

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

Region I

Report No. 50-54/79-01

Docket No. 50-54

License No. R-81 Priority -- Category F

Licensee: Union Carbide Corporation

P. O. Box 324

Tuxedo, New York 10987

Facility Name: Union Carbide Nuclear Reactor

Inspection at: Sterling Forest, New York

Inspection conducted: February 27-28, 1979

Inspectors: *Edward J. Thomas Jr.*
R. Architzel, Reactor Inspector

3-29-79
date signed

date signed

date signed

Approved by: *Edward J. Thomas Jr.*
E. C. McCabe, Jr., Chief, Reactor Projects
Section No. 2, RO&NS Branch

3-29-79
date signed

Inspection Summary:

Inspection on February 27-28, 1979 (Report No. 50-54/79-01)

Areas Inspected: Routine, unannounced inspection of facility operations, including organization, logs and records, review and audits, tour of facility, requalification training, IE Bulletins and Circulars, and licensee action on previous inspection findings. The inspection involved 16 hours onsite by one regional based inspector.
Results: No items of noncompliance were identified in two areas, and three items of noncompliance were identified in three areas (Infraction - operator left the controls, paragraph 6; Infraction - senior operator not present for restart, paragraph 5.c; Infraction - failure to review operations, paragraph 3.a).

DETAILS

1. Persons Contacted

- *K. George, Senior Development Scientist
- *D. Holtzgraf, Manager, Nucleonics
- *C. Konnerth, Health, Safety, and Environmental Affairs Manager
 - J. McGovern, Production Manager, Radiochemicals
 - G. Nicollela, I&C Technician
- *J. Paradiso, Reactor Supervisor
 - L. Thelin, Health Physicist
- *M. Voth, Manager of Nuclear Operations

Other licensee employees, including reactor operators and administrative staff, were also contacted.

* denotes those present at the exit interview.

2. Licensee Action on Previous Inspection Findings

(Closed) Noncompliance (54/78-01-05): Retraining Program not implemented. The inspector verified that the licensee had taken the actions specified in their response dated May 18, 1978. This review included reexaminations for the individuals involved.

(Closed) Unresolved item (54/78-01-03): Review manipulations. The inspector reviewed the reactivity manipulations for the operator identified and noted that nine were documented in 1978 and one to date in 1979. No additional lack of documentation of manipulations was identified during a review of the current requalification program.

(Closed) Unresolved item (54/78-01-02): Consultant audits. This item has been reviewed. A letter dated January 30, 1969 from the NRC (Division of Reactor Licensing) stated that audits could be performed by the licensee's staff without outside consultants, and that license amendment was not required.

(Open) Unresolved item (54/78-01-01): Review 10 CFR 50.59 evaluations. The inspector reviewed the safety evaluations performed during 1978. The evaluations reviewed do not specifically address the acceptability of the items evaluated with respect to the identified concerns of 10 CFR 50.59. No approved safety evaluations were identified which involved unresolved safety questions, however, one partially approved request involving uranium scrap recovery raised concern. This item remains open pending further reviews of the licensee's safety evaluations.

(Open) Unresolved item (54/78-01-04): Retraining study materials. The licensee showed no effort towards providing a current license (R-81) and set of license conditions for the retraining/review of licensed individuals. The licensee maintains a historical file of license applications and other correspondence with the NRC concerning license R-81, however, this is a chronological file and the actual revisions to the license and conditions have not been segregated for ease of review. The inspector noted that the operators are responsible as a stated function of their Part 55 licenses to observe the procedures and other conditions of the facility license (R-81) and that a logical method for ensuring they could comply with these requirements was to make them available for review. The licensee stated that this effort to provide a current license and set of conditions was unnecessary in that they expected the issuance of an entirely new license within two weeks. This item remains open pending further NRC review or actions by the licensee to provide the operators a current license and conditions.

3. Reviews and Audits

- a. The following Nuclear Safeguards Committee meeting minutes were reviewed.

<u>Meeting No.</u>	<u>Date</u>
84	April 24, 1978
85	September 28, 1978
86	November 17, 1978

The inspector reviewed safety evaluations for the use of Ames Laboratory Surplus Fuel (approved June 12, 1978), Fission Product Mo-99 Process, Xenon 133 Extraction (January 13, 1978) and denial of Experimental Proposal (Xenon-133 Packaging in Building 4) pending further evaluation of accidents. One unresolved item and one item of noncompliance were identified as described in paragraphs b and c below.

- b. License R-81, paragraph 4.E, requires a semi-annual review of facility operations by the Nuclear Safeguards Committee to verify safe operation and note any long term degradation in experiments. When the inspector asked about this item, the licensee stated that this requirement was satisfied by the audits which the Senior Developmental Scientist performed.

The inspector stated that the audit requirement was in addition to the review of operations, and that the committee review must be documented. If the committee delegates responsibility in an area they must review and approve the subcommittee's input. Failure to perform semi-annual reviews of operation by the committee is an item of noncompliance. (54/79-01-01)

- c. The Nuclear Safeguards Committee (NSC) Chairman and the Manager of Nucleonics did not attend any of the three scheduled committee meetings, although the five other members were present at all three. The inspector expressed concern at the apparent lack of management attention to the activities of the NSC. The licensee stated that the Chairman (the only offsite member) still desired to be a part of the NSC, and the Manager of Nucleonics stated he would attempt to either be more active or be removed from committee membership. Management attendance/activity in the NSC is unresolved and will be reexamined in future NRC inspections. (54/79-01-02)
- d. Audits performed by the Senior Development Scientist (only) dated May 15, 1978 and September 29, 1978, were reviewed. The inspector stated that the adequacy of the audits could not be evaluated due to the lack of detail in the audit documentation (no findings were documented in the past two years of audits). This item is unresolved and will be reexamined. (54/79-01-03)

4. Operator Qualification Training

Examinations, individual answers, records of reactivity manipulations, and operational evaluations completed as a part of the operator qualification program were reviewed for a sampling of operators at the facility.

Changes to facility license conditions, procedures, and similar items are promulgated to operators by use of a required reading file which is initialed when the item has been reviewed by the individual.

Scheduled retraining required as a result of the 1977 requalification examinations was reviewed (see paragraph 2, item 78-01-05). No operators received grades less than 80% during the current series.

No items of noncompliance were identified.

5. Organization, Logs, and Records

a. The licensee's organization was verified to be as stated in the 1978 Annual Operating Report, dated January 8, 1979. The position of Nuclear Operations Manager created in 1978 has been filled by Mr. M. H. Voth. No unacceptable conditions were identified with respect to facility organization or qualifications.

b. To review the conduct of operations since the previous inspection, the inspector examined, on a sampling basis, the following licensee records covering the periods indicated:

- (1) Nuclear Safeguards Committee Audits (2) - May, September 1978
- (2) NSC Meeting Minutes - April through November 1978
- (3) 1978 Regualification Examination, Responses, and Performance Evaluations - Selected
- (4) Reactor Console Log - 1978 (Unscheduled Shutdowns Only)

One item of noncompliance and one unresolved item were identified as described in paragraphs 5.c and d below.

c. The inspector reviewed the unscheduled shutdowns which had occurred during calendar year 1978 and were reported in the licensee's annual report. The outages were classified as follows:

-- Commercial Power Outages	18
-- Magnet Failure	4
-- False Log-N Period	8
-- Dropped Rod	5
-- Sample Movement by Operator	6
-- Manual Safety Shutdown	1
-- Spot on the Core	1
-- Low Pool Level	1
-- Loss of Area Radiation Monitors	1
-- Loss of H.P. Air	1

The licensee utilizes a stamp to record required information for unscheduled trips in the Console Log. The inspector had no further questions with regard to those shutdowns caused by commercial power outages, the manual safety shutdown on June 19, 1978 (see NRC Inspection Report 54/78-04, paragraph 6), the loss

of Area Radiation Monitors (shutdown per procedure), the loss of H.P. Air (low flow scram signal generated), the magnet failures, or by dropped rods.

The spot on the core, approximately the size of a 25¢ piece, was noticed on September 24, 1978. The licensee shutdown and removed debris from the top of fuel assembly CPF-2. No fuel damage was noted, an SRO was called and the reactor restarted.

The low pool water level scram was caused by an operator valving error on October 12, 1978, lowering the pool water level below the scram setpoint. The water level was restored to normal, an SRO was called by telephone and the reactor was restarted. The inspector questioned the licensee regarding why the SRO on call was not present at the facility for restart as required by 10 CFR 50.54(m). A specific exemption from the requirements of 10 CFR 50.54(m) has been granted (NRC letter dated September 3, 1965) to restart without SRO presence from shutdowns caused by false signals which were properly verified to be false. The inspector noted that this exemption did not apply in the case of a true low water level signal, and that failure to have a SRO present during recovery was an item of noncompliance. (54/79-01-04)

- d. Regarding those shutdowns caused by operator sample motion, and selected false Log-N period scrams the inspector asked to see the neutron power recorder charts to verify that inadvertent criticalities had not occurred and in fact that these were "false" signals. The following particular unscheduled shutdowns were of concern:

- January 11, 1978, False period scram approximately concurrent with a restart (Logged 4 minutes after restart)
- March 9, 1978, False period during reactor startup
- July 20, 24, 27; August 23; and, December 27, 1978, (5 times during year), False signal caused by operator moving high worth positive reactivity samples with the reactor slightly subcritical

License paragraph G.1 requires the licensee to keep reactor operating records, including power levels. The licensee logs reactor power every hour and when changing power and considers this documentation adequate to fulfill the license condition regarding operating power levels. Recorder charts of neutron

power (Log-N, Linear N, Period, and Log Count Rate) are not dated and are not maintained. The inspector questioned the adequacy of the records of power and why the charts were not being kept for a reasonable period of time. Adequacy of the licensee's records is unresolved and will be re-examined (54/79-01-05).

6. Facility Tours

Upon arrival at the site on February 27, 1979 a tour was made in the company of a licensee representative of the accessible areas of the facility. Areas inspected included general housekeeping, radiation controls and levels, and plant status.

During a subsequent visit to the Control Room on February 28, 1979 the inspector asked to see the Control Room copy of the Technical Specifications. The reactor was at 5 megawatts power. The operator questioned the Manager of Nuclear Operations (unlicensed) if he was staying there, and then proceeded behind the Control Room panels to look for the Technical Specifications, which were not there. The operator was absent from line of sight of the control approximately 5 seconds. The inspector stated that being at the controls of the facility meant within sight of the controls within the control room. The licensee stated that operators on shift would be counseled and that a written memorandum would be issued to operators on March 1, 1979. Leaving the controls of the facility during operation is an item of noncompliance. (54/79-01-06)

7. IE Bulletins and Circulars

The inspector reviewed the following Bulletins and Circulars to ensure that they were received by the licensee and distributed to appropriate personnel, that the responses, if required, were accurate and that action taken or planned was appropriate.

a. IEB 78-07, Protection Afforded by Air-Line Respirators and Supplied Air Hoods (Sent June 12, 1978)

The Reactor Supervisor stated that he had received this Bulletin, however, had thrown it out when he noted that the plant circumstances did not require a response. The inspector noted that a response was only required if the licensee utilized air-line supplied respirators operated in the demand mode, however, recommendations were made for other respiratory program situations,

which are applicable to the program at Union Carbide. The Health Physics staff responsible for the respiratory protection program had not been distributed or made aware of the recommendations of IEB 78-07. A copy of this Bulletin was not available onsite.

- b. IEB 78-08, Radiation Levels from Fuel Element Transfer Tubes
(Sent June 12, 1978)

This Bulletin required a response by September 11, 1978. The licensee did not respond to this Bulletin, although the Reactor Supervisor acknowledged he had seen it. A copy of this Bulletin was not available onsite.

- c. IEC 77-14, Separation of Contaminated Water Systems from Non-Contaminated Plant Systems (Sent November 28, 1977)

No response was required for this Circular, however, discussions with both the operating staff and health physics personnel indicated that this Circular had not been reviewed for applicability. A copy of the Circular was not available onsite.

Copies of these three documents are being forwarded to the licensee. These Bulletins and Circulars remain open pending appropriate review, distribution, and action, and NRC review of the required written response to Bulletin 78-08.

8. Unresolved Items

Items for which more information is required to determine acceptability are considered unresolved. Paragraphs 2, 3, and 5 contain unresolved items.

9. Exit Interview

At the conclusion of the inspection on February 28, 1979, a meeting was held with representatives of the licensee (see Paragraph 1 for attendees) to discuss the inspection scope and findings. The items of noncompliance and unresolved items were identified.