To DCS 10/26/81
Return to LTyson 76-55

OCT 2 3 1981

11/10/81

Distribution:
Docket File 70-687
PDR
NMSS rf
FCUP rf
NKetzlach (2)
LTyson
WTCrow
RGPage
WTing
ATClark

Docket No. 70-687

MEMORANDUM FOR: L. C. Rouse, Chief
Advanced Fuel and Spent Fuel
Licensing Branch
Division of Fuel Cycle and
Material Safety

FROM: R. G. Page, Chief
Uranium Fuel Licensing Branch
Division of Fuel Cycle and
Material Safety

SUBJECT: REVIEW OF LICENSE APPLICATION DATED AUGUST 20, 1981, DOCKET NO. 70-687

I. Background

The Union Carbide Corporation, Medical Products Division (UCC), by application dated August 20, 1981, requested authorization to store ≤ 350 g contained ^{235}U in each of the 100 storage cavities in their new waste storage facility.

II. Discussion

UCC has constructed a new waste storage facility for the storage of radioactive waste in 55-gallon drums containing ≤ 350 g ^{235}U/drum. The drums are to be positioned in 28-inch diameter cavities located in a triangular pitch honeycomb matrix in concrete with a 38-inch center-to-center spacing between cavities.

The 350 g ^{235}U limit/drum is safe independent of the degree of water moderation within the drums and independent of the concrete reflector thickness surrounding the drums. An infinite, single-plane array of loaded drums is safe. The surface density of fuel in the array is 74 g $^{235}U/ft^2$ compared to the maximum safe density of 200 g $^{235}U/ft^2$ (see report by R. L. Stevenson and R. H. Odegaarden, "Studies of Surface Density Spacing Criteria Using KENO Calculations," ANS Transactions, November 1969). Therefore, the array is safe from a nuclear criticality safety viewpoint.

Original Signed by
Ralph G. Page
R. G. Page, Chief
Uranium Fuel Licensing Branch
Division of Fuel Cycle and
Material Safety

8111020289

OFFICE	FCUP	FCUF	FCUP	FCUF			
SURNAME	NKetzlach:rad	LTyson	WTCrow	RGPage			
DATE	10/23/81	10/23/81	10/23/81	10/23/81			