

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

IE Inspection Report No: 50-47/75-01

Docket No: 50-47

Licensee: Army Materials and Mechanics Research Center
Watertown Arsenal

License No: R-65

Watertown, Massachusetts

Priority: _____

Category: G

Location: Watertown, Massachusetts 02172

Safeguards Group: _____

Type of Licensee: Research Reactor (Possess only)

Type of Inspection: Routine, Unannounced

Dates of Inspection: November 25, 1975

Dates of Previous Inspection: July 10-12, 1974

Reporting Inspector: *L. Norrholm*
L. Norrholm, Reactor Inspector

12/12/75
DATE

Accompanying Inspectors: None

DATE

DATE

DATE

Other Accompanying Personnel: None

DATE

Reviewed By: *D. L. Capton*
D. L. Capton, Section Leader, Section 2
Reactor Operations and Nuclear Support Branch

12/12/75
DATE

SUMMARY OF FINDINGS

Enforcement Action

A. Items of Noncompliance

1. Infraction - relating to failure of Reactor Safeguards Committee to conduct audits as required by Technical Specifications.
2. Deficiency - relating to failure to conduct visual surveillance inspections required by Technical Specifications.
3. Deficiency - relating to failure to post current copy of license and amendments thereto as required by 10 CFR 19.11.

B. Deviations

None

Licensee Action on Previously Identified Items of Noncompliance

- A. The inspector verified the operation and surveillance testing of the cathodic protection system. (Details, 4)
- B. The scope and frequency of periodic radiation surveys were examined during the inspection. (Details, 6.a)
- C. Inspection of compliance with Title 10, Code of Federal Regulations, Part 19, posting requirements indicated that a continuing deficiency exists in this area. (Details, 6.b)

Design Changes

None

Unusual Occurrences

None

Other Significant Findings

A. Current Findings

1. Acceptable Areas

(These are inspection items which, on a sampling basis, did not result in an Item of Noncompliance, Deviation or Unresolved Item.)

- a. Administration. (Details, 2.a)
- b. Operations. (Details, 3)
- c. Containment. (Details, 4)
- d. Surveillance - General. (Details, 5)
- e. Radiation Protection - Surveys. (Details, 6.a)

2. Unresolved Items

None

B. Status of Previous Unresolved Items

- 1. The inspector verified surveillance record data with reactor access log entries* and had no further questions on this area. (Details, 5.c)
- 2. The inspector found that facility surveillance records held by the Reactor Facility Supervisor were substantially complete and centralized*. (Details, 5)
- 3. The inspection revealed that semiannual audits by the Reactor Safeguards Committee were not being conducted. This resulted in an Item of Noncompliance as listed under Enforcement Action.

Management Interview

An exit interview was conducted at the Army Materials and Mechanics Research Center with the following persons in attendance:

* Region I Inspection Report 50-47/74-01, dated 7/25/74.

Mr. J. J. O'Connor, Reactor Facility Superintendent
Mr. S. Levin, Chief, Radiation and Occupational Safety Branch

Items Discussed

A. Purpose of Inspection

The inspector outlined the purpose of the routine unannounced inspection as a facility familiarization, followup on unresolved items, review of facility organization, surveillance tests and records, fire protection and physical security.

B. Cathodic Protection

Surveillance on the cathodic protection system was discussed. (Details, 4)

C. Reactor Safeguards Committee

The functions of the RSC were discussed. (Details, 2.b and c)

D. Items of Noncompliance

Three apparent Items of Noncompliance as listed under Enforcement History were discussed.

DETAILS

1. Persons Contacted

Dr. H. F. Priest, Chairman, Reactor Safeguards Committee
Mr. J. J. O'Connor, Chief, Technology Planning and Exploitation
Division and Reactor Facility Supervisor
Mr. P. O. McManus, Chief, Intelligence and Security Branch
Lt. A. R. D'Arpino, Intelligence and Security Branch
Mr. J. Druwing, Electrical Engineer
Mr. S. Levin, Chief, Radiation and Occupational Safety Branch

2. Administration and Organization

- a. Dr. Priest and Mr. O'Connor serve as Reactor Safeguards Committee Chairman and Reactor Facility Supervisor, respectively, as additional duties to their primary non-reactor related positions in the AMMRC organization.

The only organizational change since the last inspection* is the appointment of LTC E. E. Chick as Commander/Deputy Director to replace LTC Henry.

- b. The inspector reviewed the activities of the Reactor Safeguards Committee which is composed of the following members:

H. F. Priest, Chairman
J. J. O'Connor
J. Antal
D. Chipman
K. Tauer
S. Levin

A meeting, which included all members, was held 5/21/74 to discuss proposed changes to the Deactivation Report. The next reported meeting was held 11/5/75 to update facility status and discuss an unsolicited dismantling offer. The 18 month interval between meetings is contrary to the six month interval specified in AMMRC Memo No. 15-1 dated July 1, 1970.

A licensee representative gave the reason for the lack of meetings as the inactivity of the facility.

* Region I Inspection Report 74-01, dated 7/25/74.

- c. Technical Specification 2.b.(3) requires the RSC to semi-annually audit activities performed in the plant area to verify that effective safety and radiological control practices are maintained. No evidence of such audits was presented. A licensee representative stated that no such audits were being conducted.

This failure to conduct audits required by Technical Specifications resulted in an Item of Noncompliance as listed under Enforcement Action in this report.

3. Operations

The facility has continued in a shutdown "standby" status. At the time of this inspection, the core tank was drained, all fuel has been removed from the site and only such surveillance as is required by Technical Specifications is being performed.

Despite the receipt of an unsolicited proposal for dismantling, there are currently no plans for any change in the facility's present status.

4. Containment

- a. The cathodic protection system was returned to service by the installation of a new rectifier in July 1974. Since that time, a 20 amp current at 1.9 volts has been maintained to retain containment integrity. Concurrent with the installation of the replacement rectifier, the installed meters were not replaced in the system. Accordingly, system checks and operability are verified quarterly as required by Technical Specifications using portable meters.

- b. The inspector verified records of operability and effectiveness conducted on the following dates:

7/29/74
8/ 5/74
9/ 9/74
10/15/74
6/ 9/75
7/22/75
10/23/75

Attempts to check the system on 1/15/75 and 3/10/75 were unsuccessful due to frozen ground around the containment shell.

A licensee representative stated that checks during the winter months were not necessary, in any case, since the system is non-functional with frozen ground.

The inspector expressed his concern over the delay between an unsuccessful check on 3/10/75 and the subsequent check 6/9/75, on the basis that performance should be verified as soon as feasible following the thaw.

The licensee acknowledged the inspector's concern.

5. Surveillance

- a. Technical Specification 4.a.(2) requires a monthly check of all heating and ventilating equipment in accordance with a written checklist. A review by the inspector showed the following items to be checked; ambient temperature, air conditioning system, heating system, air compressor, and electrical facilities. During the period 9/19/74 to 11/19/75, an interval of 14 months, these checks were conducted 17 times and at least once during each month.
- b. A sampling check of fire extinguishers in the facility indicated that the monthly checks required by Technical Specification 4.c were being conducted as well as a checklist Fire Prevention Inspection Report submitted to the Reactor Facility Supervisor on a monthly basis.
- c. To verify the above information, the inspector cross-checked the logged Record of Access to the Reactor Facility for the period 3/28/75 to 11/25/75 and found the documents to be in agreement. The Record of Access is maintained by the Intelligence and Security Branch and records all authorized access to the containment shell.
- d. The above check of facility access indicated that no entry to the facility had been made during the period 11/4/75 to 11/19/75, a period of 15 days. Technical Specification 4.a.(1) requires a weekly visual inspection of the heating and ventilating system in the reactor building. This failure to conduct a visual inspection resulted in an Item of Noncompliance as listed under Enforcement Action.

6. Radiation Protection

- a. The inspector reviewed periodic radiation surveys conducted at the reactor, the last of which was performed 10/21/75. Surface contamination levels were less than $2\mu\text{uc}/100\text{cm}^2$ α and less than $32\mu\text{uc}/100\text{cm}^2$ β outside the core tank. The highest recorded airborne activity was 1.43×10^{-12} $\mu\text{c}/\text{ml}$ in the basement area. Area radiation levels are typically 0.1 mrem/hr with high readings of 1.0 mr/hr external to the core tank. The reading inside the tank, in the vicinity of the core plate was approximately 3.2 R/hr.

Monthly surveys were conducted until 6/18/75. Technical Specifications issued in May 1975 relaxed the requirement to quarterly. Subsequent surveys were then conducted on 7/21/75 and 10/21/75.

The inspector had no further questions in this area.

- b. During a tour of the facility, the inspector attempted to verify that the licensee was in compliance with the requirements of 10 CFR 19.11 to post a current copy of the license and amendments. Although License R-65 was posted at the main air lock door, it was not the current copy in that it did not include changes and amendments issued during 1975.

This failure to comply with 10 CFR 19 resulted in an Item of Noncompliance as indicated under Enforcement History.

- c. One recent liquid release was made from the facility on 7/5/74 when ground water seepage was pumped to the sanitary sewer. 6400 gallons were discharged, without dilution, at a gross activity level of 1.58×10^{-7} $\mu\text{c}/\text{ml}$, for a total discharge of 3.83uci.

The inspector had no further questions in this area.