



## ENVIRONMENTAL EVALUATION GROUP



AN EQUAL OPPORTUNITY / AFFIRMATIVE ACTION EMPLOYER

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December 16, 2002

Mr. Steve Zappe  
Hazardous Waste Bureau  
New Mexico Environment Department  
2905 Rodeo Park Drive East, Building 1  
Santa Fe, NM 87505-6303

Dear Mr. Zappe:

The Department of Energy submitted a class 3 permit modification request to the New Mexico Environment Department on October 7, 2002. This request concerned changes to the panel closure design system. The Environmental Evaluation Group (EEG) has reviewed these proposed changes and offers the attached comments.

Sincerely,

Matthew K. Silva  
Director

MKS:LA:js

cc w/attachment: Inés Triay, DOE/CBFO  
Elizabeth Forinash, EPA-ORIA  
Jody Plum, DOE/CBFO  
Stan Patchet, WTS

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## **Environmental Evaluation Group Comments on Class 3 PMR, Closure Plan Amendment (10/07/02).**

1. The proposed closure design appears to offer additional benefits without sacrifice in the protection of human health or the environment. While not quantified, it appears to lower potential risks to the construction workers. The simpler design should have a higher probability of success and has a lower estimated cost when compared to the currently mandated design.
2. In Attachment I1, Detailed Design Report For An Operational Phase Panel Closure System, references are made to the conservative nature of the design. On page ES-5 it is stated:

The dimensions selected for the passive design components are conservative, and thus ensure that these components will not require routine maintenance during the operational 35 year life.

On page ES-6:

The length selected for the explosion isolation wall provides for a substantial margin of safety against structural failure.

While the analysis provided in the report indicates that these statements are valid, the report should state what the engineering margin of safety is for the 30 ft wall.

3. In regard to the run-of-mine salt backfill, the EEG understands that this component is included to provide a redundant degree of safety. However, the design report should comment on the proposed 100 ft length of backfill. Does this length have significance? It may be in the DOE's interest to provide an analysis demonstrating that a lesser thickness of backfill provides a reasonable measure of redundancy and propose that thickness as a minimum in the PMR. Otherwise, they may be required to emplace a backfill thickness which in the future may be found to be operationally inconvenient.
4. The report should discuss the operational process of backfilling. The conceptual diagram (Figure 2-1) suggests a rather tight packing of backfill material while the report (page 3-5) describes the salt being emplaced in a "loose" state. The DOE should describe the backfilling process and discuss the potential "healing" of this material with appropriate references.
5. The recent (November 21, 2002) Class 1\* PMR requesting an extension of time for closure of Panel 1 reiterates the conclusion of the original panel closure design report that methane concentration necessary for an explosion could not occur for approximately 20 years. It is therefore unclear why the new design report shows profiles of stress (Figures 3-7 and 3-8) in the block wall caused by an explosion after 10 years of creep loading. Stress calculations

should have temporal consistency, i.e. stress calculations involving explosions should include 20 years of creep loading.

6. The introductory material to the PMR states (p. 1-2):

In evaluating the time necessary for closure, the Permittees considered the *Hazardous Waste Storage and Disposal in Geologic Repositories, Permit Guidance Under the Resource Conservation and Recovery Act* (EPA/530-SW88-001 (OSWER Directive 9523.00-13, March 1988)), which states, "***The closure plan must identify the steps necessary for complete or partial closure of the facility at any point during its intended operating life.***" §10.1 (emphasis added). Following this guidance, the Permittees have identified all of the steps and the associated time frame that would be necessary if closure of a Panel was unexpectedly required.

The PMR does not identify any circumstances in which the closure of a panel might be unexpectedly required, nor are there any indications in the current HWFP. The WIPP Safety Analysis Report (DOE/WIPP 95-2065, Revision 6; July 2002) posits one event (a roof fall) for which an unexpected panel closure might be necessary if other mitigative processes fail (Section 5.2.3.11, p. 5.2-26), but also states that the roof fall scenario "...is quantitatively evaluated to be beyond extremely unlikely (less than 1E-06/yr)" (p. 5.2-27). The EEG recommends that the NMED establish the need for a panel closure time-frame that is dependent on unexpected events before adding such a time-frame to the HWFP.

7. The DOE submitted a request to the EPA related to panel closures (October 7, 2002 Triay-to-Marcinowski letter) about the same time this PMR was submitted to NMED). The DOE letter requested that the EPA modify the 40 CFR 191/194 WIPP Final Rule so "...that the NMED will be responsible for final review and approval of panel closure design and construction" (p. 1 of the letter). The EPA responded to the DOE in a letter dated November 15, 2002. The EPA did not agree with the DOE assessment of allocating such review responsibility to NMED. This letter indicated that the proposed change would require a rulemaking. This effort would not be undertaken by the agency until after their work on recertification was complete, which would be in 2004. The EPA also stated that the DOE was required to ensure that Condition 1, i.e. Option D panel closure, is reflected in the compliance recertification application.

This results in the DOE having to show compliance with one closure design while asking the NMED to consider a design change. The EPA document cited by the permittees in the quotation in EEG comment number 6 also states (p. 1-6):

The U.S. Nuclear Regulatory Commission (NRC) is also responsible for regulation of Mixed LLW management and may impose specific requirements on geologic repositories receiving Mixed LLW not addressed in this manual. In cases where documentation prepared by a permit applicant to comply with NRC requirements also addresses requirements applicable to [40 CFR 264] Subpart X

facilities, applicants are encouraged to submit that documentation with their RCRA permit application in lieu of performing extensive editing or rewriting of the NRC submittals.

In the case of the WIPP HWFP, the panel closure plan was taken from the EPA-required closure plan—that is, the HWFP implicitly accepts that the current EPA-required closure plan also meets RCRA specifications. The adoption of the EPA-required closure plan by the NMED was apparently at least in part to minimize the need for an extensive review of the panel closure system.

In keeping with this precedent, and the guidance provided in the document cited by the permittees, the EEG recommends that NMED consider waiting for any changes to the EPA's requirements for the panel closures, and assess this PMR in reference to the EPA changes (if any).

8. The introductory material to the PMR states, in relation to the 40 CFR 194.42 requirement to describe the exact changes to be made to the permit conditions, that (p. 1-2):

Attachment A of this PMR explains the individual changes proposed while the exact, proposed changes to the WIPP HWFP are provided in Attachments B and C.

In considering this PMR the NMED should be aware that Attachment D to the PMR also contains exact changes to be made to permit conditions, in HWFP Attachment M2 (Section M2-2b). Attachment D is noted in the PMR's Table of Contents.

9. The PMR's changes to Table I-1 (PMR p. I-25) proposes an average of 17 months from the time waste disposal operations are complete in a panel to completion of the panel closure process. The EEG believes that open panels filled with waste represent a potential safety hazard, and that a time span more in agreement with the current HWFP-required 180-day time period for closing a panel should continue to be applied. While the EEG had earlier concurred with the DOE that a 360-day time period would be reasonable (EEG-82), this was for a closure design that included a block wall and concrete bulkhead.

The PMR's added Table I-1a shows an approximate 9 months of this time is for awarding a contract to perform the work, and to "mobilize materials and prepare for construction". This may be based on the concept of an "unexpected need for closure" addressed in a previous EEG comment. In the absence of reasonable probability (considered currently by the permittees to be less than one-in-a-million per year) that such an unexpected need will arise, it would seem to be unnecessary to wait until a panel is completely filled prior to establishing contracts and gather materials for the closure process. The Table I-1a allowance of 60 days to "File Certification of Closure" would also seem to be somewhat excessive.