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

FEB 2 3 1990

DOCKET NO.: 70-687

LICENSE NO.: SNM-639

APPLICANT: CINTICHEM, INC.

FACILITY: TUXEDO, NEW YORK

SUBJECT: SAFETY EVALUATION REPORT - STORAGE OF WASTE MATERIAL IN REACTOR POOL

Background

By letter dated February 22, 1990, Cintichem requested amendment of its Special Nuclear Material License No. SNM-639 to allow special nuclear material (SNM) currently stored under Condition 4.2.8, Part I of the Consolidated license, to be temporarily stored in the reactor storage pool. The reactor storage pool will continue to contain spent fuel racks under conditions licensed by Reactor License No. R-81.

The reactor pool, transfer canal, gamma pit, and holdup tank are all interconnected systems containing reactor pool water. The transfer canal, gamma pit, and holdup tank are constructed of concrete, while the reactor pool is constructed of concrete with an internal steel liner. When necessary, the licensee can separate the systems from one another with gates.

On February 9, 1990, Cintichem experienced an on-site leak which was subsequently determined to be from a hole in one wall of the gamma pit. Further testing also found the existence of a leak in the holdup tank. These two systems are undergoing in-depth testing and repairs to prevent future leakage. Because the transfer canal is constructed with materials similar to those materials found in the leaking systems, Cintichem is planning to test and make necessary repairs to the transfer canal. Currently, the SNM stored under Condition 4.2.8 is located in the transfer canal and must be moved to facilitate the testing of the transfer canal. Because Cintichem would like to test and repair the transfer canal in concurrence with the two leaking systems, Cintichem has requested this amendment to allow the temporary storage of the SNM in the reactor storage pool.

Nuclear Safety Conditions

Because the gamma pit and reactor storage pool are interconnected and of similar depth, and storage in this environment has already been evaluated, the only unresolved safety question is the interaction of the waste material racks with the spent fuel racks. In a letter dated May 25, 1989, from R. Strack of Cintichem to R. Bellamy of Region I, Cintichem provided an analysis showing that no unsafe conditions existed in the storage of waste material racks alongside spent fuel racks. A review of this analysis by the NRC staff also showed no significant interaction between the racks when arrayed using the conditions found in Special Nuclear Material License No. SNM-639 and Reactor License R-81. The licensee has not requested nor will the amendment allow any change in the criticality safety procedures and parameters previously approved under both licenses.

Radiation Safety and Environmental Considerations

Because the reactor storage pool and gamma pit are already interconnected and exist under similar conditions, the storage of waste container racks in the reactor storage pool will not increase effluents or occupational radiation exposure.

Conclusion/Recommendation

The proposed amendment has been coordinated with the Division of Nuclear Reactor Regulation, Division of Safeguards, and Region I; none of these divisions has an objection to the issuance of the proposed amendment.

On the basis of the above discussion, I recommend that the license be amended as requested by the licensee.

/s/

Gary C. Comfort, Jr.
Advanced Fuel and Special
Facilities Section
Fuel Cycle Safety Branch
Division of Industrial and
Medical Nuclear Safety, NMSS

Original Signed by
Jerry J. Swift

Approved
Jerry J. Swift, Section Leader
Advanced Fuel and Special
Facilities Section
Fuel Cycle Safety Branch
CINTICHEM SE FOR AMD. 5

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