



UNITED STATES
NUCLEAR REGULATORY COMMISSION
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MAR 6 1980

MEMORANDUM FOR: Ross A. Scarano, Chief
Uranium Recovery Licensing Branch

THRU: John J. Linehan, Section Leader
Operating Facilities Section
Uranium Recovery Licensing Branch

FROM: Jeffrey L. Kotsch
Operating Facilities Section
Uranium Recovery Licensing Branch

SUBJECT: MINUTES FOR MEETING WITH UNITED NUCLEAR
CORPORATION (UNC) AND TENNESSEE VALLEY
AUTHORITY (TVA) CONCERNING MORTON RANCH'S
TAILINGS DISPOSAL PLANS (DOCKETS NO. 7-8602)

Date and Place: January 29, 1980; Silver Spring, Maryland

Purpose:

To discuss UNC's proposed tailings management alternatives and other possible operational changes.

Attendees:

NRC - J. J. Linehan	UNC - C. E. Wolff	TVA - G. F. Harmon
H. J. Miller	T. Hiscox	R. L. Morley
J. L. Kotsch	A. W. Woods	M. R. Casada

D. M. Fritz, Consultant - Hydrology Associates, Inc.

Discussion:

The primary purpose of this meeting was the presentation by UNC and TVA of proposed tailings management alternatives for the Morton Ranch site. These are alternatives to the tailings management plan as presented in the FES (NUREG-0532) and involve the use of depleted open pits backfilled above the water table for tailings disposal, and a clay lined evaporation pond for the excess tailings liquid.

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The need for alternatives to the disposal plan presented in the FES arose as a result of Condition No. 41 of the Morton Ranch license (SUA-1356). This condition requires that the licensee provide the Uranium Recovery Licensing Branch with an evaluation of the stability of the proposed pit liner. Furthermore, NRC approval of the liner design and incorporation of the approved design by license amendment is required prior to construction of the liner.

The licensee conducted a stability analysis of the proposed pit liner. A stability problem was found with the unsaturated properties of the clay side-wall liner at the proposed 1:1 slope before tailings emplacement. UNC reported that slopes required for stability, before tailings emplacement, would need to be 1.5:1.5 or 2.5:2.5. These slopes would significantly reduce the available tailings storage volume and would result in long, narrow pits.

The two basic tailings management alternatives presented by UNC concerned: (1) modification to slurry tailings disposal into a lined pit, i.e., the FES disposal plan; and (2) two disposal plans utilizing dewatering of tailings. None of these modifications would significantly change the location of the pits, evaporation ponds, or mill as presented in the FES.

Two modifications to slurry disposal into clay lined (bottom and sides) pits were developed to correct for the stability problem of the FES tailings disposal plan.

- (1) This approach involves a stage-constructed sidewall clay liner with lifts of 15 feet (and 20 feet thick). Each lift would allow sufficient storage capacity for 5 months of tailings.
- (2) This approach involves the use of a slurry clay liner for the side walls. This concept is similar to the method used in a slurry trench for a dam cut-off trench. There is much less of a stability problem with the liner in this approach since the sidewall liner would rise in lifts along with the rising tailings level. Also, no heavy machinery use is required on the side walls. The tailing disposal volume is increased slightly since only 3 feet of a bentonite-clay slurry is necessary to create a highly compacted, low permeability sidewall liner.

The second basic alternative, dewatering of tailings, was presented by UNC with two modifications. Both approaches would have a 3 foot bottom clay liner to mitigate vertical seepage and no sidewall liner.


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- (1) This approach involves the use of mechanical dewatering utilizing a 70 foot long belt filter. Tailings would be slurried by pipe to a belt filter plant located initially near the upper series of mined-out pits. From here the dewatered tailings would be carried to the pits by conveyor belts. After about 10 years the belt filter plant would be relocated to permit disposal into the lower series of pits. The advantages of this approach are increased tailings disposal volume due to the space made available by deleting the sidewall liner and the greater ease in stabilizing and reclaiming the pits soon after the completion of tailings emplacement. The major disadvantage is the high cost of the system.
- (2) This approach utilizes in-situ dewatering of each of the mined-out pits. Each pit would have an underdrain, within a filter blanket, installed on top of the bottom clay liner. The collected liquid would drain toward a sump and be pumped to either the evaporation pond or back to the mill. The advantages of the other dewatering plan are also applicable to this plan, but at a lower cost.

UNC and TVA will make a decision soon on one of these tailing disposal plans, but the in-situ dewatering plan seemed favored by the licensee. All of the plans were found to be preliminarily acceptable to the WMUR staff. UNC is tentatively planning for a June 1980 submittal of the information necessary to amend their license.

Other items discussed included the following:

- The actual water table in the area of the mill is 10-15 feet deeper than the average value reported in the FES. This is not due to any dewatering activities since there is no pumping or dewatering activities upgradient of the Morton Ranch site.
- The construction of the key trench of the evaporation pond dam and the required timing of NRC inspections.
- Implementing TLD badging for all mill personnel.
- UNC would like to switch from the Tedlar bag method to a passive monitor for Rn-222 monitoring.
- UNC is considering the use of a parallel slurry system rather than a yellowcake dryer.


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