

August 19, 1997

Mr. James J. McGovern  
Plant Manager  
Cintichem, Inc.  
P.O. Box 816  
Tuxedo, NY 10987

SUBJECT: CINTICHEM FINAL SURVEY PLAN AND REPORT SECTIONS 11 to 18

Dear Mr. McGovern:

We have completed a preliminary review of Sections 11 through 18 of the Cintichem Final Survey Plan and Report submitted by letters dated June 6, June 27, July 3, July 25, and July 30, 1997. To complete this review, we request the following additional information and clarifications:

Sections 11, 13, 15, and 17

- 1) In the MDA equations listed, it is unclear if the term under the radical (background) is in units of cpm or counts. If the term is in units of cpm, then this should be stated as background count rate. If the units are counts, then the count time multiplier should be removed. Please review.
- 2) Please provide information regarding the NIST traceable source used for alpha instrument calibration.
- 3) In regards the equation used to convert instrument field readings from cpm to dpm/100cm<sup>2</sup>:
  - a) It is stated that readings are corrected for instrument background but not material natural background unless the natural background is sufficiently high as to interfere with achieving releasable levels. If the material background was subtracted, what correction was made to prevent subtracting instrument background twice in this calculation?
  - b) In many survey units, mean and true mean values for direct beta and alpha contamination are negative. If material natural background is not subtracted from gross counts, then mean values should almost always be positive. Please explain the causes of negative mean values.
- 4) NRC calculations of survey unit contamination limits using the "unity" rule concept and appropriate mix of isotopes resulted in higher values than were calculated by Cintichem. Please describe any additional factors used in your calculations.

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- 5) Statements in "Survey Plan" sections indicate that scans were not performed in the unaffected areas. NUREG/CR-5849 recommends that scans should be performed on 10% of unaffected floor and lower wall surface areas and 10% of unaffected open land areas. Please provide a rationale for not performing scans in accordance with NUREG/CR-5849.
- 6) A footnote to the soil release criteria tables indicate that isotopes of Uranium and Plutonium will not be included in the sum of fractions calculations. In a letter dated June 8, 1995, NRC staff stated that this was inconsistent with the soil criteria approved by the NRC staff in August 1993 and stated that, if these radionuclides were found at the site, Cintichem should contact the NRC staff to discuss the issue further.

In a letter dated April 3, 1997, from Barbara Youngberg to James McGovern, the New York State Department of Environmental Conservation stated that uranium ore found in the area of the Cintichem facility referred to as the "Union Carbide Spoils Area" was licensed by NYSDEC and therefore, subject to regulatory oversight of NYSDEC. NRC staff concurred with NYSDEC in this determination. Therefore, Cintichem should contact NYSDEC to determine the appropriate manner in which the radionuclides should be managed.

However, Cintichem is requested to confirm that no Uranium or Plutonium subject to the NRC-approved soil release criteria has been detected.

- 7) The table "Instrumentation Used for Radiological Survey Activities" lists instrument identification numbers as 1 to 10. Survey data sheets record the instrument identification as "12", "A", and other designations. Please explain.

#### Sections 12, 14, 16, 18

- 8) In summary results tables, is the row labeled "True Mean; U alpha 95% C.L." equivalent to  $\mu$  subscript alpha described in NUREG/CR-5849?
- 9) In the tables presenting "soil data for sum of the fractions", please describe the method of obtaining entries under columns labeled "isotopes of concern in fraction of limit", "sum", and "grid block avg. fraction of limit".
- 10) If any soil "hot spots" were accepted as the result of an evaluation of the area averaging methodology outline in NUREG/CR-5849, i.e., the volume activity of the soil did not exceed the average by more than  $\sqrt{(100/A)}$ , please provide these calculations.

#### Section 11 and 12

- 10) The text states that a Ludlum 44-9 GM detector was modified to provide access to pigeon holes. Please provide confirmation that the detector size is still 20 cm<sup>2</sup> and provide information regarding the calibration of this detector.

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- 11) Survey areas 312, 313, and 314 were affected areas but the horizontal and vertical support beams in these areas were classified as unaffected. Please explain.
- 12) Please confirm that area 324.01 was not surveyed because all surfaces were removed during remediation.

Sections 13 and 14

No questions. It is noted that survey unit 400.1 was previously reported in section 6 of this report.

Sections 15 and 16

- 13) Why were only 26 readings taken in survey area 501.3 which has an area of approximately 900 m<sup>2</sup> ?
- 14) Please describe the release criteria for area 502.4 (drain line pipe) after the unique isotope mix was found.

In general, the submitted survey data indicates that unconditional release criteria are satisfied in the various areas. A confirmatory survey by ORISE is scheduled to begin on August 25, 1997.

Sincerely,



Thomas F. Dragoun,  
Project Scientist  
Non-Power Reactors and  
Decommissioning Project Directorate  
Office of Nuclear Reactor Regulation

Docket Nos. 50-54 and 70-687  
License Nos. R-81 and SNM-639

cc:

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