

70-689?

SECY-79.62

JAN 24 1979

For: The Commissioners

From: William J. Dircks, Director
Office of Nuclear Material Safety
and Safeguards

Thru: Executive Director for Operations (Signed) Lee V. Gossick

Subject: UNION CARBIDE LICENSE NO. SNM-639

Purpose: To inform the Commission of the intention of the staff to grant an exemption to 10 CFR 73.50 (pursuant to 10 CFR 73.5).

Background: Union Carbide Corporation is licensed to operate a medium size (5MW) pool-type reactor at Tuxedo, New York, to produce radio pharmaceuticals for medical purposes. Uranium enriched to 93 percent is used both as target material (License No. SNM-639) and as reactor fuel (License No. R-81). These licenses authorize possession and use outside of the reactor core of irradiated and unirradiated uranium in each type of material.

Subsequent to the shutdown of the GETR reactor at Vallecitos, California, in mid-1977, Union Carbide became increasingly involved in the production of radio pharmaceuticals. Incident to this increased activity, the licensee requested clarification of the regulatory requirements relative to the total holdings of material held under its two licenses. Union Carbide was informed that all unirradiated fuel and all target material was to be considered

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Background:
(continued)

cumulatively in calculations relative to 10 CFR 73.50. The licensee has advised that this determination has caused severe operating problems and therefore has petitioned the Director, NMSS, for an exemption from 10 CFR 73.50 to the extent that the irradiated target material be (i) excluded from the calculation of the 5,000 gram quantity, and (ii) protected in accordance with the level applied to irradiated fuel elements.

Discussion:

Nuclear reactors (including nonpower) and their associated irradiated fuel are explicitly excluded from the requirements of 10 CFR 73.50. (The nonspecific protection requirements of §73.40 however do apply.) Accordingly, imposing the requirements of §73.50 upon irradiated target material would result in far more stringent requirements than those currently applied to the reactor's irradiated fuel. Although there are certain physical differences between irradiated target material and irradiated fuel elements, their potential for misuse is considered to be comparable, i.e., both types of material in this instance are irradiated and both contain HEU which is not readily separable. Because of these facts, the staff believes that the level of protection to be afforded should be comparable as well. Accordingly, the staff has concluded that the exemption is authorized by law, will not endanger life or property or the common defense and security and is otherwise in the public interest. The total of unirradiated HEU under the combined licensee will always be less than 5,000 formula grams.

The staff intends to grant an exemption to §73.50 by amending License No. SNM-639 to (i) exclude the irradiated target material from the calculation of the 5,000 gram threshold of 10 CFR 73.50 and (ii) require protection measures comparable to those presently afforded to the irradiated fuel elements (Enclosure A). If additional requirements relative to Category II and/or Category III material become effective, such requirements will be imposed upon Union Carbide, notwithstanding the exemption to §73.50.

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Coordination:

The Office of the Executive Legal Director has no legal objection. The Office of Nuclear Reactor Regulation concurs in this paper.

(Signed) William J. Dircks

William J. Dircks, Director
Office of Nuclear Material Safety
and Safeguards

Enclosure:

- A. Section 9 Materials and Plant Protection Amendment MPP-3 to License No. SNM-639

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Enclosure A

Section 9 Materials and Plant Protection Amendment MPP-3 to License No. SNM-639

9.0 The licensee shall comply with the following provisions:

- 9.1 The combined amount of uranium-235 possessed under License Nos. R-81 and SNM-639 which is contained in uranium enriched to 20 percent or more in the U-235 isotope and which is not irradiated shall be less than 5,000 grams.
- 9.2 The licensee is not required to include uranium-235 contained in irradiated target material in calculations of the 5,000 gram threshold for application of 10 CFR 73.50 provided that the hot cells are protected within a protected area so that irradiated target material located there is afforded the same protection measures as given to irradiated fuel elements in the reactor building under the licensee's approved reactor security plan, and
- (a) locks and alarms which annunciate upon unauthorized use when the area is unoccupied are provided to either the hot cell manipulators or hot cell doors
 - (b) any irradiated target material located in the transfer channel or reactor pool is in a container which has an external radiation dose rate of 100 rem at 3 feet from its surfaces without intervening shielding and equipment for handling such containers is provided with locks and alarms which annunciate upon unauthorized use when the area is unoccupied.