 3 above).

2. Review of Proposed Changes

During numerous site visits EPA staff have noted the degraded condition of Panel 1 because of its advanced age, and we are concerned about the possible effects of the condition of Panel 1 on the safe emplacement of waste.

The Environmental Evaluation Group (EEG) recommended in August 1996, EEG-63, Stability Evaluation of the Panel 1 Rooms and The E140 Drift at WIPP (obtainable from EEG) ". . . it is best to abandon Panel 1 and mine a new panel as soon as all permitting process are complete." EEG also noted,

> . . . with a high degree of confidence, it would be possible to safely use portions of Panel 1 for waste storage. This would require close monitoring and periodic stability assessments to identify the most stable rooms. In addition, we foresee the need for installation of external support systems to prevent the potential for roof falls during waste emplacement operations [p. 30].

DOE's proposal attempts to implement EEG's recommendation to use Panel 1 appropriately.

DOE did not provide any information in response to EPA's June 22, 2001, request for additional information on roof falls because DOE is no longer proposing to stack drums 1- or 2-high stacks. Therefore the main remaining technical issue was the impact that partially filled or empty rooms, or the absence of RH-TRU waste in Panel 1, could have on the ability of the repository to contain waste. EPA's June 22 letter also requested additional information on whether or not partially filled or empty rooms could act as preferential pathway for releases of radionuclides (Attachment 2).

On June 29, 2001, DOE provided additional data and information responding to EPA's June 22 letter (Attachment 3). The data and information provided in DOE's response support the conclusion that the characteristics of the empty or partially filled rooms will be much like native salt, with permeabilities several orders of magnitude less than rooms that contain waste (as stated in the Compliance Certification Application). DOE references modeling that shows that empty rooms will approach a permeability of approximately intact salt ($K<10^{-19}$ m^2) (Attachment 3). After approximately two hundred years, partially filled or abandoned rooms will have permeabilities similar to unmined salt and will not be able to act as preferential pathways for fluids (Attachment 3, p. 3). Releases as predicted in the certification performance assessment will not increase (Docket A-93-02, Item II-G-1). EPA determines that the data and information presented in Attachment 3 adequately support the conclusion that partially filled or empty rooms will not act as preferential pathways for release of radionuclides.

EPA also requested additional information on whether or not the waste loading scheme for the entire repository will be affected by the proposed change in use of Panel 1. DOE's June 29 letter presents data supporting the conclusion that the proposed changes in waste loading will not increase predicted future releases from the repository. EPA concurs with these findings and determines that DOE's statistical analyses are sufficient to support the conclusion that the effects of the proposed changes on potential releases will be insignificant. EPA determines that this conclusion applies to the proposed geometry and current design of the waste disposal area.

DOE's proposal not to emplace RH-TRU waste in Panel 1 will lower the overall actinide inventory of Panel 1, given the assumption that the total RH inventory will be less than the approved CCA inventory because of the exclusion of panel one RH waste. If the actinide source term is less, then potential releases from the repository are not increased. The exclusion of RH-TRU waste from Panel 1 should not impact the predicted long-term predicted performance of the WIPP. If DOE were to seek an increase in the amount of RH-TRU waste in remaining panels, or any other change related to RH-waste emplacement design, it would be necessary to obtain EPA's approval of the proposed change prior to implementation.

3. Conclusion

We determine that the proposed changes to the usage of Panel 1, involving:

> use of all, part, or none of the space in each of the rooms in Panel 1 for CH-TRU waste disposal, and
> closure of Panel 1 without emplacing any RH-TRU waste,

will not increase projected certification releases and are insignificant to long-term performance of the WIPP disposal system. Therefore, we approve these requested changes. This change should be noted in the annual change report.