



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

Paul

DEC 18 1984

MEMORANDUM FOR: Thomas E. Murley, Regional Administrator
Region I

FROM: Robert B. Minogue, Director
Office of Nuclear Regulatory Research

SUBJECT: REQUEST FOR STUDY OF POSSIBLE EXPOSURE PATHWAYS TO MAN FOR
RADIONUCLIDES DISCHARGED TO SANITARY SEWER SYSTEMS

As you indicated in your October 22, 1984 memorandum, the two recent N.Y. incidents involving radioactive materials discharged into sanitary sewer systems do suggest that further evaluation of possible exposure pathways to man would be warranted. The concentration of radioactive material by incineration or other means of volume reduction of sewage sludge was not considered in the existing regulations in 10 CFR Part 20. Various sludge disposal options such as land application, incineration, ocean disposal, or burial also need to be assessed for their potential dose contributions.

Rather than initiating an outside contract at this time to pursue this evaluation, I have asked the RES Health Effects Branch to initiate a six-month quantitative analysis to scope the problem. I believe that such a scoping study is needed to better define exposure pathways of possible interest and to ensure that any future field studies (if any can be funded) are conducted at facilities where the results can be readily generalized to typical sludge disposal operations. If such funding is not possible, the results of the scoping study can be used to define the requirements for supportive research to be imposed on individual licensees. I would appreciate any comments that you might have on the enclosed proposed study outline.

If you or your staff wish to discuss the details of this scoping study, please contact Harold Peterson (427-4578).

Robert B. Minogue

Robert B. Minogue, Director
Office of Nuclear Regulatory Research

Enclosure:
Study Outline

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Outline of Scoping Study
for Evaluating Potential Hazards
of Releases of Radioactive Wastes
to Sanitary Sewer Systems

I. Introduction

- A. Current Practice and Regulations
- B. Impact of Revisions to 10 CFR Part 20
- C. Incidents
 - 1. Description
 - 2. Impact
 - 3. Remedies

II. Sewage Treatment and Disposal

- A. Characteristics
- B. Sedimentation Processes
- C. Digestion Processes
- D. Treatment
- E. Disposal Options

III. Radiological Impact of Sewage Sludge Incineration

- A. Process and Magnitude
- B. Effluents and Control Measures
- C. Potential Pathways to Man
- D. Disposal Restrictions Required (on licensee)

IV. Radiological Impact of Sewage Sludge by Land Application and in Landfills

- A. Processes and Magnitude
- B. Soil-Plant Uptake
- C. Drinking Water Contamination
- D. Disposal Restrictions Required (on licensee)

V. Radiological Impact of Sewage Sludge by Other Methods

- A. Ocean Disposal (subject to EPA Permit - not treated in detail)
- B. Marketed Sludge Products
- C. Other
- D. Possible Disposal Restrictions on Licensees

VI. Summary and Conclusions



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