U.S. NUCLEAR REGULATORY COMMISSION
REGION I

Report No. 50-47/91-01

Docket No. 50-47

License No. R-65

Licensee: U.S. Army Material Technology Laboratory
405 Arsenal Street
Watertown, Massachusetts 02171

Facility Name: Army Materials Research Reactor

Inspection at: Watertown, Massachusetts

Inspection Conducted: February 14, 1991

Inspector: Thomas F. Dragoun 3/12/91
Thomas F. Dragoun, Project Scientist Date
Effluents Radiation Protection Section
(ERPS)

Approved by: Richard J. Bores 3/12/91
Robert J. Bores, Chief, ERPS, Date
Facilities Radiological Safety and
Safeguards Branch
Division of Radiation Safety and Safeguards

Inspection Summary: Inspection on February 14, 1991 (Inspection Report No. 50-47/91-01)

Areas Inspected: Routine, announced safety inspection of the deactivated reactor facility including the physical condition of the facility, the radiation protection program, and status of decommissioning.

Results: No violations were identified during this review. The licensee is anticipating that a decommissioning plan will be submitted to the NRC by mid-year.

## DETAILS

### 1.0 Individuals Contacted

*J. Antal, Reactor Supervisor
P. Cornetta, Radiation Protection Officer
L. Rodman, Realignment and Closure Program Manager

*Participated in the Exit Interview on February 14, 1991

Other licensee personnel were also interviewed during the course of this inspection.

### 2.0 Purpose

The purpose of this routine, announced inspection of the deactivated reactor facility was to review the status of the following program elements:

- Maintenance of the Physical Condition of the Facility,
- Radiation Protection Program and
- Decommissioning.

### 3.0 Physical Condition

The inspector toured the various areas inside the reactor containment enclosure. The airlock remains intact and with access control provided by Base Security. A Kaman Nuclear Neutron Generator linear accelerator and a californium radiography source have been installed inside the facility. Use of this equipment for neutron scattering and spectroscopy by experimenters has resulted in generally acceptable heat, light and ventilation in the enclosure. The reactor pool and auxiliary support systems remain intact although there has been no fuel on site for many years. The pool is drained but used to store activated components which creates a high radiation area at the bottom of the pool. This appears to be the only significant radiological hazard associated with the reactor.

The condition of the reactor auxiliary systems in the basement was generally satisfactory except for the service water system. There appeared to be extensive corrosion of the small diameter water pipes, with leakage at a few locations. An audit by the Reactor Safeguards Committee (RSC) in August 1990 documented this problem along with other maintenance deficiencies. In consideration of the good oversight by the RSC, the inspector had no further questions in this area.

## 4.0 Radiation Protection Program

Radiation surveys of the facility were completed as required by Technical Specification Section 3. Smear checks for loose contamination were analyzed for alpha, beta and gamma radiation using sensitive laboratory equipment. All results were at or near background levels. Dose rates were also at background levels except for the lower area of the reactor pool, as discussed above, and 1 to 2 mrem/hr in contact with the reactor coolant filter resin tanks. The reactor pool was properly posted with warning signs. There were many other radiological hazard postings in the reactor containment but these were related to various neutron experiments and uses of by-product material. Survey information was recorded on floor plan maps which is a good practice. All records were readily available.

The inspector noted that the semi-annual survey due in January 1991 was not done. The Radiation Protection Officer (RPO) stated that the radiation protection technician had quit and there was some difficulty in hiring a replacement. The RPO was performing the technician duties and this was causing some delay in completing the survey. The RPO stated that the survey would be complete within a few weeks. The inspector inquired as to the extent that the RPO and his staff will support decommissioning activities. The RPO stated that most of the decontamination and release surveys will be done by contractors due to the small licensee staff and the licensee's limited radiation survey equipment inventory.

## 5.0 Decommissioning

The status of decommissioning was determined from discussions with the Realignment and Closure Program Manager. Preparations for decommissioning began in 1987 when a contractor (Idaho National Engineering Laboratory) was hired to conduct a "Reactor Characterization Study". This study was completed in June 1990. A second study, "Decision Analysis Report", providing options for decommissioning was completed in July 1990 by the same contractor. Based on these studies, the U.S. Army Toxic and Hazardous Material Agency (USATHMA) is preparing a Decommission Plan which is expected to be completed by mid-year 1991. The actual decommissioning work will be performed by the U.S. Army Corps of Engineers and various contractors.

The inspector was not allowed to review any reports but requested a description of the radioactive waste disposal arrangements. This information was not available. The inspector strongly recommended that the appropriate licensee personnel contact NRC Headquarters personnel to obtain guidance regarding the contents of an acceptable decommissioning plan. These matters will be reviewed in future inspections.

## 6.0 Audits

The Reactor Safeguards Committee (RSC) continues to meet semi-annually or more frequently and provides oversight and direction for the reactor facility. This is a good effort. The RSC is completing audits of plant activities as required by Technical Specification Section 2(b). The inspector reviewed the audit findings and found them to be excellent quality. The RSC has also reviewed the results of contractor decommissioning studies and provided comments. The inspector had no further questions.

## 7.0 Exit Interview

The inspector met with the Reactor Facility Supervisor at the conclusion of the inspection on February 14, 1991, and discussed the findings of the inspection.