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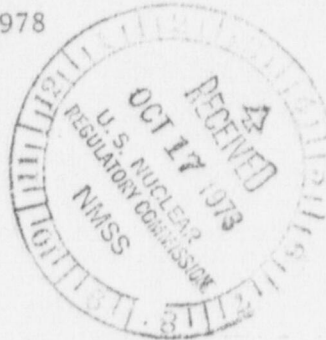


POST OFFICE BOX X
OAK RIDGE, TENNESSEE 37830

October 12, 1978

(NRC PUBLIC DOCUMENT ROOM)

Mr. Gene Trager
Nuclear Material Safety and
Safeguards
U.S. Nuclear Regulatory
Commission
Washington, D.C. 20555



Dear Mr. Trager:

Subject: Adequacy of October 4, 1978 Responses to Questions
Concerning the Proposed Tailings Management Program
for Energy Fuels Nuclear's White Mesa Project

The following critique addresses the adequacy of responses on a question-by-question basis. Requests for additional information are included where appropriate.

1-2. The applicant's response is very optimistic regarding the length of time required (100 years) for saturation of the dikes. My own estimate without accident scenarios concluded that the center of the embankment would saturate in 6 1/4 years, and the downstream toe in 25 years. They should show the calculations and assumptions on which their conclusion is based. For example, did they use horizontal or vertical permeability, what were the hydraulic and capillary heads, etc.? How would a broken slurry pipeline or adverse weather affect the degree of saturation? Will piezometers be installed in the dikes to detect seepage? What remedial action would be taken if seepage through the dikes takes place?

Slope stability analysis assuming saturation of both embankment material and Mancos Shale should be performed and the factors of safety compared with MESA's minimum requirements. If the results show that a problem may exist, would the applicant be prepared to offer additional seepage control such as an upstream apron, installation of drains, or a cut-off trench to insure that the downstream segment of the

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embankment and inplace claystone (Mancos Shale?) do not become saturated?

- 3a. The applicant did not provide a complete analysis, only the results of that analysis. The complete analysis should be provided, including calculations and all the assumptions that went into them.
- 3b. Response is pending results of permeability tests.
- 3c. Response is adequate.
- 4. Response is adequate.
- 5. Flood protection analysis was not provided, only the results of that analysis. Show calculations, graphs, and assumptions.
- 6. Response is adequate.
- 7. The applicant may be overly optimistic regarding the degree of saturation in the clayey-silt liner. While the permeability may be low, capillary forces (surface tension) will draw tailings water into the embankment and exposed sections of the liner. Repeated freeze-thaw could damage the upper foot of the liner along a broad band adjacent to the temporary shoreline.

Can the clay liner be constructed in a summer season and covered by a thin layer of tailings (providing adequate insulation) in early fall?

Also, how does the applicant propose to compact the liner to "100% of optimum density"?

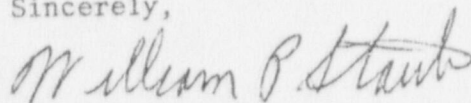
- 8. Please address rapid drainage methods in terms of advantages such as more rapid reclamation, mitigating the impact on groundwater, and protecting the cap from failure by differential settlement; for example, how much sooner could reclamation of each cell be achieved if a sub-drain were installed in the lower half of each cell?
- 9. List the quality control tests to be performed and their frequency.
- 10a. Response is adequate
- 10b. Response is adequate

10c. Response is adequate.

11. Duplicate of question 3. This information should be part of the response to question 3.
12. Dames and Moore is completing a revised radiological model; Results and new recommendation for cover thickness will be available shortly.

As you can see, the applicant's responses leave many questions unanswered. I hope this renewed inquiry is helpful in narrowing the information gap for the new tailings management proposal.

Sincerely,



William P. Staub
Geotechnical Engineer
Environmental Impact Section

WPS:jw