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

APR 30 1980

WMUR:JER
40-8380
40-8721

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

FROM: J. E. Rothfleisch
Uranium Recovery Licensing Branch

SUBJECT: REPORT OF MEETING WITH ROCKY MOUNTAIN ENERGY
COMPANY (RMEC) RE IN-SITU SOLUTION MINING
OPERATIONS AT NINE MILE LAKE NATRONA COUNTY,
WYOMING

Place and Date

NRC Offices Silver Spring, Maryland; March 13, 1980. This meeting was requested by M. R. Neumann (RMEC) in telecon with J. E. Rothfleisch on February 29, 1980.

Purpose

To discuss the status and proposed future actions regarding (1) RMEC's Nine Mile Lake Commercial Scale In-Situ (ISL) application (Docket 40-8721), and (2) RMEC's Nine Mile Lake R&D ISL facility (Docket 40-8380).

Attendees

NRC	J. E. Rothfleisch	RMEC	C. Bolser
			R. Hynes
ORNL	M. J. Kelly		K. Loest
			M. Neumann

Discussion

Commercial Source Material License Application
Docket 40-8721

In order to permit work to continue on the safety and environmental assessments for this project pending preparation of the revised Environmental Report, (ER) RMEC was requested and agreed to provide the following information:

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(1) Update of Rn-222 source terms based on actual measurements in the pilot plant during both production and restoration operations. NRC committed to provide information on a procedure for determining the radon source term. This information was forwarded on March 27, 1980.

(2) Responses to questions from the office of the Wyoming State Coordinator dated November 26, 1979, and forwarded to RMEC by NRC on December 18, 1979. RMEC committed to provide this information by March 27, 1980. In an April 2, 1980 telephone conversation RMEC reported they were still working on the requested responses and expected to complete this task by April 16, 1980. These responses will be incorporated in the revised ER expected to be submitted by June 30, 1980.

(3) All necessary information and commitments needed for the NRC staff to prepare a Safety Evaluation Report, SER for the proposed project. On March 27, 1980, a copy of the recent SER prepared for a conventional uranium mill was forwarded to the licensee to be used as a guide in preparing a supplement to the application containing the needed information.

As a result of discussion regarding the content of the revised ER it was agreed that the new submittal would include a detailed alternative analysis of on-site versus off-site disposal of radioactive waste along with a proposal for waste disposal that would be compatible with the NRC and Wyoming DEQ positions on this subject.

It was also agreed that the revised ER would include the proposed use of a carbonate lixiviant as well as the sulfuric acid lixiviant and that the Draft Environmental Statement would contain a dual assessment of the impacts. NRC requested that the revised ER provides a detailed comparison of the two processes including comparisons of sampling procedures, pregnant lixiviant composition, mobilized groundwater constituents, process chemistry, waste quantities and composition, along with appropriate flow sheets and diagrams. In the course of this discussion, it was agreed that demonstration of restoration of ground water quality in the pilot scale facility would be a required condition for licensing a commercial facility using either acid or alkaline lixiviant.

R&D Source Material License SUA-1228
Docket No. 40-8380

NRC directed RMEC to withdraw their March 7, 1980 submittal containing backup information for the final License Renewal Application received January 25, 1980, along with an application for an administrative amendment requesting authorization to conduct carbonate lixiviant studies on the R&D site. In place of the March 7 submittal, RMEC was directed to prepare two separate submittals consisting of (1) a review of operations to supplement the renewal application and (2) an application for a minor amendment with appropriate fees requesting the alternate lixiviant authorization.

It was requested that the renewal application backup information include a summary of environmental and occupational data collected for the R&D facility as well as material balance data, responses to comments and questions contained in Dr. D. L. Warner's review report dated July 23, 1976, and a description of a program designed to verify whether or not there is hydraulic communication between the Teapot Sandstone (ore zone) and the Parkman Sandstone (next aquifer below the ore zone). The results of this study would be used to determine if deep well monitoring would be a license condition. It was also requested that a corrected renewal application form indicating the application date be submitted with the backup information and that the review of operations include a summary report of the current Pattern No. 3 excursion.

With respect to the amendment application, it was requested that this document include at least the following information:

1. A detailed description of the proposed alternate lixiviant process including the proposed equipment, sampling program, expected pregnant lixiviant composition, process chemistry, process flow sheets, solid and liquid effluent quantities and composition and a comparison with the sulfuric acid leaching process.
2. A description of the proposed location and operating plans for the Pattern No. 4 (sodium carbonate-bicarbonate lixiviant) study.
3. Plans for Pattern No. 3 during Pattern No. 4 operation and plans for Pattern No. 3 and No. 4 restoration procedures.
4. Estimated rate of radon releases with use of the alternate lixiviant.

5. A description of the proposed ore zone and shallow aquifer monitoring program including the spacing and location of the monitoring wells and the justification thereof.
6. A detailed assessment of the potential safety and environmental impacts associated with using the alternate lixiviant.

RMEC indicated the desire to commence operation of Pattern No. 4 with carbonate lixiviant by June 1, 1980, and NRC indicated that this might be possible.

Review of Pattern No. 3 Excursion and Proposed Future Activities

RMEC outlined the sequence of events leading to the horizontal excursion that occurred in November, 1979, pointing out that the primary objective of Pattern No. 3 was to mine both the upper and lower ore zones in the Teapot Sandstone simultaneously. The excursion which occurred in the upper ore zone was attributed to partial plugging of the lower zone causing excessive injection of lixiviant into the upper zone. Remedial action which consisted of over-production was initiated immediately and by the middle of January, three of the four monitor wells had returned to baseline for all parameters while the fourth well was back to baseline for all parameters except vanadium and uranium. Although the excursion is not technically over at this time, it is considered to be under control.

NRC was alerted to the fact that RMEC planned to propose operation of an R&D multiple spot pattern designed to evaluate recovery rates from a completely surrounded pattern and to produce at a total flow rate of about 100 gpm. This study would also permit evaluation of operating procedures and adequacy of equipment design under cold weather conditions. NRC stated that this proposal would necessitate another amendment to the existing license and RMEC indicated that application would be made this summer. This application will also include a request to revise the R&D site boundary to permit construction of an evaporation reservoir of sufficient size to allow Pattern No. 3 restoration by a ground water sweep or to provide adequate capacity for any future excursions that might occur.

J. E. Rothfleisch

J. E. Rothfleisch
Uranium Recovery Licensing Branch
Division of Waste Management

cc: Mr. M. Neumann, RMEC