

SEP 30 1985

Dr. Donald R. Peacor
Dept. of Geological Sciences
1006 C.C. Little Building
Ann Arbor, MI 48109

Dear Dr. Peacor:

Dr. Kim referred your manuscript, "Investigation of the Stability of Backfill Materials" to me for review and comments. We will publish this report after your editorial revisions. A few comments are pencilled on the text, but I urge you to carefully review your manuscript for precision and technical clarity as well as simple word processor glitches. Your secretary should prepare a camera-ready copy, typed in the format of the NUREG publication Dr. Kim has previously provided to you.

In addition, one of the stated goals in your introduction is to use natural analogue data to extrapolate experimental data on the rate of illitization. In particular, on page 9 you state,

"If changes do occur in experimental materials it is possible to at least qualitatively determine the relative effect of different variables and the rates of change. Changes occurring in geologic systems may therefore be placed on a more quantitative predictable basis.... It is therefore essential that the results of [experimental and natural geologic systems] each be interpreted in an integrated manner."

In the conclusions, the rates of change to be expected under proposed repository conditions over 10,000 years were not explicitly addressed, either qualitatively or quantitatively. If the results of your study do not allow such a prediction, please state as much. If further experiments or studies could address these questions, please briefly outline such experiments or studies. If you are doubtful that these questions can ever be even semi-quantitatively answered, please state as much and list your reasons.

Finally, I am enclosing two items. First, our Division Director recently circulated a list of definitions related to high-level waste disposal which you

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- 2 -

may find helpful. Second, please find a report published by the Swedish Nuclear Fuel Company which addresses the kinetics of illitization.

I look forward to receiving your revised manuscript.

Sincerely,

Original Signed By:

Claudia Hackbarth
Waste Management Branch
Division of Radiation Programs
and Earth Sciences, RES

Enclosures:
As stated

cc: K. Kim

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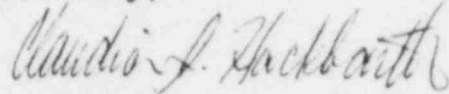
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Sincerely,

A handwritten signature in cursive script, reading "Claudia A. Hackbarth".

Claudia Hackbarth
Waste Management Branch
Division of Radiation Programs
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Other	PDB
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