UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION I
631 PARK AVENUE
KING OF PRUSSIA, PENNSYLVANIA 19406

Docket No. 70-687

DEC 05 1980

Union Carbide Corporation
ATTN: Mr. James J. McGovern
Business Manager, Radiochemicals
P. O. Box 324
Tuxedo, New York 10987

Gentlemen:

Subject: Inspection 70-687/80-04

This refers to your letter dated November 5, 1980, in response to our letter dated September 4, 1980.

Thank you for informing us of the corrective and preventive actions documented in your letter. We have no further questions regarding your actions for items of noncompliance 2 and 3 and these actions will be examined during a subsequent inspection of your licensed program. However, your corrective action for item 1 was only partially acceptable because of the reasons given below.

Your action of modifying the circuit so that if either of the two monitors for the second level of the hot laboratory fails, it will result in a trip condition and initiation of the evacuation alarm in the event of criticality or other high radiation indication by the redundant monitor, appears to meet the requirements of 10 CFR 70.24(a) and we have no further questions on this item.

In your letter, you indicate that you intend to submit by December 31, 1980, an application to Nuclear Material Safety and Safeguards for an exemption from 10 CFR 70.24(a), criticality monitoring requirements for areas other than the second level of the hot laboratory. Based upon the discussion between yourself and Mr. H. Crocker of this office on November 19, 1980, it is our understanding that you will submit the application for exemption on or before December 8, 1980. If our understanding of your planned action is not in accordance with the actual plans and actions being implemented, please contact this office by telephone and in writing within twenty-four (24) hours of receipt of this letter.

With respect to your plan to request an exemption from 10 CFR 24(a) criticality monitoring requirements, you are advised that use of an inadequate monitoring system in these areas constitutes noncompliance with NRC regulations until authorized by license amendment.

DEC 05 1979

Your cooperation with us is appreciated.

Sincerely,

George H. Smith, Chief
Fuel Facility and Materials
Safety Branch

cc: M. H. Voth, Manager, Nuclear Operations
W. G. Ruzicka, Reactor Project Engineer
C. Konnerth, Health Physicist
R. Bollinger, Vice President, Medical Products Division

bcc (w/cy of licensee's response):
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State of New York

UNION CARBIDE CORPORATION
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November 5, 1980

U. S. Nuclear Regulatory Commission
Region 1
631 Park Avenue
King of Prussia, PA 19406

Attn: Mr. George H. Smith
Chief Fuel Facility &
Materials Safety Branch

Subj: INSPECTION 70-687/80-04

Gentlemen:

This letter is in response to the subject inspection report to present our position on the items of apparent non-compliance mentioned in the report and also to state what actions have been taken or will be taken to correct deficiencies.

1. The criticality alarm system must comply with the design requirements of 70.24 (a) (2) since our operations predate 12/6/74. It is our assessment that all the 70.24 (a) requirements are satisfied in that; (a) the alarm set points of our area monitors are within the specified limits, (b) our procedures for both the reactor and hot laboratory require that the building evacuation alarm be sounded in either the reactor or the hot laboratory whenever two or more area gamma radiation alarms sound, (c) the normal set points on all alarms covering areas where SNM is handled or stored are capable of detecting a criticality which generates 300 rem/hr. one foot from the source, (d) each area where SNM is handled, or stored is covered by a minimum of 2 monitors (except where material is packaged for shipment in quantities less than 15 gms each), and that (e) each monitor has a clearly audible signal.

   Since radioactive materials other than SNM are also handled in the reactor and hot laboratory, the building evacuation is required at the sounding of 2 area monitors instead of one to eliminate the possibility of false evacuation alarms. This system is deemed to be adequate for all areas, except the second level of the hot laboratory, because all SNM in these locations (except for small assay samples) is in dry solid oxide form and our total facility possession limit

is less than the single parameter mass limit for this form of SNM. The second level of the hot laboratory is of more concern because there are three adjacent laboratories and three storage cabinets where SNM in aqueous solutions are handled or stored. The two monitors in this area are capable of initiating the evacuation alarm automatically. To prevent false evacuation alarms, the circuit is arranged so that both monitors must trip before an evacuation alarm will sound but each monitor is capable of detecting a criticality incident in any laboratory or storage cabinet. The deficiency noted about monitor failure not resulting in an alarm state has been corrected. If either of these monitors fails, it will result in a trip condition and initiation of the evaculation alarm in the event of criticality or other hi radiation indication by the redundant monitor.

The monitoring system in the reactor is the same as that in the hot laboratory and the procedures governing its use have the same criteria for sounding the evacuation alarm. Those areas where SNM is handled and stored in the reactor building were described in our letter to the Commission dated 11/17/78. The alarm system was not specifically described but the same design and operating parameters as those that had been already approved for the hot laboratory were in effect.

An application for license amendment to grant exemption from the requirements of 70.24 for many of the areas discussed will be made by 12/31/80. We believe good cause exists for such exemptions particularly in those areas where the SNM is limited to small quantities and is in a form such that there is a great margin of safety below the single parameter mass limit.

2. The area where primary targets are sealed into secondary containment by welding has been posted with a criticality safety sign. This area will also be described in the application for license amendment mentioned above.

3. The target plating laboratories are areas where daily work with SNM is conducted. These laboratories are cleaned frequently but it is not practical to maintain removable α contamination levels below 100 dpm/100 cm^2. This is not considered hazardous since continuous air sampling is performed in these laboratories and we have never detected airbone Uranium originating from floor contamination. Personnel are required to wear anti-C clothing while they are working in these areas. The ingestion and inhalation hazard is under control in this work space. A request to change the allowable contamination levels in these laboratories will be made in the application for license amendment mentioned above.

Thank you for your consideration in extending the response period for this inspection report.

Very truly yours,

James J. McGovern
Business Manager
RADIOCHEMICALS

JJMcG:js