

LETTER TO A. MATTHUSEN

AUG 13 1991

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Mr. August C. Matthusen
5141 Indian River #280
Las Vegas, NV 89103

Dear Mr. Matthusen:

This letter responds to your letter of December 19, 1989, in which you commented on the U.S. Nuclear Regulatory Commission (NRC) staff's "Site Characterization Analysis [SCA] of the Department of Energy's [DOE's] Site Characterization Plan for the Yucca Mountain Site, Nevada." As we discussed with you previously, in order to respond to all commenters on the SCA simultaneously with our response to DOE's comments on the SCA, we are providing our response to your letter at this time. In your letter, you raised the concern that the NRC staff's Comment 42, concerning the DOE's program for evaluating erosion, appears to be inappropriate on the basis of your review of the reference cited and the background material for the reference.

The NRC staff agrees with your assessment that there is an error in the conversion of erosion rates expressed in millimeters per year to rates expressed in millimeters per 10,000 years in Purcell, C.R., 1986, "Potential erosion at the Yucca Mountain nuclear waste site: Letter report from LLNL to NRC." This was a draft report. For the final version of the report, released in 1988, the error in conversion was corrected. The NRC staff's comment was made on the basis of extrapolation of erosion rates using the correct conversion, and should have referenced the 1988 report.

In your letter, you cite the following reasons to support the argument that "hillslope erosion will not be capable of uncovering the proposed repository even under the worst-case scenario conditions": (1) data for erosion rates apply to semi-arid environments, and Yucca Mountain is presently in an arid environment; (2) rates are for unconsolidated material; and (3) rates cited originally came from data on silty sand. Unfortunately, the actual data for erosion rates at Yucca Mountain are sparse. Accordingly, at this time there is no technical information to support a conclusion that hillslope erosion will not cause problems at the Yucca Mountain site. Until more definitive data are available, the NRC staff agrees with Purcell, 1988, that "considerable additional data will be necessary to form even a preliminary understanding of the erosion potential at the NTS" (Purcell, 1988, p.18).

The DOE has also responded to the NRC staff's Comment 42 in its December 1990 report "Responses to Nuclear Regulatory Commission (NRC) Site Characterization Analysis." The DOE position on Comment 42 is that an evaluation of escarpment retreat is embodied within its overall hillslope erosion activity. The objective of the hillslope erosion activity is to "determine the average rates of Quaternary hillslope erosion at Yucca Mountain in bedrock and surficial deposits." This does not include an evaluation of escarpment-specific rates of erosion. In order to fully evaluate the possible impact of erosion on a

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potential repository at Yucca Mountain, the NRC continues to believe that escarpment retreat on the western face of Yucca Mountain warrants specific, focused DOE attention. Thus, the NRC staff considers this issue to be unresolved until DOE indicates how it will evaluate escarpment retreat in its site characterization program.

To summarize, the NRC staff comment in the SCA was based on the final report by Purcell, not on the draft report. The incorrect SCA reference was essentially an editorial error. The date in the SCA reference should have been 1988 and not 1986. As sound management practice, NRC and NRC contractor reports are reviewed for quality of work, technical veracity, and calculational accuracy.

We trust that this letter addresses your concerns.

Sincerely,

for Newton K. Stablein

John J. Linehan, Acting Director
Repository Licensing and Quality Assurance
Project Directorate
Division of High-Level Waste Management

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* See previous concurrence.

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We trust that this letter addresses your concerns.

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To summarize, the NRC staff comment in the SCA was based on the final report by Purcell, not on the draft report. The incorrect SCA reference was essentially an editorial error. The date in the SCA reference should have been 1988 and not 1986. As sound management practice, NRC reports are reviewed for quality of work, technical veracity, and calculational accuracy.

We trust that this letter addresses your concerns by clarifying that the date of the reference in the SCA was in error, and by explaining that when we are dealing with limited data, we tend to make conservative estimates in the interest of protecting public health and safety.

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To summarize, the NRC staff comment in the SCA was based on the final report by Purcell, not on the draft report. The date in the SCA reference should have been 1988 and not 1986. We continue to consider the report to be useful, recognizing, as did the author, that potential rates of erosion cited are conservative. The NRC staff agrees with you that NRC reports should be reviewed and evaluated for quality of work, technical veracity, and calculational accuracy. This is one of the functions performed by the Center for Nuclear Waste Regulatory Analyses (CNWRA), which was established in 1987. The CNWRA is NRC's primary contractor for the high-level radioactive waste program. To ensure the quality of its products, the CNWRA has an NRC-accepted quality assurance program.

We trust that this letter addresses your concerns by clarifying that the date of the reference in the SCA was in error, and by explaining that when we are dealing with limited data, we tend to make conservative estimates in the interest of protecting public health and safety.

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