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New York State Department of Environmental Conservation
Division of Solid and Hazardous Materials
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Commissioner

APR 3 0 2002

Response in Tech Memo file Summer Topics

[redacted]
US Army Corps of Engineers
Buffalo District
1776 Niagara Street
Buffalo, New York 14207-3199

Dear [redacted]:

Re: Seaway FUSRAP Site
Review Draft Technical Memorandum
Summer 2001 Subsurface Investigation at the Seaway Site - Areas A, B, and C
(January 18, 2002)

The Department of Environmental Conservation has reviewed the referenced document, which we received on January 28, 2002.

As a general comment, the Technical Memorandum of the Summer 2001 Subsurface Investigation at the Seaway Site - Areas A, B and C provided additional information and improved the site knowledge on the extent of MED-related contamination at the site. We compliment the Corps for undertaking this investigation, which has answered several long-standing questions about the extent of the MED material in the landfill. This is a useful contribution to the data base for this site.

However, we believe that some of the conclusions presented in the report are insufficiently supported and would we not agree to relying on them to determine the appropriate remedial action for the landfill.

Our detailed comments are enclosed. If you have any questions, please contact [redacted].

Sincerely,

[redacted]
Bureau of Radiation

Enclosure

cc w/enc: [redacted] Erie Co.
[redacted] BFI
Seaway Development Corp
[redacted] DEC Reg. 9

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New York State Department of Environmental Conservation
Division of Solid & Hazardous Materials
Bureau of Radiation

Comments on
Technical Memorandum: Summer 2001 Subsurface Investigation at the Seaway Site
Areas A, B, and C (January 18, 2002)

1. Page 3-7, Section 3.4.1, *Radiological Samples*

This section includes a discussion of the effectiveness of the BEGe system to identify MED materials, but it is not until the last sentence of the section that the basis for this identification is explained (i.e., gross disequilibrium between members of the uranium decay series). The discussion would be easier to follow if the basis for identifying MED materials were presented earlier, such as in the next-to-last paragraph on page 3.7 (which begins, "A comparison of off-site and on-site data . . .").

In addition, it would be helpful to include a table comparing the primary radiological contaminant (Ra-226, Th-230, and U-238) with results from the BEGe and the off-site laboratory.

2. Page 4-3, Section 4.2, *Nature of MED-Related Residues*

Please provide a copy of the Detailed Report from the RESRAD run referred to in the last paragraph on page 4-3.

3. Page 4-4, Section 4.2, *Nature of MED-Related Residues*

At the top of the page, it is stated, "Results from the RESRAD run show that, given the above parameters, neither radium, thorium, nor uranium will reach groundwater (leachate collection system) within the 1000 years evaluation period." This RESRAD run may be a useful exercise, but we do not agree that a single RESRAD run can conclusively demonstrate that none of these radionuclide will reach groundwater within 1000 years, particularly when most of the parameters were default values. A more accurate statement would be, "The results from this RESRAD run did not predict significant concentrations of radium, thorium, or uranium in the groundwater during the 1000-year evaluation period." Nor is the conclusion in the next sentence supported by the RESRAD results. We recommend deleting the sentence that begins, "These results indicate . . . ."

4. Page 4-5, Section 4.4, *Landfill Leachate Collection System Sampling Results*

It would be helpful to define here the "MED-related characteristics" referred to in the last paragraph on this page.

5. Page 4-5, Section 4.4, *Landfill Leachate Collection System Sampling Results*

We do not concur with the arguments summarized in the third paragraph of this section. As stated in our comments on section 4.2, one RESRAD run is not sufficient support for a conclusion that no radium or uranium from the MED waste is reaching the leachate system.

In the fourth paragraph, the statement, "The elevated radiation levels [in borehole ARC2017], likely come from radium plus decay products that are in direct contact with the leachate collection system," needs to be supported by some analytical data or revised to read, "The elevated radiation levels may come from radium . . . ." Without analytical data to support this assertion, we do not concur that "it is reasonable to assume that natural clay contributed to the radium and uranium concentrations in the leachate collection system."

This statement is also inconsistent with the logic used in the report to support the conclusion that no radium or uranium will leave the MED wastes. That conclusion is based on a RESRAD run using K_ds of 48 and 46 for radium and uranium. The K_d values for Ra and U in clay presented in Table E-3 of the RESRAD manual are 9,100 and 1,600, respectively. If the assertion that the MED nuclides will not move were correct, it could not follow that radium and uranium with K_d values two orders of magnitude higher will reach the leachate collection system.

6. Page 4-5, Section 4.4, *Landfill Leachate Collection System Sampling Results*

In the second paragraph, the term, "primary samples" is used, but the definition is not provided. Please define "primary samples."

7. Page 4-6, Section 4.4, *Landfill Leachate Collection System Sampling Results*

The last paragraph of this section asserts that any radionuclides that reach the leachate, come from the ash in the landfill and clay under it. As stated in our comments on Section 4.2 and the previous paragraphs in this section, those assertions are not adequately supported.

8. Page 6-1, Section 6.2, *Nature of MED-Related Residues in Areas A, B, and C*

As stated in our comments on Sections 4.2 and 4.4, the conclusion that no MED material will reach the leachate system is not supported.

9. Exhibit F, Off-site Laboratory Analyses

Please explain the reported detections of U-232. To our knowledge, it is not a naturally occurring radionuclide and would not be expected to occur in coal ash or the FUSRAP waste at the Seaway Landfill. Some data qualifier may be appropriate.

We suggest adding a key to the initials used in the columns entitled "Lab Qual," "SAIC Data Qual," and "Matrix."