



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

OCT 31 1980

DOCKET NO.: 70-371

LICENSEE: United Nuclear Corporation (UNC)
UNC Naval Products Division

FACILITY: Naval Fuel Fabrication Plant
Uncasville, Connecticut

SUBJECT: REVIEW OF PROPOSED FUEL STORAGE AMENDMENT SUBMITTED BY
LETTER DATED SEPTEMBER 19, 1980, AND SUPPLEMENTED
OCTOBER 16, 1980, 07000371A04S

Background

By classified application dated September 19, 1980, United Nuclear Corporation (UNC) requested a license amendment authorizing vault storage of packaged recovered uranium (from the Wood River Junction Plant). The Wood River Junction Plant (Docket 70-820) is being decommissioned and the transfer of fuel would permit a change in safeguards requirements at that site. The criteria for the additional stored material proposed in the September application were of broad nature and needed further clarification and justification, as explained in the NRC letter to UNC dated October 3, 1980. To expedite the proposed amendment, the proposed amendment was revised by application dated October 16, 1980, to eliminate the new general storage criteria proposed September 19 and to base the vault storage on storage criteria from document NUREG/CR-0095, "Nuclear Safety Guide," TID-7016, Revision 2, June 1978, and ANS Standard N16.5 (1975), "Guide for Nuclear Criticality Safety in the Storage of Fissile Materials."

Discussion

The application is concerned solely with nuclear criticality safety during fuel handling and storage. Since the recovered fuel will be in sealed containers in the vault, there should be no significant radiological or environmental consequences of the revised vault storage allowance.

The amendment application was discussed with Mr. W. Kinney, Region I principal inspector for the Uncasville (Montville) UNC plant on October 29, 1980, and he saw no objection to issuance of an authorizing amendment.

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Nuclear Criticality Safety

The additional material to be stored in the raw fuel vault will be separated from the existing stored material using the isolation criterion from ANS Standard N16.5 (1975). The ANS N16.5 Standard was endorsed by Regulatory Guide 3.43, "Nuclear Criticality Safety in the Storage of Fissile Materials," April 1979. The new array of stored material will be limited according to the Criticality Indicator (CI) system in NUREG/CR-0095, modified to limit the number of stored units (CI) to 20 and the minimum CI value per unit to 1.0. The factor of five reduction in the allowed CI (from 100 to 20) should provide for the interspersed moderator in the packages since experiments at Oak Ridge reported in Table 23 of TID-7028 indicated that the addition of interspersed moderator could reduce the critical number of an array of high enriched units by a factor of 5. The modified CI system should therefore limit the number of packages to a safe value since the unmodified CI system provides safe limits for concrete reflected arrays of units without interspersed moderation.

Conclusion and Recommendation

Based on the safety and environmental impact information summarized in the foregoing, it is concluded that the additional packaged material can be stored in the raw fuel vault without undue risk to the health and safety of the operating staff or the public and without significant environmental impact.

Approval of the amendment application is recommended.

Robert L. Stevenson

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Approved by:

W. T. Crow

W. T. Crow, Section Leader