

U. S. NUCLEAR REGULATORY COMMISSION  
REGION I

Report No. 50-57/91-02

Docket No. 50-57

License No. R-77 Category 1

Licensee: State University of New York at Buffalo  
Rotary Road, South Campus  
Buffalo, New York 14260

Facility Name: Buffalo Materials Research Center

Inspection At: Buffalo, New York

Inspection Conducted: June 4-5, 1991

Inspectors:

M. A. Austin  
M. A. Austin, Radiation Specialist  
Effluents Radiation Protection Section,  
Facilities Radiological Safety  
and Safeguards Branch,  
Division of Radiation Safety and Safeguards

6/24/91  
date

Approved by:

R. J. Bores  
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Effluents Radiation Protection Section,  
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Division of Radiation Safety and Safeguards

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Inspection Summary: Inspection Conducted on June 4-5, 1991

Areas Inspected: Special inspection by one region-based inspector to review the status of the licensee's plans and activities pertaining to the repair and modification of the reactor tank.

Results: No safety concerns or violations were identified. An aluminum floor liner had been placed in the bottom of the reactor tank. The licensee was currently determining the most effective welding method to use for the wall liner sections being fabricated at a contractor facility.

## DETAILS

### 1.0 Individuals Contacted

- \*M. Adams, Acting Operations Manager
- R. Culleton, Consultant
- \*J. Slawson, Acting Senior Health Physicist

\*Denotes those present at the June 5, 1991 exit interview. The inspector also interviewed other licensee employees during the inspection.

### 2.0 Operations

At the time of the current inspection, repair activities inside the reactor tank were suspended. The last major repair activity was the installation of an aluminum floor liner in the bottom of the reactor tank in mid-May 1991. Since that time, the licensee was waiting for the welding contractor to demonstrate that the welds required for the fabrication of the wall liner sections can be successfully performed. After the welding process is qualified, the wall liner sections will be fabricated at the contractor's facility and transported to the reactor facility for installation. Licensee management estimated that resolution of the welding issue would delay the overall schedule about a month, however, full power operations were still expected to resume in the first quarter of 1992.

### 3.0 Facility Tour

The inspector was accompanied by the acting Operations Manager during a tour of the reactor containment. The inspector observed that the floor liner was installed in the reactor tank bottom and all other repair activities were stopped. The inspector observed that temporary shielding was placed against the "dry column" wall and "thermal column" wall near the reactor tank bottom to reduce the external radiation exposure rate in that area.

The inspector examined two areas being maintained as high radiation areas. One of the areas was used for conducting various experiments and the other area was used for the storage of radwaste and activated reactor components during the repair activities. The inspector observed that both areas were properly posted and locked at the time of the facility tour. The inspector inquired about the licensee's plans for the use of beam tubes that could create other potential high radiation areas when reactor operations resume. The acting Operations Manager stated that no beam tubes will be initially installed after the reactor repairs are completed, but the reactor design will allow the option to install a beam tube at a later time if the need arises.

The inspector observed that the licensee was maintaining generally good housekeeping practices during the repair activities. No unsafe conditions, violations or deficiencies were identified during the tour of the facilities.

#### 4.0 Radiological Controls

##### 4.1 Internal Radiation Exposure

The inspector reviewed the internal radiation exposure records for the contractor personnel involved in the reactor repair activities. At the time of the current inspection, seven contractor employees had been utilized. The inspector examined the record log used by the licensee to track each worker and observed that, after taking credit for the use of respiratory protection, the calculated weekly exposures were negligible (e.g., typically about  $1\text{E-}5$  MPC-Hours). No safety concerns, violations, or deficiencies were identified in this area.

##### 4.2 External Radiation Exposure

The inspector reviewed the external radiation exposure records for the contractor personnel working on reactor repairs for the first five months of 1991, and observed that the exposures ranged from 90 to 1,440 millirem for this time period. The inspector inquired about why one of the contractor employees exceeded the licensee's internally established control level of 100 millirem per week for a four-week period. The acting Senior Health Physicist (SHP) explained that this individual was a welder and had worked more hours than usual during this time period because the other two contractor welders became temporarily unavailable. (One welder was on vacation while the other welder received a finger injury, not incurred during repair work in the tank.) The temporary increase in weekly exposure was due to an increase in time spent at work and was not due to an increase in dose rates in the work area. No safety concerns, violations, or deficiencies were identified in this area.

##### 4.3 Radiation Surveys

The inspector reviewed licensee records of radiation surveys conducted to characterize the external radiation levels at the bottom of the reactor tank. Survey results indicated levels as high as 600 millirem/hour on the thermal column wall and 400 millirem/hour on the dry column wall; but with the temporary shielding in place the dose rates were reduced to about 40 millirem/hour near the walls. No safety concerns, violations, or deficiencies were identified in this area.

#### 4.4 Radiation Work Permit (RWP)

The inspector reviewed an RWP used for a reactor tank entry on April 18, 1991. The necessary information had been fully provided on the RWP form, it had been properly reviewed, and the associated requirements checklist had been completed. The inspector reviewed an RWP summary log that had been prepared by the acting SHP. The inspector noted that this log facilitated the licensee's ability to correlate various pieces of health physics data for the various specific tasks performed during the tank repair activities. No safety concerns, violations, or deficiencies were identified in this area.

#### 5.0 Exit Interview

The inspector met with the licensee personnel denoted in Section 1.0 on June 5, 1991. The scope and findings of the inspection were discussed at that time.