



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

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**OFFICE OF
AIR AND RADIATION**

**Dr. Inés Triay, Acting Manager
U.S. Department of Energy
Carlsbad Field Office
P.O. Box 3090
Carlsbad, NM 88220**

Dear Dr. Triay,

I am writing in response to a letter dated October 20, 2004, from Dr. Paul Detwiler. The U.S. Environmental Protection Agency (EPA) has received and reviewed the U.S. Department of Energy's (DOE) plan, provided in Dr. Detwiler's letter, for emplacement of magnesium oxide (MgO) in the Waste Isolation Pilot Plant (WIPP). The emplacement of MgO in WIPP is an important element of EPA's 1998 WIPP Certification Decision because it is the only engineered barrier at WIPP and it is important to maintaining the proper chemical conditions in the repository for permanent disposal of transuranic (TRU) waste.

In a March 26, 2004, letter to DOE (Docket Number: A-98-49, Item II-B3-68), EPA approved DOE's plan to dispose of Idaho National Environmental and Engineering Laboratory (INEEL) compressed (super-compacted) waste in the WIPP. We specified in the approval that prior to the disposal of this compressed waste in WIPP, DOE is required to demonstrate adequate waste characterization and quality assurance processes, and to demonstrate that DOE will emplace sufficient MgO along with this compressed waste to maintain a safety factor of 1.67. At the time of the INEEL compressed waste approval, and again in a letter dated May 20, 2004 (Docket Number: A-98-49, Item II-B3-72), regarding the completeness of the Compliance Recertification Application (CRA), EPA notified DOE of the need to provide EPA with an emplacement plan for MgO.

The emplacement plan provided by DOE on Oct 20, 2004 (Docket Number: A-98-49, Item II-B2-38), provides DOE's conceptual approach for ensuring the MgO safety factor will be met, with appropriate focus on how to address the higher than average amounts of cellulosic, plastic and rubber (CPR) materials that are associated with the INEEL compressed waste. However, the plan lacks sufficient detail to provide assurance that it can be properly executed and tracked in practice. EPA is requiring DOE to address the following issues, in detail, prior to receiving any approval for the shipment of compressed waste with higher than average CPR amounts from INEEL or any other TRU waste generator site.

The MgO emplacement plan states that a tracking system will be developed for MgO. DOE must provide detailed information on how emplaced CPR and the amount of MgO in the repository will be tracked, including the nature of the database(s) and associated processes or procedures to be used.

The emplacement plan must clarify the safety-factor calculation that will be used to determine whether enough MgO is emplaced. DOE needs to describe how this calculation will be applied on a real-time or near real-time basis, including possible automated error checking.

The emplacement plan must address the distribution of creep closure forces in relation to the compacted waste columns and regular waste columns. DOE needs to address whether the additional sacks of MgO that are required for the compressed waste will be subject to enough force to release MgO for chemical reactions as intended.

Based on our assessment that the conceptual approach embodied in the MgO emplacement plan is adequate, we find the October 20, 2004 MgO emplacement plan sufficient to meet the requirements for completeness of the CRA. However, the details of the MgO emplacement plan are not sufficient for authorizing disposal of INEEL compressed waste at WIPP. This information will serve to demonstrate that the CRA is technically adequate in light of the importance of the MgO safety factor. At this time, EPA plans to inspect the waste characterization processes for compressed waste at INEEL during the week of February 28, 2005. Regardless of the results of this inspection, EPA will not approve the disposal of INEEL compressed waste at WIPP until the MgO emplacement issues are resolved. EPA will inspect and approve the completed MgO emplacement plan, applicable procedures, and tracking system before INEEL compressed waste is disposed at WIPP. For questions on this topic and coordination of these activities, please contact Tom Peake at 202-343-9765.

Sincerely,



Bonnie C. Gitlin, Acting Director
Radiation Protection Division

cc Lynne Smith, DOE/HQ
Russ Patterson, DOE/CBFO
Steve Casey, DOE/CBFO
Steve Zappe, NMED
EPA WIPP Team
EPA Docket