

DEC 19 1983

DOCKET NO.: 70-687

APPLICANT: Union Carbide Corporation (UCC)

FACILITY: Sterling Forest Laboratory

SUBJECT: SAFETY EVALUATION OF UNION CARBIDE (TUXEDO) REQUEST FOR LONGER STORAGE PERIOD FOR ALUMINUM WASTE-URANIUM CONTAINERS

Background

For over three years the licensee has separated enriched uranium from fission product waste in a form suitable for receipt by the Federal government. The recovered uranium is stored in aluminum containers under water for a short time period just prior to shipment offsite in a shielded cask. In our initial evaluation we set a limit of two weeks to the storage period. The licensee did not expect that a longer storage period would be needed.

By letter, dated December 15, 1983, the licensee has requested a storage time period of two months. The licensee cites their own experience with reactor fuel cladding (aluminum) as proof that corrosion over a period of two months would be inconsequential.

Staff Evaluation

Aluminum will corrode in deionized water over time periods much greater than a year. At a pH greater than 8 a smooth corrosion rate is observed. Below a pH of 6 pitting corrosion occurs. However, in both instances the rate would not be measurable over a two month period. Some ions in small amounts, such as mercuric and cupric, will markedly accelerate corrosion of aluminum, but even this effect would not be significant over a two month period.

Our original imposition of a two week period for storage was not based on any particular technical reason. Rather, it was imposed to prevent indefinite storage. A period of two months for the storage of the uranium waste containers is acceptable.

I recommend that the request of December 15, 1983 by Union Carbide be approved.

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*Approved
R.C. Rouse
12/19/83*

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Original signed by
Leland C. Rouse

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