



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
WASHINGTON, D. C. 20555

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DEC 19 1979

MEMORANDUM FOR: Files

FROM: George Wu  
Uranium Recovery Licensing Branch

SUBJECT: MEETING WITH KERR-MCGEE NUCLEAR CORPORATION (KMNC)  
REPRESENTATIVES

Date of Meeting: November 28, 1979

Place of Meeting: Willste Building, Silver Spring, Maryland

Attendees: William Shelley, KMNC  
George Rice, KMNC  
Hubert Miller, WMUR  
George Wu, WMUR

Purpose of Meeting:

The meeting was called by the staff to discuss with KMNC the following topics:

- 1) Various technical issues which the staff has been concerned about in the review of the license application submitted by KMNC for its South Powder River Basin (SPRB) Mill at Converse County, Wyoming, and KMNC's current intentions in pursuing a license for this mill.
- 2) Staff information needs on the Ion Exchange (IX) Plant, for which KMNC has submitted an application for a license, at the proposed SPRB Mill site.

Background:

- 1) The original application for the SPRB Mill and the associated Environmental Report (ER) was submitted by KMNC in July 1977. The Draft Environmental Statement (DES) was prepared by NRC in June 1978. However, the DES was prepared without a chapter on tailings management alternatives, since the necessary information on alternatives had not at that time been submitted by KMNC. The SPRB Mill licensing project was placed on suspended status in June 1978. KMNC submitted, in August and September of 1978, responses to the staff requests for information on the tailings management program at the Mill; however, no action could be taken at that time on these submittals due to the need for NRC to reassign its staff members, while response from KMNC was awaited, and KMNC was not pressing the matter.

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The staff subsequently reinitiated, in October and November of 1979, review of all of the information received thus far on the SPRB Mill. Through the review the staff concluded that in general the revised tailings management alternative, proposed in the September 27, 1978 letter from W. Shelley (KMNC) to R. A. Scarano, appears in concept to approach meeting the NRC tailings management objectives, and that a more complete set of alternatives has been considered by KMNC than was the initial case. The staff concluded, that although more detailed technical information still need to be worked out, information provided by Kerr-McGee formed the basis for resuming a full scale review of the KMNC proposed Mill. The staff, therefore, called the meeting with the KMNC representatives to discuss with them their current intentions on their application, and to attempt to arrive at a course of action for resolving the tailings management issues at the SPRB Mill.

- 2) In a separate application submitted in June 1979, KMNC applied for a license for an Ion Exchange (IX) Plant, for uranium extraction from minewater from the currently operational mines, at the proposed SPRB Mill Site. The staff had previously requested additional information on the IX Plant and KMNC had responded as of November 1979. However, due to more recent staff review of the information, further information needs were identified, and to expedite the licensing process, these information needs were therefore included for discussion during the meeting.

Summary of Meeting:

- 1) The staff inquired as to the intentions of KMNC in pursuing a license from the NRC for the SPRB Mill. W. Shelley indicated that KMNC is still interested in obtaining a license for the Mill, and that he is currently in the process of revising the ER for the Mill. However, since construction is not scheduled to begin until 1981, KMNC does not consider the obtainment of the license to be an urgent matter. The staff indicated that we intend to proceed with the licensing of this project; however, certain issues regarding tailings management must be resolved before further licensing action can be taken. Furthermore, the staff indicated we would not proceed unless KMNC had intentions of actively pursuing a license.

The staff indicated that the most recently proposed tailings management alternative (alternative 5 in the letter of September 27, 1978 from W. J. Shelley to R. Scarano) represents something that can be worked with to arrive ultimately at an acceptable tailings management program. Nevertheless, there remains certain aspects within this alternative that can and should be improved significantly, or justified. More specifically, various engineering designs and other technical details would have to be provided. The following is a summary of the issues discussed.

- a) The staff is concerned about the potential groundwater impacts from the tailings which are returned to the open pit or deep mine. KMNC proposes to separate partially drained sands from the slimes of the tailings; the slimes will remain in the tailings pond, and the sands will be either disposed of in the open pit mines or used to backfill the underground mine. The sands will not be treated prior to disposal or backfill. The open pits, in which the sands will be disposed of, will intersect the groundwater table, and the pits will not be lined. KMNC claims that the resultant impacts on groundwater are acceptable. The staff does not consider that KMNC has fully substantiated this claim. The staff has never before licensed any mill that disposed of untreated tailings in the groundwater.

Another facet of the groundwater problem is the proposal by KMNC to use untreated sands for backfill in the underground mine. (KMNC indicated that such practice is already in effect at their Ambrosia Lake Mill in New Mexico, and, therefore, justifies the practices at the SPRB Mill). Based upon the data given so far, the staff has not been able to conclude that the resulting impacts and risks to operating personnel will be negligible.

One further aspect of the open pit tailings sands disposal relates to the drainage of the tailings liquids seeping from the sands in the pit during operation. A sump is provided for draining such liquids, together with the minewater, from the pit. KMNC intends to discharge this mixture in the minewater discharge system. The staff is concerned about this mode of disposal and will be examining it closely.

- b) The staff is concerned also with the long-term stability of the slimes disposal area. The tailings retention pond will be used for permanent impoundment of the slimes. Current plans for tailings liquids and slimes retention is still with reliance upon the original dam design, resulting in ultimate above-grade disposal of the slimes. Furthermore, the pond area is located directly on a natural surface drainage system, which appears to subject the area to high erosion potential. The long-term stability of the slimes disposal area, therefore, is dubious. The staff stated that KMNC should investigate alternate locations for the pond which have very little, if any, upstream drainage. Excavation of the slimes retention area to provide full below-grade burial was also identified as an option which should be explored. The staff pointed out that slimes were going to be very difficult to cover since they would likely retain moisture. Therefore, it would be in KMNC's interest to have available large quantities of cover material to provide a thick cover (much more than the base minimum of three meters). This would assure that instabilities that might be encountered in covering the pile could be compensated for by adding lots of material.

The staff then discussed with KMNC the tentative schedule for licensing the Mill. KMNC should expect to receive a request for additional information within about two months. The DES should take perhaps three months, and preparation of the FES should take roughly three to four months. Therefore, the case completion date should be around October of 1980. The staff indicated that it would proceed on the case only if KMNC was interested in actively pursuing a license and supplying needed information in a timely fashion.

- 2) The staff included also for discussion the IX Plant that KMNC has proposed to build and operate, for extraction of uranium from mine water, at the currently operating mines at the SPRB Mill site. KMNC indicated that each of the three ion exchange facilities will be located at an existing and operating mine site, specifically, at the mine water settling ponds. Since the minewater settling ponds originally were part of the mining operations, these ponds may not be subject to NRC licensing. However, the ion exchange facilities will definitely be licensable by the NRC. We indicated that we will check on the question of regulatory authority over the minewater settling ponds in this case, and will be in contact with KMNC about the results.

The staff informed KMNC in the meeting that the licensing project for the IX Plant was originally scheduled for completion in December 1979; however, due to the fact that the additional information from KMNC was provided a month behind the original schedule, the case completion date for this project has now been revised to late January of 1980.

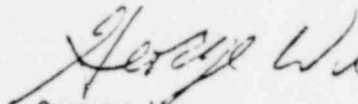
A list of specific information needs (Attachment) regarding both the SPRB Mill and the IX Plant was given to W. Shelley at the meeting. These needs have been identified as a result of initial staff review after the project was resumed. Mr. Shelley stated that answers to these information requirements will be provided to the NRC in writing. The staff pointed out that additional, more specific questions will be generated from the NRC consultant's review; these will be forwarded to KMNC when they have been prepared.

W. Shelley indicated also in the meeting that KMNC will be in contact with the State of Wyoming about other State regulatory matters, such as obtaining State land quality permits, and NRC will be kept informed.

Summary of Conclusions:

- KMNC intends to pursue its application for a license for the SPRB Mill. KMNC is preparing a revised version of the ER for the Mill that will delineate in more detail the information developed to date for the tailings management alternatives program, in response to the NRC concerns.

- The staff will proceed with the review of the SPRB Mill project, and will obtain consultants for investigation of various aspects, such as groundwater contamination and long-term stability, of the tailings management program proposed by KMNC. The staff will aim for a project completion date of October 1980.
- KMNC will prepare written responses to the attached list of specific information needs based upon the review performed since resuming active work on the case. Additional, more specific questions may be generated from the NRC consultant's review.
- The staff will continue with the review of KMNC's application for a license for the IX Plant, which is now scheduled for completion in January 1980.
- The completion dates of the SPRB Mill project and the IX Plant project depend on the timely and adequate response from KMNC on the above information requests.



George Wu  
Uranium Recovery Licensing Branch  
Division of Waste Management

Attachment:  
As stated

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## Information Needs on SPRB Mill

1. Describe the final covering over the surface disposal pit mines; e.g., the amount, shape and thickness of the cover materials, and the final contour.
2. Provide a description of the upstream drainage for the surface mines area.
3. Provide a description of the groundwater flow characteristics and compositions at the surface mines area, and potential contaminant movement.
4. Describe the procedures for disposal of the tailings liquids drained from the surface pits during operations; i.e., will they be discharged to an evaporation pond?
5. Provide a description of the surface hydrological flow pattern at the site and the upstream drainage for the tailings retention pond.
6. Describe the local stratigraphy, and provide a stratigraphy map.
7. Provide an estimate of the excavation depth necessary at the retention pond to maintain tailings slime storage below grade.
8. Describe the procedures for storing the excavated rock from the retention pond area and how the clay lining will be prepared in the pond.
9. Provide a map showing the general boundaries of the three sections for staged tailings discharge in the retention pond. Describe the techniques for controlling the points of discharge of tailings, and how separation between each section will be maintained.
10. Estimate the quantities and compositions of sands that will be used for underground backfill, if still planned.

## Ion Exchange Plant

1. Describe the location of the evaporation pond.
2. Characterize the waste streams from the elution facility and the resin washing processes, and other waste liquids discharged into the evaporation pond.
3. Characterize the settled solids in the minewater settling ponds, and describe how these solids will be managed; e.g., removed and transported.
4. Describe the designs for the minewater settling ponds at the ion exchange plant.
5. When will the residue from the evaporation pond be disposed of? Describe what will be done to minimize airborne particulates and radon emissions from the pond until the residues are properly disposed of.
6. When will the evaporation pond be reclaimed? Describe the final contours of the area following reclamation.