



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
WASHINGTON, D.C. 20555-0001

50-54

70-687

August 3, 1995

Mr. James J. McGovern  
President/Plant Manager  
Cintichem, Inc.  
P.O. Box 816  
Tuxedo, New York 10987

Dear Mr. McGovern:

This is in response to your letter, dated July 12, 1995, in which you provided additional information on your proposed application of residual radioactive material limits to bedrock at your Tuxedo, New York, facility. In a letter to the Nuclear Regulatory Commission staff, dated April 6, 1995, Cintichem indicated that it intended to apply the criteria for bedrock to any concrete foundations left intact at the facility at the completion of decommissioning. In a letter dated June 8, 1995, NRC staff raised concerns about the application of the residual radioactive material limits for bedrock to the concrete foundations. As discussed in your July 12 letter, you intend to apply the residual radioactive material limits for bedrock only to concrete surfaces at the interface with bedrock surfaces.

NRC staff has reviewed your letter and have determined that differentiating between residual radioactive material on bedrock as opposed to radioactive material on the surface of concrete when the bedrock and concrete surfaces are in contact each other will be very difficult and costly. In addition, the most likely post-decommissioning scenario for releasing the residual radioactive material into the environment would be a quarrying operation. The staff does not believe that the quarry operator would separate the bedrock from the concrete and thus the concrete can be treated as if it were bedrock. Therefore, your proposed application of residual radioactive material limits to bedrock is acceptable as described in your July 12, 1995, letter.

Your letter also provided your proposed bedrock sampling plan for demonstrating that residual radioactive material remaining at the Cintichem facility will not exceed these limits at the completion of decommissioning operations. The staff has reviewed the proposed sampling plan and believe that it is adequate to make this demonstration with the following modifications:

- 1) The proposed plan indicates that averaging will be done over each major affected area (first bullet under Section 5). The staff has concluded that averaging the exposure rate over each affected area may result in an unacceptably large area exceeding the exposure rate limit of 5  $\mu$ R/hr. The staff has concluded that an acceptable area over which to average gamma exposure rate measurements is 10 meters by 10 meters. Therefore, the proposed plan should be revised to indicate this smaller area.

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- 2) The plan indicates that the average concentration of radioactive material left in the bedrock at the completion of decommissioning will not result in a potential dose to future on-site residents in excess of 10 mRem/yr from all potential exposure pathways (third bullet under Section 5). The staff expects that the bedrock and soil will be remediated so that the average concentration of residual radioactive material left at the site (in both soil and bedrock) at the completion of decommissioning will not exceed 10 mRem/yr from all potential exposure pathways, in addition to being limited to less than 4 mRem/yr from the groundwater pathway.

Development of this letter has been coordinated with the New York State Department of Environmental Conservation. If you have any questions, please contact Nick Orlando, at (301) 415-6749.

Sincerely

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Michael F. Weber, Chief  
Low-Level Waste and Decommissioning  
Projects Branch  
Division of Waste Management  
Office of Nuclear Material Safety  
and Safeguards

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