

FCPF:JCD  
 Docket No. 70-687  
 SNM-639, Amendment No. 2

OCT 30 1978

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Union Carbide Corporation  
 ATTN: Mr. James J. McGovern, Manager  
 Radiochemical Production  
 P. O. Box 234  
 Tuxedo, New York 10987

Gentlemen:

Pursuant to Title 10, Code of Federal Regulations, Part 70, Item 9 of Materials License No. SNM-639 is hereby amended and Items 15 and 16 are hereby added to read as follows:

9. The special nuclear material is for use in accordance with the statements, representations, and conditions specified in the licensee's applications dated April 28 and May 21, 1969; November 5, 1970; February 8, June 13, June 29, and August 13, 1973; May 28, 1974; February 11, 1975; August 12, 1976; and May 3 and October 13, 1978.
15. Where U-235 mass limits are imposed as criticality control criteria, the licensee shall maintain running U-235 inventory records to assure that these masses are not exceeded.
16. The maximum quantity of U-235 that may be stored in a 55-gallon 17H container is 350 grams.

All other conditions of this license shall remain the same.

The above license conditions were discussed with and agreed to by your Mr. James J. McGovern and J. C. Delaney of my staff on October 19, 1978.

FOR THE NUCLEAR REGULATORY COMMISSION

Original signed by:  
 W. T. Crow

W. T. Crow  
 Fuel Processing & Fabrication Branch  
 Division of Fuel Cycle and  
 Material Safety

10/26/78

*Handwritten initials and date: WTC 10/26/78*

OFFICE →	FCPF	FCPF				
SURNAME →	JCD Delaney	WTCrow				
DATE →	10/26/78	10/26/78				

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DOCKET NO.: 70-687

APPLICANT: Union Carbide Corporation

FACILITY: Corporate Research Laboratory

SUBJECT: LICENSE AMENDMENT APPLICATION DATED DECEMBER 28, 1977,  
AND SUPPLEMENTS DATED MAY 3 AND OCTOBER 13, 1978

Background

The December 28, 1977, application requested that (a) the quantity of special nuclear material in a single hot cell be increased from 650 grams to 2650 grams and (b) that the possession limit of U-235 under the license be increased from 4600 grams to 3000 grams of unirradiated U-235 and 10,000 grams of irradiated U-235. The licensee states that the increases are needed because the shutdown of the GETR has greatly increased their business. The May 3, 1978, supplement changed the proposed mass limits for the hot cells as well as the containers and arrays in the cells in response to questions on nuclear safety which we raised in conversations with Carbide personnel. In addition, Carbide has deferred requesting an increase in overall U-235 possession limits pending satisfactory completion of negotiations they are now having with Safeguards. The October 13, 1978, letter transmitted a drawing that was inadvertently not included with the May 2, 1978, letter, and which indicated 55-gallon 17H drums would be loaded with 350 grams of U-235 rather than with the 300 grams U235 specified in the May 3, letter. A license condition has been added to clarify this discrepancy.

Radiation Safety and Environmental

The changes in hot cell possession limits do not affect the currently approved radiation safety procedures nor the environmental considerations.

Nuclear Safety

Carbide now proposes a maximum possession limit for each waste storage cell of 2000 grams of U-235, with the material stored in linear array in five-inch diameter cylinders each limited to 200 grams of U235. Based on buckling calculations performed by Norman Ketzlach using data he had previously developed from TID-7028, this storage array is safe. Carbide also proposes a maximum possession limit of 650 grams U-235 in each isotope processing hot cell with the material stored in 300 ml. glass bottles, each bottle limited to 150 grams of U-235. Six hundred and fifty (650) grams of U-235 is only about 80 percent of a critical mass.

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DATE >					

Jerry Roth, IE Region I inspector, advised me of some problems noted during a recent inspection of the Carbide operations. On October 19, 1978, he agreed that a license condition should be added to provide greater assurance that mass limits imposed by the license will not be exceeded. This condition is shown below.

Recommendation

On the basis of the above, it is recommended that the hot cell limit increases be approved but with the following two conditions added to the license.

1. Where U-235 mass limits are imposed as criticality control criteria, the licensee shall maintain running U-235 inventory records to assure that these masses are not exceeded.
2. The maximum quantity of U-235 that may be stored in a 55-gallon 17H container is 350 grams.

ORIGINAL SIGNED BY

J. C. Delaney  
Fuel Processing & Fabrication Branch  
Division of Fuel Cycle and  
Material Safety

Original signed by:  
Approved by: W. T. Crow

W. T. Crow

*Handwritten:* JCD  
10/25/78

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All other conditions of this license shall remain the same.

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FOR THE NUCLEAR REGULATORY COMMISSION

Original signed by:  
 W. T. Crow

W. T. Crow  
 Fuel Processing & Fabrication Branch  
 Division of Fuel Cycle and  
 Material Safety

10/26/78

*WTD/26/78*

OFFICE >	FCPF	FCPF <i>WTC</i>			
SURNAME >	JCDelaney	WTCrow			
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J. C. Delaney  
Fuel Processing & Fabrication Branch  
Division of Fuel Cycle and  
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Original signed by:  
W. T. Crow

Approved by:

W. T. Crow

*JCD*  
*10/20/78*

10/25/78

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SURNAME >	JDeVane	WTCrow			
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