



UNITED STATES  
NUCLEAR REGULATORY COMMISSION

WASHINGTON, D.C. 20555-0001

December 23, 1998

Mr. Michael H. Mobley, Director  
Division of Radiological Health  
Department of Environment and Conservation  
L&C Annex, Third Floor  
401 Church Street  
Nashville, TN 37243-1532

Dear Mr. Mobley,

On December 18, 1997, NRC provided the State of Tennessee the results of our review of the State's equivalent to NRC's 10 CFR Part 20. In our letter we noted that the State's use of the values in Column 2 of Table 2 in lieu of the values in Table 3 of Appendix B to 10 CFR Part 20 was inconsistent with the compatibility category designations under the new adequacy and compatibility policy statement approved by the Commission in the Staff Requirements Memorandum of June 30, 1997. The State's standard is more stringent than NRC's Part 20 requirement. The State of Tennessee responded to our finding on February 6, 1998. The State's response has been carefully evaluated as reflected in this letter.

The compatibility concern identified in our December 18, 1997, letter is very specific to sewer disposal concentrations in Tennessee's State Regulations for Protection Against Radiation (SRPAR) 1200-2-5-122(b) and Schedule RHS 8-30. No other significant compatibility or health and safety issues were identified. As indicated previously, the identification of this inconsistency is not necessarily an indication that the State's overall program is incompatible with NRC's program. Our review identified this issue in the belief that if it were not addressed it could potentially lead to additional incompatible provisions and raise substantial questions about the overall compatibility of the program. We also indicated that an assessment of the overall compatibility of the Tennessee program would be made as a part of the next Integrated Materials Performance Evaluation Program (IMPEP) review.

The NRC has determined that its current regulations allowing disposal by release into the sanitary sewer (10 CFR §20.2003), which include the requirement that the released material is readily soluble (or readily dispersible biological material) in water, successfully preclude reconcentration and thus adequately protect public health, safety, and the environment. A poll of the Agreement States conducted by NRC in 1994 indicates that reconcentration of radioactive material in sanitary sewerage treatment systems has not occurred under NRC's current rule. Nevertheless, NRC, through the Interagency Steering Committee on Radiation Standards, is working with EPA to nationally survey sewage treatment plants to assess the extent of radioactive contamination in sludge and ash. A pilot survey of nine facilities is complete, the full survey received OMB clearance in June 1998, and questionnaires will be sent to sewage treatment plant operators in early 1999. The results of the NRC/EPA sewage survey are currently scheduled to be completed in 2000.

After careful consideration of the information presented in your letter justifying the State's position, we maintain that the use of Column 2, Table 2 values in lieu of Table 3 values in

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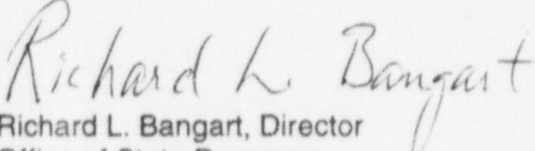
DEC 23 1998

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Finally, we have considered your recommendation that 10 CFR 20.2003 be designated as compatibility category "C." However, since the Appendix B, Table 3 values, in effect, establish a dose limit applicable to effluent discharges via the sewerage pathway, the compatibility category "A" designation appears appropriate.

If you have any questions regarding these comments or the compatibility policy, please contact me at (301) 415-2326 or Jim Myers of my staff at (301) 415-2328 or INTERNET: [jhm@nrc.gov](mailto:jhm@nrc.gov).

Sincerely,

  
Richard L. Bangart, Director  
Office of State Programs

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Sincerely,

Original Signed By  
**RICHARD L. BANGART**  
 Richard L. Bangart, Director  
 Office of State Programs

Distribution:

DIR RF (8S-44)  
 SDroggitis  
 CGJones, NMSS/IMNS  
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**\*See previous concurrence.**

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→ WHO subject  
to comments



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*IF THE STATE REG IS MORE STRINGENT WE SHOULD DIRECTLY SAY THIS. THIS PARAGRAPH SHOULD BE IN DRAFT*

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*★ Paper has to say, somewhere, that the state's standard is more stringent than NRC's. such as up here otherwise, the impression may be given that the state is less protective*

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*Insert A:  
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Michael H. Mobley

3

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EXECUTIVE TASK MANAGEMENT SYSTEM

<<< PRINT SCREEN UPDATE FORM >>>

TASK # - 8S-44

DATE- 08/13/98

MAIL CTRL. - 1998

TASK STARTED - 02/19/98

TASK DUE - / /

TASK COMPLETED - / /

TASK DESCRIPTION - LTR ON COMPATIBILITY OF PART 20 EQUIVALENT RULES FOR THE  
STATE OF TENNESSEE

REQUESTING OFF. - TN

REQUESTER - MOBLEY

WITS - 0 FYP - N

PROG. - JHM

PERSON -

STAFF LEAD - JHM

PROG. AREA -

PROJECT STATUS -

OSP DUE DATE:

SEE E-MAIL FROM CAMERON TO RLB2.

PLANNED ACC. - N

LEVEL CODE - 1



STATE OF TENNESSEE  
DEPARTMENT OF ENVIRONMENT AND CONSERVATION

DIVISION OF RADIOLOGICAL HEALTH  
L & C Annex, 3rd Floor  
401 Church Street  
Nashville, Tennessee 37243-1532  
(615) 532-0364

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PLB2  
PHL  
S&D  
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PML (ASPO)  
JHM

Assign: JHM

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February 6, 1998

Mr. Paul H. Lohaus, Deputy Director  
Office of State Programs  
United States Nuclear Regulatory Commission  
Washington, DC 20555-0001

Re: Letter dated December 18, 1997  
Compatibility of Part 20 equivalent rules

Dear Mr. Lohaus:

The subject correspondence conveyed to us the two volume report dated June 30, 1995, prepared by the Oak Ridge National Laboratory under contract to the NRC, in which is contained an extensive commentary detailing ORNL's review of the Tennessee regulations equivalent to 10 CFR Part 20. While we have not yet had a chance to review it in depth, we hope that the analysis and comment contained in this document will prove to be useful to us as we undertake future rule revisions as necessary and appropriate. We appreciate receiving this report.

We appreciate also the effort put forth by NRC staff in reviewing these documents, initially for potentially significant health and safety issues requiring immediate attention, and subsequently for consistency with the NRC's new adequacy and compatibility policy statement. We are pleased that no significant health and safety issues were identified.

As a result of its review, NRC staff has noted that there is an inconsistency, as per the new compatibility category designations, between Tennessee "State Regulations for Protection Against Radiation" (SRPAR) and NRC's Part 20, regarding one rule (sewer disposal concentrations). This inconsistency is identified and commented upon in Enclosure 3 of your letter. You requested that we respond to your comment.

Some recounting of history is probably in order. As you may recall, in early 1984 we became aware of significant cobalt and cesium contamination in the sewer lines and the sewage treatment plant in an East Tennessee city. This contamination was traced back to one particular licensee.

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Mr. Paul H. Lohaus

February 6, 1998

Page 2

of several in the area who were releasing radioactive material to the city's sewage treatment system. Our investigation indicated that sewerage disposals made by this licensee were in compliance with the requirements of the regulations at that time.

To abate the problem, after an initial moratorium on any sewerage releases, we subsequently amended this license to restrict the allowable release concentrations to one-tenth of the SRPAR, and NRC Part 20, Appendix B, limits. We initiated a comprehensive surveillance program to better assess the cause of this incident and to track the recovery of the sewerage system. We conducted a tracer study, in cooperation with the city, to better understand the phenomenon. We worked out agreements between all parties (city, state, and licensees) for equitability purposes, and placed similar disposal restrictions on other licensees. We looked for similar problems in other sewerage systems, and found one in another East Tennessee city in which is situated a licensed facility handling uranium. It has taken many years and much effort to mitigate the effects of these situations. We have learned a great deal in the process.

Much has happened in the NRC's realm since then, notably including new Part 20 (with several preliminary iterations), the implementation of the IMPEP concept (with its emphasis on performance rather than prescriptiveness), and the new policy statement on adequacy and compatibility (with its emphasis on flexibility). Meanwhile, in a 1990 revision of Chapter 5 of SRPAR (our equivalent of 10 CFR Part 20), we revised our sewer disposal limits downward by a factor of ten in an effort to preclude other similar occurrences. We subsequently incorporated new Part 20 into SRPAR, but followed our previously adopted practice of restricting releases to sewerage systems to the same concentration limits as for unrestricted release, i.e., NRC's Appendix B, Table 2.

Our adoption of a more restrictive requirement should be no surprise to the NRC. We have kept the NRC apprised of our activities and informed of our findings all through this process. We have made presentations and participated in discussions in a variety of settings, including All-Agreements States' meetings as early as 1986. We have submitted proposed revisions of SRPAR to NRC for comment.

We believe that our sewer disposal regulations are neither inconsistent nor incompatible with the generally applicable basic radiation protection standards of Part 20. The concentration limits of Appendix B, Tables 1 and 2 can be related in a fairly straightforward manner to permissible doses to persons, either in an occupational context or as members of the general public. In assigning compatibility category designations for these, we do not disagree with a compatibility designation of "A", i.e., as basic radiation protection standards. We believe, however, that Appendix B, Table 3 should be considered separately from Tables 1 and 2 for purposes of compatibility category designation.

Appendix B, Table 3, by NRC's own description, is based on a single exposure pathway (ingestion), which in many cases is not the only, or even the dominant, exposure pathway. It has

Mr. Paul H. Lohaus

February 6, 1998

Page 3

been demonstrated that some radionuclides are concentrated by the sewage treatment process, and it must be acknowledged that exposure pathways other than the one assumed by Table 3 are possible. Some of these exposure pathways lead to the potential for doses to the public which are not consistent with current radiation protection guidance.

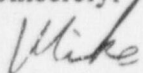
It seems likely that problems, similar to those which required the State of Tennessee to take action, have or will occur in other jurisdictions. We believe that NRC should reconsider the compliance category designation for Table 3, in accordance with the guidance provided by the Commission in Item 3.b. on page 2 of the Staff Requirements Memorandum dated June 30, 1997, provided to the Agreement States with State Programs letter SP-97-057. It is difficult to realistically contemplate a situation involving "significant and direct transboundary implications" as defined by a category B designation. Possibly a Category C would be most appropriate. That would allow affected jurisdictions the opportunity to establish standards which best address local conditions, and provide a means whereby dose, and not release concentration, when the two are not directly linked, can take its proper place as the pre-eminent radiation protection standard.

If it were to become necessary that we adopt the sewerage release limits of Appendix B, Table 3, the State would condition individual licenses in a manner similar to what it did prior to promulgation of the current regulation. That procedure, though cumbersome, could provide for "legally binding requirements," in accordance with the concepts enunciated in the final "Policy Statement on Adequacy and Compatibility of Agreement State Programs," thus allowing the State to maintain an adequate program for protecting the public health and safety. We would hope, however, that such would not be necessary.

We are confident that the approach we have taken to address these problems is the right one for the State of Tennessee. We believe that we have achieved an equitable resolution which allowed for input from, and protection of the interests of, all parties concerned. Licensees are able to operate efficiently, in a business sense, in a regulatory climate which is in every way protective of the public health and the environment.

We appreciate your consideration in this matter, and are prepared to further discuss with you, should you wish, our position on this issue.

Sincerely,



Michael H. Mobley

Director

Division of Radiological Health