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DOCKET NO.: 40-8027

APPLICANT: Kerr-McGee Nuclear Corporation

FACILITY: Sequoyah Uranium Hexafluoride Production Plant

SUBJECT: EVALUATION OF REQUEST BY KERR-MCGEE NUCLEAR CORPORATION
FOR AMENDMENT OF SOURCE MATERIAL LICENSE SUB-1010 TO
AUTHORIZE THE CONTINUATION OF TESTING OF ON-SITE DISPOSAL
OF SOLVENT EXTRACTION RAFFINATE

REVIEWER: A. L. Soong

Background

By letter dated March 27, 1978, Kerr-McGee Nuclear Corporation requested authorization to continue the test disposal of barium treated neutralized raffinate during the 1978 growing season as was authorized by Amendment No. 8.

The description and safety evaluation of the test study was analyzed in detail in "Evaluation of Request by Kerr-McGee Nuclear Corporation for Amendment of Source Material License SUB-1010 to Authorize Test of On-Site Disposal of Solvent Extraction Raffinate" dated May 4, 1977, Docket No. 40-8027.

Discussion

OM's report for 1977 test results indicated the radium level for the top six inches of soil in the area before and after the test were 0.41 PCi/gm and 0.47 PCi/gm respectively, a 15% increase of radium level in the soil. Similar data for other radionuclides is shown in the following table:

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Radionuclide Content in Soil Samples
0-6 inches Depth. Pre and Post Application
of Raffinate Solution of 1977's Study

Radionuclide	Pre	Post	% Increase	Ave. Bkgd* in U.S.
Ra-226	0.41	0.47	15	0.8
Uranium ppm	1.7	1.82	5	1 to 4
Th-230 pCi/gm	0.325	0.252	--	--
Th-232 pCi/gm	0.402	0.512	27	0.6

* NCRP No. 50, Page 17, December 27, 1976.

Licensee expressed, in the same letter, the intent of on-site controlled burning of forage produced from the test areas and it was denied by NRC.

Although the radium and uranium concentration in the soil samples, as indicated in the table, are very low, a license condition is recommended that the testing be ceased when the radium or uranium level in the soil or groundwater sample exceeds the action level.

Conclusion

On the basis of the finding in the current assessment, the staff finds that continuation of this testing program for another year will not constitute an undue risk to public health and safety and the environment.

As discussed and agreed upon in a telephone conversation between A.L. Soong and the representative of KM on June 6, 1978. The issuance of the license amendment shall be subject to the following additional conditions:

1. In the event that the groundwater samples from any one well or soil sample indicate an increase in radium-226 or uranium to the following levels:

	<u>Ra-226</u>	<u>Uranium</u>
groundwater samples	3.0* pCi/liter	
soil samples	2.0* pCi/gm	4* ppm

*total sample counts (background and sample).

Licensee shall immediately notify USNRC and shall cease the application of treated raffinate to the test plot.

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2. In April 1979, the licensee shall submit to the USNRC the results of the 1978 growing season test; the report shall include an analysis and evaluation of the test results in addition to presenting the raw test data.

Original Signed by

A. L. Soeng
Fuel Processing & Fabrication Branch
Division of Fuel Cycle and
Material Safety

APPROVED BY: Original Signed by
W.T. Crow

OFFICE →	FCPF <i>Soeng</i>	FCPF <i>WTC</i>	FCPF <i>LC</i>			
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7/25/78 DATE →	7/7/78	7/7/78	7/17/78			



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

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