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

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OFFICE OF
ENFORCEMENT AND
COMPLIANCE ASSURANCE

Dr. Jane R. Summerson, EIS Document Manager
M/S 010
U.S. Department of Energy
Office of Civilian Radioactive Waste Management
Yucca Mountain Site Characterization Office
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Dear Dr. Summerson:

In accordance with the National Environmental Policy Act (NEPA), Section 309 of the Clean Air Act, and the Council on Environmental Quality's implementing regulations (40 CFR 1500-1508), the Environmental Protection Agency (EPA) is providing you comments on the Supplement to the Draft Environmental Impact Statement (EIS) for a Geologic Repository for the Disposal of Spent Nuclear Fuel and High-Level Radioactive Waste at Yucca Mountain, Nye County, Nevada, dated May 2001 (DOE/EIS-0250D-S, CEQ # 010159).

The Proposed Action addressed in the draft EIS was to construct, operate, monitor, and eventually close a geologic repository at Yucca Mountain in southern Nevada for the disposal of spent nuclear fuel and high-level radioactive waste currently in storage at 72 commercial and five Department of Energy (DOE) sites across the nation. The draft EIS described the potential environmental impacts of constructing, operating, monitoring and closing the repository.

While the fundamental repository concept has not changed from that described in the draft EIS, the design has continued to evolve. That evolution is described in the *Yucca Mountain Science and Engineering Report,* a summary of which was distributed to recipients of the Supplement. The Supplement evaluates the potential impacts of the so-called *flexible design* described in the Science and Engineering Report, and compares these to the impacts described in the draft EIS. EPA commends DOE for preparing the May 2001 Supplement to update the information in the draft EIS.

EPA's comments on the Supplement are detailed in the enclosure. We request additional information to clarify certain information, impacts and conclusions drawn in the Supplement. Because the Supplement is limited in scope, it does not address the comments EPA made on the draft EIS regarding the national transportation aspects of the project, nor does it provide most of

the additional data we requested on the projects's potential environmental impacts. EPA therefore continues to have environmental concerns with the project, per our rating of the draft EIS as "EC-2", Environmental Concerns-Insufficient Information.

EPA also notes that although this Supplement updates the repository design with current information, research at Yucca Mountain continues and DOE expects to make further refinements even after preparing the final EIS. In preparing the EIS at this stage of this complex, long-term project, DOE has determined that the range of operating modes in the current flexible design will produce environmental impacts representative of the range produced by foreseeable future designs and operating modes, and has conservatively estimated the bounds of the potential impacts of the flexible design. DOE is continuing to analyze the performance of the repository under different operating modes in an attempt to further reduce uncertainties and improve its performance.

EPA appreciates the benefits of ongoing research and recognizes the desirability of achieving the safest possible repository performance. If ongoing scientific studies support the EIS's bounding information, then the NEPA requirement to disclose the environmental impacts of a project should be satisfied. However, EPA encourages DOE to provide public review of and comment on new information that affects the project's design and operation. And, CEQ regulations (sec. 1502.9) require a supplement to a draft or final EIS when an agency makes substantial changes to a proposed action relevant to environmental concerns or where there are significant new circumstances or information relevant to environmental concerns and bearing on the proposed action or its impacts.

As a general comment, EPA notes that since this supplement was prepared, the EPA Administrator has signed 40 CFR Part 197, *Public Health and Environmental Radiation Protection Standards for Yucca Mountain, Nevada."* The final EIS and any other supplements should reference these standards. Also, any subsequent documents should incorporate the provisions of Part 197 into the discussion and comparisons made in the EIS, e.g., the references to the "postclosure receptor" being located 20 kilometers south of the repository are outdated.

Thank you for the opportunity to review this Supplement. If you have any questions or would like to meet with EPA on these comments, please contact Susan Absher of my staff. She may be reached at 202/564-7151.

Sincerely,

Anne N. Miller

Anne Norton Miller
Acting Director
Office of Federal Activities

Enclosure

SPECIFIC EPA COMMENTS
Supplement to the Draft EIS for a Geologic Repository for the Disposal of Spent Nuclear Fuel and High-Level Radioactive Waste at Yucca Mountain
(DOE/EIS-0250D-S, May 2001)

Page 2-11, Section 2.3.1. This section describes repository closure, but provides no details on post-closure monitoring other than a reference to the NRC proposed rules. The final EIS should provide a more detailed description.

Page 2-12, Section 2.3.2.1. In the final sentence of the first paragraph, it is unclear why the "basic facilities for personnel support, warehousing, security, a concrete plant for fabricating and curing precast components and supplying concrete for in-place casting, and transportation (motor pool)" are inside the radiation control area (RCA). If such facilities have radiation concerns, the reasons and impacts should be explained.

Page 2-13, Figure 2-4. The "potential commercial spent nuclear fuel aging area" is inside the RCA but apparently outside the security station. What security controls will there be for this area?

Page 2-21, Section 2.3.3.2. The second paragraph states that "this low ventilation rate [0.1 cubic meter per second] would permit monitoring of the air stream exhausting from the drifts for leaks of radioactive material, but would not contribute significantly to removal of heat from the emplacement drifts." This is followed by a discussion of the higher ventilation rate [15 cubic meters per second] under the new flexible design, but there is no mention of monitoring. Does this mean that the flexible design does not allow for monitoring of the exhaust air? If so, this raises public health and on-site safety concerns. The final design must include effective monitoring and a system to divert the air into high-efficiency filtering systems in case releases are detected.

Page 2-31, Section 2.4. The last two sentences of the fourth paragraph state: "The effect of drift spacing on these related parameters would be less than the effect of waste package spacing in the analytical scenarios presented in this Supplement. Therefore, DOE did not perform a quantitative evaluation of the environmental impacts of variable drift spacing." EPA questions the basis for this statement and conclusion. What about interactions? The distance between waste packages is an independent design factor from the distance between drifts. Therefore, there is a range of potential conditions and impacts that could occur. These impacts should be assessed or a more detailed rationale provided for the statements and conclusion.

Page 2-31, Section 2.4. The first sentence of the final paragraph identifies "Uncertainties in future funding profiles or the order of...waste shipments" could affect the construction of the repository. The next sentence states that this approach could "potentially increase confidence in meeting the schedule for waste receipt and emplacement." DOE should explain how uncertainties in funding can result in increased confidence for meeting the schedule.

Page 3-11, Section 3.1.8, Accidents. All of the doses to the maximally exposed individuals exceed by 2.5 to 3.2 times the current radionuclide NESHAPs standards. The information to determine these results should be provided.

Page 3-17, Section 3.1.14, Transportation. We note that the transportation impacts are increased for the *flexible design* over the draft EIS design. These increased impacts, as well as those noted in other areas, should be incorporated into the final EIS analysis.

Page 3-20, Section 3.2.2. Following Table 3-12 is a statement that the integrating software for the Total System Performance Assessment has changed from that used for the original DEIS to GoldSim®, and that "GoldSim® incorporates much the same performance assessment calculational approach, but with substantial improvements in the user interface and data handling." The final EIS should provide support for this statement because changing the software which integrates the many programs which are used in the Total System Performance Assessment (TSPA) introduces uncertainty into the comparison of previous results.

Page 3-21, Table 3-13. This table lists a change in the "Unsaturated zone flow" as "Coupling between thermal, hydrologic, and chemical effects." What is the status of the modeling and research on these coupled processes?

Page 22 of the Executive Summary of the Yucca Mountain Science and Engineering Report. Under Performance Confirmation and Monitoring is stated, "Performance confirmation and monitoring activities would continue throughout the preclosure period, which could extend up to 300 years." Does DOE have confidence in such a long performance-monitoring period particularly in light of the statement on page 2-31 of the Supplement about "uncertain funding" for even the relatively shorter term construction of the disposal system and transporting of the waste?