

U. S. NUCLEAR REGULATORY COMMISSION  
REGION I

Report Nos.: 50-54/92-04 and 70-687/92-03

Docket Nos.: 50-54 and 70-687

License Nos.: R-81 and SNM-639

Licensee: Cintichem, Inc.  
P. O. Box 816  
Tuxedo, New York 10987

Facility Name: Research Reactor and Radiochemical Processing Laboratory

Inspection At: Tuxedo, New York

Inspection Conducted: August 11-13, 1992

Inspector:

Thomas Dragoun

Thomas Dragoun, Project Scientist, Effluents  
Radiation Protection Section (ERPS), Facilities  
Radiological Safety and Safeguards Branch (FRSSB)

9/3/92  
date

Approved By:

Jason C. Lang  
for Robert J. Bores, Chief, ERPS, FRSSB,  
Division of Radiation Safety and Safeguards

9-3-92  
date

**Areas Inspected:** Status of decommissioning, radiation worker training, effluent monitoring, and the radwaste program.

**Results:** No safety concerns or violations were identified. The trend of improvement in the decommissioning program is continuing.

## DETAILS

### 1.0 Persons Contacted

J. Adler, Manager, Health, Safety, and Environmental Affairs (TLG)  
D. Grogan, Manager, Waste  
J. McGovern, Plant Manager  
F. Morse, Project Manager, Decommissioning  
R. Strack, Manager, Quality Assurance  
E. Troskoski, Manager, Health Physics and Environmental Monitoring

Above personnel attended the exit interview on 8/13/92. Other licensee personnel were interviewed during the course of the inspection.

### 2.0 Decommissioning Status

Since the previous inspection, all remaining reactor core support structures were removed and the decontamination of hot cells #2 through #4 was completed. Work in progress included core boring the reactor biological shield to remove beam tubes and boring of the hot cell shield walls to remove penetrations. Excavation of the area outside the east wall of the reactor building has reached the top of the holdup tank room. The soil over the room was free of radioactive contamination. The licensee anticipates that the soil beneath the room will be contaminated. Decontamination of Hot Cell #1, which had been used to package reactor components for disposal, is underway.

The inspector noted that work procedures were being used in the field. Compliance with radiological and industrial safety requirements appeared to be good. Within the scope of this review, no safety concerns were identified.

### 3.0 Radiation Worker Training

The inspector reviewed the student indoctrination checklist, student handout material, quizzes and lesson plans with respect to topics required by 10 CFR 19.12. The inspector interviewed both instructors, toured the classroom and mockup facilities, reviewed the results of a training audit, and quizzed workers in the field regarding fundamental concepts.

Documentation was found to be extensive with approximately 50 signatures and initials by the instructor and student required to complete the indoctrination. Lesson plans, checklists, and manuals had been reviewed and approved by management, the ALARA Committee, and the Nuclear Safety Committee.

The training appeared to have achieved a good balance between theory and practice. Each student is provided a copy of a comprehensive "Radiation/General Safety Manual".

A mockup of a contaminated work area is used to familiarize students with use of the Radiation Work Permit, protective clothing, and monitoring devices. Personnel in the field who were questioned demonstrated a good understanding of radiation protection concepts. Good management support for the program is demonstrated by the fact that about one and one-half weeks is spent on basic indoctrination.

Within the scope of this review, the inspector determined that the licensee's program for training radiation workers was very effective.

#### **4.0 Effluent Monitoring Program**

In April 1992, the licensee reported to the NRC that strontium-90 was detected in certain sampling wells and storm drain S-4. No off-site releases were detected. At that time the licensee stated that strontium analysis would be performed on samples held in storage that were taken from on-site wells in 1990 and 1991. The laboratory results were recently completed. The licensee's preliminary conclusions were that elevated strontium levels only existed at locations S-4, MW-3, MW-4, and MW-5, all of which are clustered close to Building 2, and that these elevated levels existed throughout the period. The strontium-90 concentrations ranged up to a maximum of  $6.4\text{E-}07 \mu\text{Ci/ml}$  (controlled area limit =  $1.0\text{E-}05 \mu\text{Ci/ml}$ , off-site discharge limit =  $3.0\text{E-}07 \mu\text{Ci/ml}$ ). Licensee review is continuing.

The inspector discussed with the licensee the programs for monitoring air and water discharges from the site and reviewed data and procedures. Water is stored in holdup tanks and analyzed prior to release. The procedures for water sampling and analysis were to be adequate. The two air exhaust streams leading to the facility stack are monitored with a particulate filter and charcoal cartridge for iodine. These are analyzed weekly. Although forms were available for this data, there were no formal procedures. The licensee stated that the same techniques had been in use for many years, but the area was recently audited and weaknesses identified. A new supervisor has been hired and a formal procedure will be developed by this individual. This matter will be reviewed in a future inspection.

#### **5.0 Radwaste Program**

The inspector reviewed the performance of the radwaste program with respect to the regulatory requirements by following the process from the receipt of an empty container, through filling, characterization of the waste, and preparation for shipment. Strengths and weaknesses were noted as follows.

Staffing is adequate to process the volume of radwaste generated by the decommissioning activities. The radwaste supervisor was replaced about two months ago. The new

supervisor was interviewed and found to be highly experienced, knowledgeable, and motivated. Several significant improvements in the program have been introduced by this new individual.

The radwaste group places the appropriate packaging in the work area to receive the waste material. Packages for large items are prestaged close to the work zone. Dry active waste (DAW) is collected daily, sorted, and compacted into 55 gallon drums. This waste is shipped to a processor for supercompacting prior to burial. Radwaste personnel control and inventory the material placed in each package. These are good practices.

The licensee recently issued a new Radwaste Manual containing eleven comprehensive, highly detailed procedures. The supervisor stated that implementation is underway but not completed and that a few old procedures will be used for the interim. Final implementation is schedule in a few weeks. The inspector reviewed the manual and found it to be excellent.

During NRC inspection 91-06 in December 1991, the inspector noted that a waste shipment had to be off loaded and rearranged when the dose rate in the vehicle cab exceeded the 2 mrem/hour limit. This was attributed to a lack of planning. The new supervisor stated that the radiation level is placed on each package and in a log. The load is then prestaged in the storage area to confirm that it will meet DOT limits. The inspector toured the storage area, conducted a brief radiation survey, and found the levels to be acceptable. This matter is closed.

The health physics group performs the waste classification based on waste stream data or direct measurements. They also perform the radiation surveys. The radwaste group reviews the classification and prepares the shipping documents. The inspector reviewed the records for several class A and B shipments and found inconsistencies regarding which documents were retained. For example, records of one shipment did not have a copy of the certificate of conformance for the high integrity container. Another was missing the results of the radiation survey of the truck. This was attributed to the fact that two groups, HP and radwaste, are generating records. The plant manager stated that the records would be reviewed to ensure that copies of all important documents for each shipment were retained. This matter will be reviewed in a future inspection (92-04-01).

The inspector noted that there was an accumulation of dirt in barrels and concrete fragments being stored on site. The radwaste supervisor stated that the previous supervisor was tracking this material 'in his head', however, a written inventory of this material is underway so that disposal can be planned. This is a good initiative.

Within the scope of this review, the inspector determined that the radwaste program was good, with several improvements underway.

## 6.0 Exit Interview

The inspector met with the licensee representatives indicated in Section 1.0 on August 13, 1992 and summarized the scope and findings of this inspection.