

U. S. NUCLEAR REGULATORY COMMISSION  
OFFICE OF INSPECTION AND ENFORCEMENT

REGION I

Report No. 70-687/80-03

Docket No. 70-687

License No. SNM-639 Priority 1 Category A

Licensee: Union Carbide Corporation

P.O. Box 234

Tuxedo, New York 10987

Facility Name: Union Carbide

Inspection At: Tuxedo, New York

Inspection Conducted: February 27-29, 1980

Inspectors: P. Clemons  
P. Clemons, Radiation Specialist

4/16/80  
date

Approved by: P. Knapp  
P. Knapp, Chief, Radiation Support Section  
FF&MS Branch

date  
4/16/80  
date

Inspection Summary:

Inspection on February 27-29, 1980 (Report No. 70-687/80-03)

Areas Inspected: Routine, unannounced inspection by a regional based inspector of the Radiation Protection Program including outstanding items, dosimetry, leak test, bioassay, posting and labeling, ventilation, procedures, air samples, stack samples, smears, receipt of radioactive material, training, audits, organization, Nuclear Safeguards Committee and shipping radioactive material. Shortly after arrival, areas where work was being conducted were examined to review radiation control procedures and practices. The inspection involved 20 inspector-hours onsite by one regional based NRC inspector.

Results: Of the 16 areas inspected, no items of noncompliance were identified in 14 areas. Two apparent items were identified in two areas (Infraction - failed to do bioassay, paragraph 3; Deficiency - failed to maintain records in proper units, paragraph 4).

## DETAILS

### 1. Persons Contacted

#### Principal Licensee Employees

Mr. C. Konnerth, Manager, Health, Safety and Environmental Affairs  
Mr. J. McGovern, Business Manager, Radiochemical Products  
Mr. L. Thelin, Supervisor, Health Physics

The inspector also interviewed several other licensee employees, including Health Physics Technicians, a Laboratory Technician, and a MBA Custodian.

### 2. Licensee Action on Previous Inspection Findings

(Closed) Noncompliance (687/79-03-02): Form 4 for an employee not completed prior to exceeding 1250 millirem. Employee in question had terminated employment at the time of the previous inspection, so that the licensee could not correct the specific instance, but the licensee has reviewed all Form 4's for all employees and the forms have been updated, as required. The inspector reviewed five Form 4's for existing employees to verify the licensee's corrective action.

(Closed) Noncompliance (687/79-03-04): Portable alpha radiation detector was not available at exit from the Plating Area. The inspector observed that such an instrument was available at the exit from the Plating Area during this inspection.

(Closed) Noncompliance (687/79-03-07): Stack sample data was not maintained in the proper units. The inspector reviewed stack sample data that indicated that the results were being maintained in the proper units.

(Closed) Noncompliance (687/79-05/01): Linear velocity across face of the hood in the Plating Laboratory was less than 100 feet per minute. The licensee has installed a "stop" device which limits the height that the hood door may be opened.

### 3. Bioassay

Condition 9 of Special Nuclear Material License No. SNM-639 incorporates a letter dated June 13, 1973. On Page 1, Item 2, Personnel Monitoring, of the June 13, 1973 letter, it states, "Urinalyses...on all personnel working with radioactive materials are made on a routine basis at least once each year."

The inspector requested to see bioassay data for individuals working with uranium during 1979. The inspector was informed that the urine samples had been collected during 1979, but the samples had not been analyzed. The inspector confirmed the fact that the samples had been collected during the months of October and November 1979, and he also verified that the samples were not analyzed during 1979, in fact, the urine samples had not been analyzed for uranium at the time of this inspection.

This item is recurrent inasmuch as it was cited in Inspection 70-687/79-03.

The inspector noted that failure to comply with a license condition represents noncompliance with the license. (80-03-01)

4. Records

As the inspector reviewed the general air sample data he observed that the data did not include units. He asked a licensee representative what unit was used, and he was informed that counts per minute was the unit used.

10 CFR 20.401(b) states, "Each licensee shall maintain records in the same units used in this part, showing the results of surveys required by 10 CFR 20.201(b)." 10 CFR 20.201(b) requires the licensee to perform such surveys as may be necessary to comply with the regulations.

The unit required by 10 CFR 20 is microcurie per milliliter of air. Maintaining the air sample data in the raw unit counts per minute does not satisfy the requirement.

This item is recurrent inasmuch as it was cited in Inspection 70-687/79-03.

The inspector noted that failure to adhere to the regulatory requirements represents noncompliance. (80-03-02)

5. Dosimetry

The inspector reviewed dosimetry records for 1979 for eleven employees associated with SNM-639 to determine that the license was in compliance with the regulatory requirements.

No items of noncompliance were identified.

6. Leak Test

The licensee has a license condition for leak testing sealed plutonium sources. The condition states that "each plutonium source shall be tested for leakage at intervals not to exceed six (6) months."

The inspector reviewed leak test records which indicated that the licensee has one sealed plutonium source and this source is being leak tested at three (3) month intervals.

No items of noncompliance were identified.

7. Posting and Labelling

The inspector reviewed the facility posting and labelling against the requirements of 10 CFR 19 and 10 CFR 20, and observed that the licensee was in compliance with the regulations.

In addition, Condition 14 of Amendment 1 to SNM-639 states, "As a further condition of this license, the licensee shall post all storage and use locations with criticality safety signs which indicate the maximum quantity of special nuclear material that is authorized at each location and the actual amount that is present at each location."

The inspector verified that all storage and use locations were so posted.

No items of noncompliance were identified.

8. Ventilation

Condition 9 of SNM-639 incorporates a letter dated April 28, 1969. On Page 10, Item 1, Ventilation System, of the April 28, 1969 letter, it states "...ventilation system is pressure regulated to insure a continuous, positive flow of air from nonradioactive areas to contaminated or radiation areas." At the inspector's request on February 28, 1980, a licensee representative performed velometer measurements on all hoods in which uranium is processed in the Plating Area, to determine that the flow of air was in the proper direction.

No items of noncompliance were identified.

9. Procedures

Condition 9 of SNM-639 incorporates a letter dated April 28, 1969. On Page 3 of the April 28, 1969 letter, it states, "All equipment and procedures...are required to be reviewed and approved by our Nuclear Safeguards Committee." The inspector reviewed the following procedures that had been approved by the Nuclear Safeguards Committee:

- a) Procedure for determining % of MPC from the Constant Air Monitors
- b) Yearly area monitor calibration and alarm checks
- c) Daily instrument check

- d) CAM calibration procedure
- e) Personnel Radiation Protection

No items of noncompliance were identified.

10. Smears

On Page 3 of the April 28, 1969 letter, the licensee states that floor wipes shall be counted for alpha activity. According to a licensee representative, wipes are taken from certain areas daily, and other areas monthly.

The inspector reviewed smear survey records for the period July through December 1979 to assure that the licensee was in compliance with the license condition.

No items of noncompliance were identified.

11. Stack Samples

The inspector reviewed stack sample records for the period June - December 1979. The data for all samples indicated that the air concentrations were within the regulatory limits.

No items of noncompliance were identified.

12. Receipt of Radioactive Material

10 CFR 20.205(b)(1) requires that each licensee upon receipt of a package of radioactive material must monitor the external surface of the package for contamination. The inspector reviewed the incoming shipment records for approximately twenty-five shipments received by the licensee during 1979 to determine compliance with the regulations.

No items of noncompliance were identified.

13. Training

On Page 15 of the April 28, 1969, the licensee states, "All personnel working with radioactive material...receive basic radiation safety training." The inspector had learned as he reviewed dosimetry records that three females had been hired by the licensee in 1979. The inspector asked a licensee representative if these employees had been subjected to the required training. He was informed that they had received the training. The inspector asked how could this be verified. The licensee representative showed the inspector tests that had been administered to each employee after they had completed the required training.

The inspector also asked the licensee representative to demonstrate that the new employee had received instruction concerning prenatal radiation exposure. The inspector was provided documentation that was signed by each employee indicating that they had received the instruction on prenatal radiation exposure.

No items of noncompliance were identified.

14. Audit

Condition 9 of SNM-639 incorporates a letter dated August 12, 1976. On Page 3 the letter states, "The Nuclear Safeguards Committee will appoint an individual who is not in the Nuclear Operations direct line organization to perform an audit of operations which are conducted under the SNM-639 License at least once every 12 months." The inspector reviewed the report of an audit that was conducted on August 31, 1979. The inspector noted that the audit was specific for criticality safety.

No items of noncompliance were identified.

15. Shipping Radioactive Material

On February 28, 1980, the licensee made a waste shipment to Barnwell, South Carolina. The shipment was composed of two Nuclear Engineering Casks, Model No. B-3. One cask contained 233 Curies of mixed fission products, and the second cask contained 70 Curies of mixed fission products.

10 CFR 71.3, "Requirement for License" states, "No licensee subject to the regulations in this part shall (a) deliver any licensed materials to a carrier for transport or (b) transport licensed materials except as authorized in a general license or specific license issued by the Commission, or as exempted in this part."

10 CFR 71.12 establishes a general license for delivery to a carrier for transport:

"(b) In a package for which a license, certificate of compliance or other approval has been issued by the Commission's Director of Nuclear Material Safety and Safeguards for the Atomic Energy Commission, provided that:

(1) The person using a package pursuant to the general license provided by this paragraph:

(i) Has a copy of the specific license, certificate of compliance, or other approval authorizing use of the package and all documents referred to in the license, certificate, or other approval, as applicable;

(ii) Complies with the terms and conditions of the license, certificate, or other approval, as applicable, and the applicable requirements of this part; and

(iii) Prior to first use of the package submits in writing to the Director of Nuclear Material Safety and Safeguards or the Atomic Energy Commission, his name and license number, the name and license or certificate number of the person to whom the package approval has been issued, and the package identification number specified in the package approval.

At the inspector's request he was given a copy of Certificate of Compliance No. 6058, Revision 6, dated February 4, 1980 and all documents referenced by the certificate of compliance. The inspector was also given a copy of the shipping documents associated with the shipment, and the inspector was also shown documentation showing that the licensee had registered as a user of the Model No. B-3 shipping cask.

No item of noncompliance were identified.

16. Exit Interview

The inspector met with licensee representatives (denoted in paragraph 1) at the conclusion of the inspection on February 29, 1980. The inspector summarized the purpose and the scope of the inspection, and the findings as presented in this report.