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EXXON COAL AND MINERALS COMPANY

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OCT 11 1989

Environmental and Regulatory Affairs Division

JAMES D. PATTON
Manager

October 10, 1989

Regulatory Publications Branch
Division of Freedom of Information and Publications Service
Office of Administration
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

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54FR 33101
8/11/89

Dear Sirs:

We hereby submit comments on "Draft Staff Technical Position, Design of Erosion Protection Covers for Stabilization of Uranium Mill Tailings Sites" availability of which was noticed in F.R. Vol 54, No 154, August 11, 1989.

Exxon Corporation owns the Ray Point (Texas) and the Highland (Wyoming) uranium mill tailings sites. These sites are managed by Exxon Coal & Minerals Company, a division of Exxon Corporation. We have successfully completed reclamation of the Ray Point site and are currently completing construction of the stabilization cover at the Highland site. Both sites utilize vegetated earthen covers with flat slopes engineered to assure long term erosion protection.

In general, we find the draft to be a useful guide to aid a licensee in meeting the reclamation standards specified in NRC regulations. We regret that this document did not become available until after most licensees had already submitted reclamation plans for approval. In our own case, the review and approval process for our reclamation plans was a lengthy one requiring several years to achieve. During this period, there were periodic references to differing NRC opinions on how the standards should be interpreted.

We agree with the NRC management position statement quoted on page 6 stating "the risk of tailings reclamation failure is not life-threatening in the short term and is not likely to be significantly greater over the long term. Therefore, the engineering criteria should be commensurate with this risk." This statement basically agrees with the National Academy of Sciences and the EPA's Radiation Advisory Committee positions. They have stated the hazard of uranium mill tailings is very low and the EPA reclamation standards are inappropriately conservative.

In our experience there has been a tendency for the NRC staff to use very conservative boundary values for factors included in hydrology calculations. This results in very conservative designs. Perhaps this was in part a result of not having an accepted technical position interpreting the criteria in the regulations. In any event, we applaud the position paper for discouraging this overly conservative attitude.

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We believe the requirement to design for a precipitation event which would result in the probable maximum flood is overly conservative and not justified. Although, by definition the PMF does not have a return frequency, various attempts to extrapolate the rainfall event statistics indicate the PMF might be equivalent to a storm with a return frequency well in excess of 10,000 years. This means that there is less than a 2% to 10% probability of this event occurring in the specified design basis period of 200 to 1000 years. The probability of the PMF affecting more than one site during the same 200 to 1000 year period is extremely remote. Since each licensee must pay a sizeable fee into a continuing care fund when the site is transferred to a government agency, these funds could be pooled to repair damage which might result from such an event. Alternatively licensees might be given the option of contributing an amount equivalent to the estimated cost of repairs times the probability of the event into the continuing care fund, rather than to design for the PMF.

We agree with the statement on pages 6 and 7 about the design precipitation event which says "By designing for such a large single event, it is expected that smaller, continued events will have little or no cumulative impact on stability, due to the overall flat slopes necessitated by designing for the rare event."

We disagree with the conclusion on page 8 that vegetation may worsen water erosion by increasing flow depth and shear forces. Our experience, based on successful reclamation of mining areas in Wyoming over the past 16 years, is that vegetation, even at 30% ground cover, greatly reduces sheet erosion while not increasing gullying. This is may be a result of the tortuous flow path created by the vegetation which reduces the velocity. Since slope heights are not increased by vegetation, but the water flow paths are lengthened, the vegetation tends to produce the same effect as flattening the slope. In addition to impeding water flow, the vegetation roots bind the soil together.

The scope of the position paper does not include groundwater impacts. However, the paper should acknowledge that vegetated soil covers reduce deep infiltration of surface water by way of evapotranspiration. Rip-rap covers have the disadvantage of increasing surface water infiltration.

On page A-3 the equation $q_s = PLF$ is given. This should be $q_s = PF$. If the incorrect equation is used, the formula for S_s given on page A-3 cannot be derived from the equation developed by Horton.

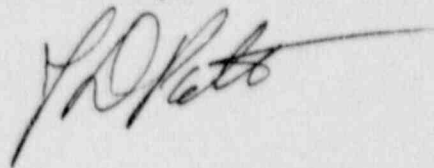
We disagree with the statement on page D-27 that a layer of small rock less than six inches thick is not practicable to construct. Experienced equipment operators routinely place layers three to four inches thick. We do agree that a rock layer should be at least 1 1/2 times as thick as the mean rock size (D50).

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We suggest including a discussion of the benefits of placing the smaller sizes of rip-rap in a soil/rock matrix. This can be done by using a smooth roller to compact soil into the rock voids. The matrix will provide cohesion that the rock itself lacks. Also, it will encourage earlier invasion of the rock by vegetation. Plants will improve the surface stability, especially by locking the rocks in a root matrix.

We appreciate the opportunity to comment on this NRC staff document. It is clear a high level of effort went into its preparation. We will be pleased to provide any additional information which may assist in preparation of this important document.

Sincerely,

A handwritten signature in dark ink, appearing to read "J. D. Peto", with a long horizontal flourish extending to the right.

JDP/DMR/an
9617R

c: D. M. Range, Highland