LPDR 40-8027

KERR-McGEE NUCLEAR CORPORATION
KERR-McGEE CENTER • OKLAHOMA CITY, OKLAHOMA 73125

October 14, 1980

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Mr. William A. Nixon
Uranium Process Licensing Section
Uranium Fuel Licensing Branch
Division of Fuel Cycle & Mat'l Safety
US Nuclear Regulatory Commission
Washington, D. C. 20555

RE: Docket No. 40-8027
License No. SUB-1010

Dear Mr. Nixon:

On May 22, 1980, Kerr-McGee Nuclear Corporation submitted a report for NRC approval of an on-site burial location for solidified raffinate sludge at the Sequoyah Conversion Facility in eastern Oklahoma. Solidification of the sludge was to be accomplished by mixing equal volumes of Portland cement and sludge.

We have recently become aware of a system for radioactive waste solidification that we believe should be considered for raffinate sludge encapsulation. The Werner & Pfleiderer Corporation's (WPC) Volume Reduction and Solidification (VRS) system is described in Report WPC-VRS-1 previously approved by NRC on April 12, 1978. A copy of the review of this Topical Report is attached.

Kerr-McGee Nuclear Corporation's Sequoyah Facility is planning to install a raffinate sludge asphalt solidification pilot plant to allow effective evaluation of this method of waste encapsulation. The pilot operation will be housed in a building approximately 15' x 25' x 12' and will be located on the south side of Clarifier A as shown on the attached drawing 110-C-1004, Revision 10.

The raffinate sludge will be pumped from raffinate Pond No. 2, dewatered and then fed to a WPC XSK-T53 evaporation-extruder by a metering pump.* A 1000 gallon gas fired roofing asphalt pot will supply the liquid asphalt for mixing with the dried sludge in the evaporation-extruder. The encapsulated sludge will be collected in pre-constructed forms for evaluation. Initially, all vapors from the evaporation system will be condensed and returned to the liquid storage pond.

*Testing will include investigation of encapsulation of pre-dried sludge.

add'l info

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A flow diagram of the pilot process is enclosed.

All existing nuclear and industrial safety and radiation protection practices currently in use at the facility will be incorporated into the operation of the pilot plant. We plan to install this pilot plant by March 1, 1981.

This installation will be approved by Kerr-McGee in accordance with provisions of paragraph 2.3 on page 2-1 of Annex B of Kerr-McGee License Renewal Application dated December 5, 1978.

Sincerely,

W. J. Shelley, Vice President
Nuclear Licensing and Regulation
Environment and Health Management

WJS/pls

Enclosures

17S34

RADWASTE

VOLUME REDUCTION & SOLIDIFICATION

TOPICAL REPORT

and

Property & Liability Insurer's Review

The Nuclear Regulatory Commission has accepted WPC's Topical Report on its Volume Reduction & Solidification (VRS) system as a reference document for nuclear licensing applications (SAR's). Utilities using the WPC-VRS system are thus spared the long and costly effort required to describe in detail the design and operation of their radwaste treatment process.

In addition, American Nuclear Insurers, the largest private underwriter of nuclear property and liability insurance, has reviewed the WPC-VRS system and concluded that the system is acceptable for normal insurance coverage, given adherence to certain specified process and plant design criteria.

The WPC-VRS system is a one-step non-chemical process which, through the use of an extruder-evaporator, removes unwanted water while simultaneously mixing and kneading the radsalts into an asphalt binder. It is the only power plant proven system which both reduces radwaste volumes and provides guaranteed solidification.

Werner & Pfleiderer Corporation
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