

U. S. NUCLEAR REGULATORY COMMISSION
REGION I

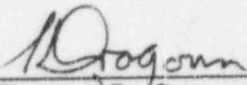
DOCKET/REPORT NOS: 50-54/95-02
70-687/95-02

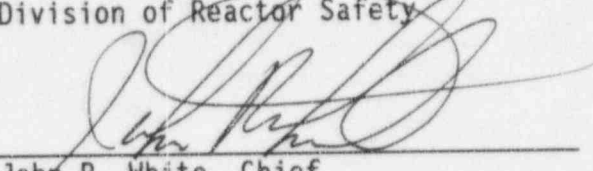
LICENSEE: Cintichem, Inc.
Tuxedo, NY

FACILITY: Research Reactor and Radiochemical Processing
Laboratory

LOCATED AT: Tuxedo, NY

INSPECTION DATES: November 28 and 29, 1995

INSPECTOR:  1/4/96
Thomas F. Dragoun, Project Scientist
Radiation Safety Branch
Division of Reactor Safety
Date

APPROVED BY:  1/4/96
John R. White, Chief
Radiation Safety Branch
Division of Reactor Safety
Date

Areas Inspected: Status of decommissioning, bedrock sampling, staffing, and airborne effluent monitoring.

Results: No safety concerns or violations of NRC regulatory requirements were observed.

DETAILS

1.0 INDIVIDUALS CONTACTED

1.1 Principal Licensee Employees

- *J. Adler, Manager, Health, Safety, and Environmental Affairs (TLG)
- *J. McGovern, Plant Manager
- *F. Morse, Project Manager, Decommissioning

1.2 New York State Personnel

- J. Kadlecek, NYS Department of Environmental Conservation (NYS-DEC)
- B. Youngberg, NYS-DEC

1.3 NRC Personnel

- D. Orlando, NMSS/Low-Level Waste and Decommissioning Projects

*Denotes those present at the exit meeting on 1/13/95. The inspector also interviewed other licensee and contractor personnel.

2.0 STATUS OF DECOMMISSIONING

Remediation in the reactor building was essentially complete and preparations were underway for final radiation surveys. In the Hot Lab Building, scabbling on the final section of wall in the north-west quadrant was in progress. The drilling apparatus for bedrock sampling was located on the exposed bedrock adjacent to the T-1 Room footprint. Remediation of soil in the area affected by leakage from the T-1 Room and the hot lab air ventilation duct was complete. Areas of minor contamination remain in the Hot Lab Building. The licensee indicated that the Radwaste Building and retention pond were the only major areas remaining to be remediated. Options are being explored for disposal of mixed waste, such as activated lead, cadmium, mercury, and contaminated oil. Disposal of these materials is not expected to be a problem. Completion of decommissioning and submission of a final status radiation survey was projected for the end of April 1996. The "Cleanup Guidelines for Soils Contaminated with Radioactive Materials" (TAGM 4003) adopted by NYS-DEC was discussed. No changes to the Cintichem decommissioning criteria will be required.

3.0 BEDROCK SAMPLING

The implementation of the developmental bedrock sampling/release criteria recently approved by the NRC was discussed. Thus far, 42 bore holes were drilled in the bedrock yielding 395 samples at one-foot intervals. This exceeds the sampling requirements of the approved plan. Most were "biased" samples taken in an area contaminated by leakage from the T1 Room. An area of about 24 square meters is being investigated but further drilling is on hold due to flooding from a high water table. The only isotopes detected are Sr-90 and Cs-137. Licensee calculations of the dose conversion factors for these isotopes indicate that the industrial intruder/on-site worker direct radiation exposure from Cs-137 may become the limiting case for bedrock contamination. A description of potential exposure pathways and assumptions for the

industrial intruder scenario is found in a letter from J. McGovern (Cintichem) to M. Weber (NRC), dated April 6, 1995. Within the scope of this review, implementation of the bedrock sampling plan was good.

Licensee analysis of the Sr-90 concentration in Sump S-4 and Sampling Well S-2 indicate a decline as expected. Current levels would result in a water pathway exposure of less than the EPA limit of 4 millirem if the NRC concentration guidance in 10 CFR 20 is used for the calculation. However, the licensee noted disagreement between the EPA and NRC methodology for assessing this dose. Using the EPA method, the concentration limit is lower. The licensee stated that a proposal would be submitted to the NRC to resolve this difference. This matter will be reviewed in a future inspection (Inspector Followup Item 50-54/95-02-01). In a post-inspection review of this matter, the inspector determined that EPA uses bone marrow as the target organ for Sr-90, while the NRC uses growing bone surface. This information was relayed to the licensee.

4.0 STAFFING

Licensee management initiated reductions in supervisory and worker staff over the past few months as certain projects were completed. The inspector reviewed the impact of these reductions and the transfer of key safety functions to the remaining staff. The inspector interviewed selected personnel, reviewed selected records, and observed the oversight provided in the work areas. Within the scope of this review, no reduction in attention to safety was noted.

5.0 AIRBORNE-EFFLUENT MONITORING

The licensee's program for the control of airborne releases from the Reactor Building and Hot Lab Building has been very effective. This included suspending the Hot Lab Building from external girders to maintain its integrity as the internal supports were removed. Air was drawn through the buildings, filtered, and discharged through a monitored vent on the Hot Lab Building roof. However, this system has been removed as part of the remediation. The inspector reviewed the current practices to control airborne releases.

Scrabbling on the north-west wall of the Hot Lab Building was the only work of concern. A plastic containment tent surrounded the work with the air exhausted through 1,000 cfm HEPA filter units. A small quasi-stack, fabricated from plywood, carried the exhaust to the roof. Monitoring was accomplished with a standard stack sampling system.

Several air sampling stations are operated continuously in various areas of both buildings. The alarm setpoints are reduced to the more restrictive general population limits. Particulate filter samples are analyzed weekly or more frequently. The inspector reviewed the data and confirmed that the effluent release criteria were satisfied. A significant amount of naturally-occurring radon daughter products was present on all samples. All samples are reanalyzed after 72 hours to allow for decay of these products.

The inspector reviewed the data from the eight environmental airborne monitoring stations surrounding the facility. The air particulate filters are collected and analyzed weekly. The analytical technique was good and all sample results were within the limits specified in 10 CFR 20. The inspector also reviewed the results of the environmental dosimeters and monthly water samples. The sampling frequencies continue to meet the requirements specified in Section 7.0 of the Decommissioning Plan and the results were within limits specified in 10 CFR 20.

Within the scope of this review, no safety concerns were identified.

6.0 EXIT MEETING

The inspector met with the licensee representatives denoted in Section 1.0 of this report at the conclusion of the inspection on November 29, 1995. The inspector summarized the purpose, scope, and findings of the inspection and the one licensee commitment. The licensee acknowledged the inspection results.