Department of Energy
Carlsbad Field Office
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Carlsbad, New Mexico 88221

JAN 1 1 2007

Juan Reyes, Director
Radiation Protection Division
1310 L. Street NW
Room 507
Washington DC, 20460

Dear Mr. Reyes:

On October 7, 2002, the Department of Energy/Carlsbad Field Office (DOE/CBFO) requested Environmental Protection Agency (EPA) approval of a proposed change to the design of the panel closures at the Waste Isolation Pilot Plant (WIPP). This letter renews DOE/CBFO's 2002 request for EPA to review and approve two proposed actions related to panel closures:

- The New Mexico Environment Department (NMED) will be responsible for approval of the design and construction of the panel closure system at WIPP.
- A new design may be used for the panel closures.

In addition to the original requests, DOE/CBFO is also recommending that permanent closure of panels be delayed to allow gas monitoring, with installation of final panel closures depending on the results of that monitoring. Background information and the major documents that support these requests are described in the remainder of this letter.

In October 2002, DOE/CBFO asked EPA to modify Condition 1 of the WIPP Certification decision by agreeing that NMED is responsible for final review and approval of the design and construction of the panel closure system at WIPP, while recognizing that EPA must be satisfied the new closure design will not adversely affect compliance with the long-term performance criteria. The 2002 submittal included details of a revised panel closure design that was submitted to NMED with a request to have the new design approved for use in closing the WIPP panels.

On November 12, 2002, DOE/CBFO also informed EPA of its request to NMED to extend the panel closure schedule for Panel 1. Specifically, DOE/CBFO asked that NMED approve the installation of the explosion wall component of the approved "Option D" closure as required by the Hazardous Waste Facility Permit (HWFP), but to extend the time period for completing the remainder of the closure activities until NMED and EPA rendered their respective final decisions on the request to modify the approved final panel closure system design. By letter dated December 26, 2002, NMED approved a delay of final closure until a time "not later than five years after completion of the explosion isolation wall." In a subsequent letter in 2005 NMED approved a similar delay for Panel 2. In a November 15, 2002 letter, EPA advised DOE/CBFO that EPA was deferring review of the proposal until a decision had been issued on DOE/CBFO's first recertification application.

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On March 29, 2006, EPA rendered its recertification decision and as a result DOE/CBFO is resubmitting the request to modify Condition 1 of the Final Rule. DOE/CBFO has also requested that NMED now consider the proposed new design submitted in October 2002, and is attaching to this letter information on the proposed new design, and its predicted performance. The proposed panel closure design is the same as that submitted in October 2002. The supporting documentation has been updated with a new impact analysis of the long-term effect of the revised closure design on repository performance.

As you know, the purpose of the panel closure system in the WIPP facility is to control volatile organic compound (VOC) emissions during the operating life of the facility, and, thus, to protect the health and safety of workers. In addition, the closure is designed to contain any possible explosion associated with a hypothetical build up of flammable gases. There are no long-term design requirements or performance specifications for these closures, beyond the necessity to demonstrate that they will not have an adverse affect on long-term performance.

The currently approved panel closure design ("Option D") specified in Condition 1 involves installation of a concrete block "explosion isolation wall", removal of the Disturbed Rock Zone along a section of the panel access drift, and emplacement of a concrete monolith composed of Salado Mass Concrete in that section of the access drift. After several years of experience with WIPP as an operational facility, we have re-evaluated a number of its engineering and construction aspects. This effort included detailed planning to install the Option D closures in Panel 1 and a parallel analysis of alternative closure designs. As a result of this re-evaluation, we believe a redesign of the panel closure system is warranted. The redesigned panel closure (called the WIPP Panel Closure (WPC)) is constructible in the WIPP underground, will be much simpler and significantly less expensive to build, will reduce the risk of accidents and industrial injury to construction workers, and will reduce the potential for disruption of waste emplacement activities. All of these benefits will accrue without influencing the short- or long-term performance of the repository. The analyses that accompany this letter demonstrate that the long-term performance of the repository is not sensitive to the closure design, within a broad range of likely closure permeability values, and specifically demonstrate that impacts to the predicted long-term performance of the repository associated with the installation of the revised closure design are negligible compared to the currently prescribed Option D design.

The HWFP issued by NMED specifies panel closure requirements that comply with the requirements of the New Mexico hazardous waste regulations during the operational, closure and 30-year post-closure periods of the repository. Because the panel closure specifications cover only the operational and closure periods and because long-term performance is insensitive to this design, DOE/CBFO believes that NMED, tasked with regulating hazardous waste disposal in New Mexico, should have responsibility for final approval of the panel closure system design. DOE/CBFO therefore requests that the EPA modify Condition 1 of the WIPP Certification decision to acknowledge that NMED is responsible for regulating the design and construction of the panel closure system at WIPP, provided that DOE demonstrates there are no long-term impacts on performance. DOE/CBFO suggests that such a change might be made on the following basis:

- DOE/CBFO will implement a panel closure system as approved by the NMED

- DOE/CBFO will demonstrate, by an appropriate impact assessment, that the panel closure system proposed to NMED does not adversely affect the long-term performance of the repository

This Notification of Proposed Change to Condition 1 requires that EPA be fully cognizant of the CBFO's Permit modification request to NMED for panel closures. To this end, the details of the redesign and its performance are included in the enclosed Compact Disk (CD). The CD includes the following attachments.

Attachment A, *Design Report for a Revised Panel Closure System at the Waste Isolation Pilot Plant,* provides a description of the proposed design and demonstrates its adequacy to meet requirements of the Resource Conservation and Recovery Act during the operational period. This design report has been certified by a Professional Engineer registered in New Mexico. Attachment A was transmitted to NMED in October 2002 as part of the Permit Modification Request to change the Closure Plan contained in the HWFP.

Attachment B, *Effective Permeability of the Redesigned Panel Closure System,* provides estimates of the permeability of the WPC as a function of time. Specifically, it demonstrates the permeability of the new closures will be between 10^{-15} m^2 and 10^{-19} m^2 throughout the regulatory period. This range is significant because it is consistent with the range of panel closure permeability evaluated in Attachment C.

Attachment C, *Panel Closure Impact Assessment Documentation,* evaluates the impacts of panel closures on the long-term performance of the repository. This analysis report is prepared pursuant to 40 CFR Part 191, Subparts B and C, and 40 CFR Part 194. The report demonstrates that impacts to the predicted long-term performance of the repository associated with the installation of the WPC are negligible compared to the currently prescribed Option D design. This attachment also includes a new impact analysis specifically designed to evaluate the effects of the new closure.

Attachment D, ***Further Assessment of the Short-term Stability of the 12 Foot Explosion Isolation Wall,* dated June 30, 2006, evaluates the continued stability of the explosion isolation walls constructed in Panel 1.** Since some time has passed since the initial request to extend the time for final closure construction and installation of the explosion wall component of the Option D design, the DOE/CBFO has conducted additional calculations to ensure the explosion wall component will continue to function as required for an additional period while the revised closure design is being reviewed. Attachment D provides these new calculations.

Attachment E, *Panel Closure System History,* provides information regarding the various submittals and responses pertaining to panel closures from the time of the Compliance Certification Application submittal in 1996 up to the present.

Attachment F is a courtesy copy of the October 2002 Planned Change Request that provided a revised design for the panel closure system and requested modification of Condition 1 of the

Certification Decision. The description of the revised panel closure system design was also provided to NMED in 2002 as a Class 3 PMR.

In addition to the requests in the original October 2002 submittal, DOE/CBFO is further requesting that permanent closure of Panels 1, 2, and 3 be delayed to allow the October 2002 Class 3 to be amended to address long-term monitoring of combustible gases potentially generated by degradation of the emplaced waste. DOE/CBFO is requesting that NMED allow DOE/CBFO to install a temporary steel bulkhead and utilize existing monitoring equipment to continue to measure the concentrations of volatile organic compounds until final NMED action is taken on the October 2002 Class 3. Ultimately, if the gas concentrations remain low, as we expect, then we intend to delay installation of the permanent panel closures until repository closure. In this case we would review the design of panel closures as well as the need for any closure beyond the steel bulkheads. On the other hand, if the observed gas concentrations exceed certain action levels related to the lower explosive limits of hydrogen and methane, then more frequent monitoring or installation of an approved panel closure design will be required. Copies of the submissions to NMED on monitoring are also included on the CD accompanying this letter.

Attachment G is a Class 1* Permit Modification Request (PMR) submitted to NMED to extend the closure schedule for Panels 1 through 8, while NMED reviews the original October 2002 Class 3 PMR.

Attachment H provides the "Notice of Planned Change," submitted to NMED in accordance with the WIPP HWFP. The Notice of Planned Change to the Permitted Facility identifies physical alternations which must be made in Panel 3 for safety reasons.

We appreciate your timely consideration of this request. Should you require further information, please contact Daryl Mercer of my staff at (505) 234-7452/8172.

Sincerely,

David C. Moody

David C. Moody
Manager

Enclosure

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