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UNITED STATES
NUCLEAR REGULATORY COMMISSION

WASHINGTON, D.C. 20555-0001

January 16, 1996

MEMORANDUM TO:

Robert Nelson, Chief
Low-Level Waste and Regulatory Issues Section
Low-Level Waste and Decommissioning
Projects Branch
Division of Waste Management

FROM:

Dominick A. Orlando, Project Manager *D. A. Orlando*
Low-Level Waste and Regulatory Issues Section
Low-Level Waste and Decommissioning
Projects Branch
Division of Waste Management

SUBJECT:

NOVEMBER 28, 1995, INSPECTION ACCOMPANIMENT TO
CINTICHEM, INC. FACILITY IN TUXEDO, NY

On November 28, 1995, I accompanied Nuclear Regulatory Commission, Region I, Inspector Thomas Dragoun on an announced inspection of the decommissioning activities at the Cintichem, Inc. facility (license nos. SNM-639 and R-81) in Tuxedo, New York. The purpose of this inspection was to determine the status of decommissioning of the Cintichem facility, to determine whether decommissioning activities were being conducted in accordance with NRC regulations and/or Cintichem's license conditions, to meet with the licensee to discuss the schedule for completing the decommissioning, and to determine whether any unresolved issues currently exist that could affect the completion of the decommissioning activities. Ms. Barbara Youngberg and Dr. John Kadlecsek of the New York State Department of Environmental Conservation (NYSDEC) also participated in this inspection. The inspection included a tour of the reactor and hot laboratory buildings and a meeting with Cintichem staff to discuss the decommissioning schedule and issues that could affect the completion of the decommissioning activities. During the meeting Cintichem provided NRC staff with interim draft criteria for residual radioactive material in bedrock at the site and diagrams outlining drilling/sampling at the site (see Attachment 1). The status and tentative schedule for completing decommissioning, issues, and NRC staff action items are summarized below.

During the meeting, NYSDEC staff provided NRC staff with a copy of NYSDEC's Technical Administrative Guidance Memorandum (TAGM) describing the policy and procedures for evaluating cleanup plans and criteria for soil containing radioactive material (see Attachment 2). The TAGM requires that residual radioactive material concentrations in soil at sites released for unrestricted use not exceed levels that would cause the maximally exposed individual to receive a total effective dose equivalent in excess of 10 mrem per year, as well as being as low as reasonably achievable. NYSDEC has indicated that the residual soil contamination criteria approved by NRC and NYSDEC in the past meet the criteria in the TAGM. The implementation of the bedrock sampling/release criteria development recently approved by the NRC was discussed. Thus far, 42 bore holes have been 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

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submit a formal proposal to NRC in the near future to resolve this issue.

- **Mixed Waste Disposal Options** - Cintichem indicated that it was exploring the disposal options for less than 100 ft³ of activated and contaminated lead, as well as a smaller quantities of cadmium, ethyl acetate, and mercury. Currently, Cintichem anticipates transferring approximately 300 gallons of contaminated oil to a processor in Tennessee (pending approval of the processor's TN radioactive materials license amendment request). If disposal capacity is not found, Cintichem indicated it would most likely transfer the mixed waste to a licensed storage facility.
- **Public Meeting** - NRC, NYSDEC, and Cintichem staff discussed holding a public meeting prior to terminating the license. All parties agreed that a public meeting to discuss the termination of the license would be appropriate. Plans for the meeting will be finalized in the spring.

NRC Staff Action Items

- Determine NRC Procedures for Terminating the License - Cintichem requested that NRC staff determine what regulatory requirements must be factored into the schedule for terminating the license. NRC staff contacted the NRC Office of General Counsel (OGC) to determine what requirements must be satisfied to terminate the SNM license. OGC indicated that the SNM license should be terminated by letter to the licensee and that a license amendment, Federal Register notice, or public comment period is not required.
- Review/Approval of Bedrock Release Criteria - NRC staff will review these criteria to determine if any corrections are needed prior to Cintichem submitting the final bedrock survey data and proposed criteria.

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investigated but further drilling has been delayed because of 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-onsite worker direct radiation exposure from Cs-137 may become the limiting case for bedrock contamination. Within the scope of this review, implementation of the bedrock sampling plan was good.

Status of Decommissioning

Decommissioning activities have been completed in most interior areas in the reactor and hot laboratory buildings. Remediation of bedrock beneath and adjacent to these buildings has been completed in all areas of the reactor building and all but one small area in the hot laboratory building. The Hold-up and 100,000 gallon tank areas, as well as the reactor cooling tower, have been surveyed and released for unrestricted use. Other areas still requiring remediation include the waste storage building, and adjacent area, and soil at the S-3 and S-5 outfall areas.

Current Schedule for Completing Decommissioning

- 4/96 - Cintichem completes all remedial activities
- 6/96 - Cintichem completes the Final Status Survey
- 6/96 - Cintichem submits the Final Status Survey Report (FSSR) to NRC
- 6/96 - NRC submits FSSR to ORISE
- 7/96 - ORISE conducts Confirmatory Survey
- 8/96 - ORISE submits Confirmatory Survey Report to NRC
- 8/96 - NRC reviews/approves ORISE Confirmatory Survey Report
- 8/96 - NRC/Cintichem/NYSDEC hold public meeting to discuss license termination
- 8/96 - NRC terminates SNM and reactor license

Issues

- Maximum Permissible Concentrations of ⁹⁰Sr in Groundwater - Cintichem staff indicated that the NRC criteria for ⁹⁰Sr in groundwater, derived using 10 CFR Part 20 Appendix B values for effluents, is approximately five times the level outlined in the Environmental Protection Agency's (EPA's) criteria at 40 CFR 141.16. Cintichem indicated that the groundwater at two sampling points at its facility (Monitoring Well 2s and S4, a sampling point in a manhole) exceeded the EPA level but were less than the derived NRC level (see Attachment 3). Cintichem indicated that it intended to

submit a formal proposal to NRC in the near future to resolve this issue.

- **Mixed Waste Disposal Options** - Cintichem indicated that it was exploring the disposal options for less than 100 ft³ of activated and contaminated lead, as well as a smaller quantities of cadmium, ethyl acetate, and mercury. Currently, Cintichem anticipates transferring approximately 300 gallons of contaminated oil to a processor in Tennessee (pending approval of the processor's TN radioactive materials license amendment request). If disposal capacity is not found, Cintichem indicated it would most likely transfer the mixed waste to a licensed storage facility.
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