



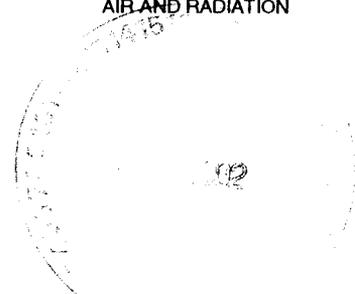
UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

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JUL 10 2002

OFFICE OF
AIR AND RADIATION

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



Dear Dr. Triay:

Thank you for your letter of May 30, 2002, transmitting the Department of Energy's (DOE's) preliminary evaluation of the potential impact of constructing underground laboratories for particle physics research near the Waste Isolation Pilot Plant (WIPP). Your letter initiates a process requested by Senator Pete Domenici of New Mexico in a February 15, 2001, letter to Dr. Robert A. Eisenstein of the National Science Foundation and Dr. James F. Decker of DOE's Office of Science.

Senator Domenici's letter noted that, with respect to the proposed underground particle physics research, questions have been raised as to whether "further excavation at WIPP to create deeper experimental facilities would compromise its Environmental Protection Agency (EPA) certification." To address these questions, Senator Domenici's letter requested that (1) DOE analyze the costs and evaluate any impact on repository performance if a lower horizon were to be created for experiments, and (2) EPA review DOE's analysis to confirm that such changes would not compromise repository performance.

We believe that DOE's preliminary evaluation of the proposed experimental facility constitutes a first step in the process of analysis and review requested by Senator Domenici. With this letter, EPA provides comments on your preliminary evaluation. We look forward to working with DOE to complete the review process in a manner that is defensible and preserves the integrity of EPA's certification.

EPA's May 1998 certification that DOE had demonstrated that the WIPP will comply with the radioactive waste disposal regulations at subparts B and C of 40 CFR Part 191 (63 Fed. Reg. 27354) was the culmination of a complex evaluation process mandated by the WIPP Land Withdrawal Act (WIPP LWA). EPA's certification was based on a comprehensive review of

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data and information submitted by DOE, independent technical analyses, and public comments. A major component of the data and information reviewed by EPA was the 10,000-year computer simulations submitted by DOE as the performance assessment and performance assessment verification test (PA/PAVT). As summarized very briefly in tables 5-1, 5-2, and 5-3 of the Department's preliminary evaluation of the potential impacts of constructing underground laboratories for particle physics research, the additional excavations required by these laboratories, and the consequent alteration of the repository's design, will require numerous revisions to the computer model assumptions, models, codes, and grids making up the PA/PAVT.

EPA agrees with the conclusion of the preliminary evaluation (page 5) that the proposed changes to the repository's design may have impacts on the features, events and processes (FEPs) that are important to performance assessment and will require revisions to the PA/PAVT. Similarly, we agree with the conclusion presented in Table 5-1 of the preliminary evaluation that the proposed experiments entail substantial changes from the design of the repository that was presented in the Compliance Certification Application (CCA). The proposed changes to the WIPP facility would require a completely new performance assessment evaluation, including a thorough reevaluation of pertinent FEPs to take into account the new facility design.

Moreover, while useful as a scoping exercise, the series of "reasoned evaluation" conveyed in the preliminary evaluation only begins to address the potential impacts on the repository. A technically sufficient and regulatorily appropriate review will require that specific FEPs be addressed in a comprehensive manner. For example, fluid injection scenarios must be thoroughly reevaluated to determine the potential impact of the enhanced flow pathways created by the introduction of the experimental facility.

Also, additional site characterization activities, such as deep test boreholes, and a thorough evaluation of the deeper excavation's potential effects on pressurized Castile brine pockets, are necessary to demonstrate that such brine is not likely to flood the rest of the waste repository. The preliminary evaluation at page 9 acknowledges that a pressurized brine source may be created in the experimental galleries. While DOE hypothesizes that such brine will not negatively impact the disposal facility, EPA's regulations require that DOE demonstrate that there is a reasonable expectation that the repository will not suffer any adverse effects from such an event.

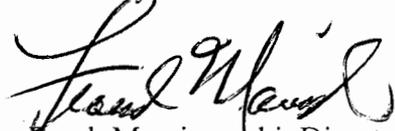
Another feature that must be adequately modeled is the applicability of the existing shaft seal design to a shaft that is twice as long as that contemplated in the original CCA and certification. The "Go Deep" phase two facility is fully twice as deep as the current repository

level. Whether the original shaft seal design will adequately seal the excavations at that much greater depth must be confirmed by adequate design evaluation and modeling. As part of the FEPs screening, DOE would have to reevaluate the current modeling of rock mechanics to determine its applicability to the depths of the proposed facility. The introduction of much larger rooms or cavities near the WIPP must be analyzed to establish that their presence would not adversely affect waste containment in the WIPP. These are just a few of the potentially altered FEPs that must be adequately addressed in a performance assessment before EPA can make a valid determination that the proposed excavations will not compromise repository performance. DOE should also consider the nature and scope of proposed experiments in relation to the continued safety of waste disposal operations at the WIPP.

Finally, as we have noted in previous communications regarding proposed experimental facilities (August 29, 2001, and January 29, 2002), our comments are intended only to address technical issues associated with the requirements of 40 CFR Parts 191 and 194. These comments do not in any way constitute an indication by EPA as to whether DOE has actual statutory authority under the WIPP LWA to conduct the proposed activities, nor is this letter intended to indicate in any manner the Agency's opinion on this question. Rather, this letter is intended only to provide EPA's response to DOE's preliminary evaluation of the potential impacts of the proposed experimental facility.

If you have any questions, please contact Betsy Forinash, Director of the Center for Federal Regulations, at (202) 564-9310.

Sincerely,



Frank Marcinowski, Director
Radiation Protection Division

cc: Senator Pete Domenici
Dr. Robert A. Eisenstein, NSF
Dr. James F. Decker, DOE
Lynne Smith, DOE
Cindy Zvonar, CBFO
Matthew Silva, EEG
✓ Steve Zappe, NMED