

February 25, 2004

William M. Beckner, Executive Director
National Council on Radiation Protection
and Measurements
7910 Woodmont Avenue, Suite 800
Bethesda, MD 20814-3095

Dear Mr. Beckner:

This is in response to your January 21, 2004, request for review of the National Council on Radiation Protection and Measurement (NCRP) draft report, prepared by Scientific Committee 87-5, and entitled "Risk Management in Decommissioning of radioactively Contaminated Sites." In this regard, please find attached our comments and suggestions for your consideration.

We believe the information and analyses presented in this report are very enlightening and could help to enhance ongoing risk harmonization between federal agencies and develop more consistent approaches to decision-making in the cleanup of radioactively contaminated sites.

We thank you for the opportunity to review and comment on this important document and look forward for further collaboration with your council. For additional information concerning the review, please contact Ralph Cady of my staff at (301) 415-6249 or e-mail address REC2@nrc.gov.

Sincerely,

Cheryl A. Trottier, Chief
Radiation Protection, Environmental Risk,
and Waste Management Branch
Division of Systems Analysis and Regulatory Effectiveness
Office of Nuclear Regulatory Research

Attachment: As stated

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**COMMENTS ON DRAFT NCRP REPORT OF SC87-5:
“Risk Management in Decommissioning of Radioactively Contaminated Sites”**

General Comments

1. The report presented a great wealth of information and a comprehensive analysis of regulatory guidance and practices used by the Nuclear Regulatory Commission (NRC), and the U.S. Environmental Protection Agency (EPA). However, the report needs further editing to increase clarity, and to consolidate and remove much of the repetitive content in the document.

2. The report presented in Section 3.3.2 (Page 144-146) a comparison of the EPA’s preliminary radiation goals (PRGs) for superfund sites (e.g., the EPA’s trigger values expressed in pCi/g equivalent to a lifetime risk of 10^{-4}) with NRC’s screening values (e.g., values in pCi/g equivalent to 25 mrem/y) of common radionuclides for soil surface contamination levels. The report showed that NRC screening values were more restrictive than EPA trigger values for the 36 listed radionuclides except for four radionuclides (e.g., ^{94}Nb , ^{137}Cs , $^{137\text{m}}\text{Ba}$, and ^{154}Eu). The report stated on Page 146, lines 13-16, “Clearly, the results in Table 3.2 show that, in most cases, NRC’s activity concentrations based on NRC’s 25 mrem per year criterion are more restrictive than the EPA’s activity concentration based on the EPA’s 10^{-4} lifetime risk criterion. This comparison and the statement made may be misleading, because the screening values were not developed by the NRC to express actual risk limits. Rather, these values were developed as a rapid screening tool using highly conservative parameters, scenarios, and simple model/codes to facilitate removal of simple sites, with slight residual radioactivity, without characterization and without conducting site-specific dose modeling analysis or reviews. In fact, NRC staff stated, in NUREG-1727 and NUREG-1757, Vol.2, that “*Because of the conservative nature of the screening analysis approach, the screening DCGIs are expected to be more restrictive than the site-specific DCGIs.*” In addition, NRC’s screening values were derived by accounting for all pathways linked to potential groundwater contamination within the 1000-year performance period; whereas such pathways were not included in EPA’s analyses. Therefore, the report should acknowledge that NRC’s screening values do not represent actual risk values and direct comparison with EPA’s PRGs is not valid. The staff typically conduct more realistic site-specific dose analysis using more advanced modeling and site-specific data. We believe the comparison presented in Table 3.2 of the report, and its focus on screening values to elucidate differences and similarities between the EPA and NRC’s risk management are misleading and inappropriate. Therefore, to alleviate potential confusion among the readers, that may arise from this comparison, we recommend omitting Table 3.2 from the text.

3. Table 3.1, “Comparison of methods used by EPA, NRC (DandD), and DOE (RESRAD) modeling,” is misleading, because the parameters listed under each agency may not represent actual parameters typically used in dose analysis. For example, the parameters listed for NRC’s DandD code are not used directly for site-specific dose analysis; DandD is commonly applied as a screening tool. NRC staff, and licensees, commonly use other models/codes such as RESRAD probabilistic codes and associated

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site-specific parameters. In addition, for sensitive parameters, staff use distributions of parameters rather than a single value of a parameter to encompass variable site specific conditions. The report should be clear on the uses of codes in performing site-specific dose modeling and the methodology for parameter selection.

4. The report presented in Section 3.3, methods of site characterization and dose or risk analysis. The report asserted that NRC and EPA use the Multi-Agency Radiation Site Survey Implementation Manual (MARSSIM) as a guide to conducting site characterization activities at radioactively contaminated sites.” The NRC uses MARSSIM as a guide for the final survey rather than for characterization. The approach, methodology, and data collection protocols for characterization purposes could be different and may have variable data quality objectives (DQOs). Therefore, for characterization purposes, different and more flexible protocols than MARSSIM may be used to suit the DQO characterization process for identification of the extent of contamination and in support of initial cleanup activities.
5. Throughout the document, statements regarding NRC’s criteria for public involvement at decommissioning sites are inaccurately described, mainly by stating that CERCLA mandates public input in the decision process while NRC requirements for public input are only found in NEPA. Title 10 of the Code of Federal Regulations, Part 20.1405, clearly states that NRC will provide the public with an opportunity to provide input on Decommissioning Plans. NRC regulations also provide that stakeholders be provided the opportunity to request a hearing on specific NRC licensing actions. Finally, staff policy and guidance for the decommissioning of materials and power reactors contain provisions for the staff to hold meetings in the vicinity of decommissioning facilities to inform interested stakeholders of NRC actions and obtain input on these actions. The staff conducted several public workshops before developing its decommissioning standard review plan and solicited public inputs to the LTR’s implementation guidance documents.
6. Throughout the document, statements are made that NRC decisions are consistent across the agency because all decommissioning and license termination decisions are made by NRC Headquarters (HQ) staff and not by NRC Regional staff. We agree with the authors conclusion that NRC decommissioning decisions are consistent across the agency. The authors should realize that this consistency is mainly due to close coordination between Decommissioning Program staff at NRC’s HQ and NRC regional staff. In fact simple license termination decisions are routinely made by NRC regional staff consistent with NRC guidance documents (e.g., Consolidated NMSS Decommissioning Guidance, NUREG-1757).
7. Throughout the document, statements are made regarding lack of opportunities for the Agreement States to participate in the development of the EPA MOU. The NRC has, and continues to be open in its efforts to eliminate the potential for dual regulation. This openness included the development of the MOU, which was discussed at several public meetings, both during its development and after its signature. However, details of the MOU were developed without public involvement because the MOU was developed at the direction of Congress to document an understanding between the NRC and the EPA with regard to consultation between the two Federal agencies about NRC licensed sites (see the attached copy of Chairman Meserve’s December 10, 2002, response to Jill Lipoti for a general discussion of this matter). In addition, in response to comments

from State representatives regarding their interest in becoming a party to a similar MOU, the NRC participated in, and facilitated, several discussions between Agreement States representatives and representatives from the U.S. EPA in 2003. NRC notes that these discussions have been discontinued due to a lack of interest in such an agreement on the part of the Agreement States. In addition, the NRC periodically reviews and coordinates with Agreement States on decommissioning activities through the Office of State and Tribal Programs.

8. The NCRP report does not identify financial assurance as a difference between NRC's license termination process, and EPA's CERCLA process. It should be noted that CERCLA is intended to address sites that were already contaminated and for which there are no financial assurance requirements. NRC's requirements for operating facilities, however, include provisions for financial assurance to ensure that funds are available for decommissioning and license termination. The report should describe this difference and elaborate on differences regarding cleanup costs and pertinent financial issues.

Specific Comments

1. Page 13, lines 18-20. The sentence beginning with "Furthermore, the scope..." should be deleted. Neither NRC or EPA has quantified the number of sites that will require consultation under the MOU. In addition, as the decommissioning and MOU consultation process is dynamic (i.e., as new sites enter into decommissioning they will be evaluated for consideration under the MOU) it is difficult to devise such an estimate.
2. Page 15 lines 12-17 - The statements in the first sentence are not consistent with the following two sentences.
3. Page 17, lines 1-9 - It is not clear what concept this paragraph is trying to describe.
4. Page 19, line 11 and 12. This could be read that the AEA directs the NRC to benefit existing industries or promote new ones. Promotional aspects went with DOE; therefore, this issue should be acknowledged and clarified. Promotion certainly is not the NRC mandate.
5. Page 30, lines 10-19 - The information provided in this paragraph is far too detailed for the Summary. Suggest moving it to the main text of the report.
6. Page 31, lines 3-12 - See No.2 in General Comments, above
7. Page 33, 34. Much of the material on the top part of 34 seems to be duplicate of the material that was in the second half of 33. Also, the material in the second half of page 33 does not seem to be applicable to the title of this section, "Uncertainty".
8. Page. 40, lines 18-20 - See comment for p. 13, lines 18-20, above
9. Page 45, Lines 6 and 7. There is no value in saying that NRC had its origins in programs that operated in secrecy. This same comment about the origins of the AEA applies to Page 116.

10. Page 46, line 8 - This sentence should indicate that the EPA was established during the Nixon administration.
11. Page 46, lines 17-21. In line 17 delete "radioactive materials, i.e.," and in line 19 delete "any other radioactive materials- i.e.," as the statements confuse the reader with respect to the materials that are regulated under the AEA. Insert "or radiation producing machines, i.e., X-rays" after "cycle" in line 21.
12. Page 48, line 4-6 - see No.2 in General Comments, above
13. Page 49, line 14 - insert "and only applies to the hazardous component of the mixed waste" at the end of the sentence to better describe the relationship between hazardous and radioactive material in mixed waste.
14. Page 48, Lines 4 - 6. This is not correct; see general comments. Regional offices do the licensing for most byproduct materials, including license terminations, close out surveys, etc.
15. Page 54, Line 6. At present there are 33 Agreement States.
16. Page 74, line 4 - revise the sentence to read " The LTR does not apply to all..." as this better describes the LTR's applicability to uranium facilities
17. Page 77, line 21 - replace 'was no need in" to "was no benefit to" and further in the sentence on the next page replace "when" with "because" as this better describes the NRC's rationale for using the all-pathways approach to establishing decommissioning criteria.
18. Page 81, line 21 - replace "also may notify and solicit" with "regulations require that staff notify and solicit" as this describes the requirements of 10 CFR20.1405.
19. Section 2.3.2, pages 100-106, discusses the approach to developing future use scenarios at sites to support the derivation of site-specific cleanup levels. The discussion is incomplete and should include a discussion of the use of realistic scenarios as provided in SECY 03-0069.
20. Page 117, line 10 - insert "and the NRC's regulations" at the end of the sentence as this better describes NRC's public input requirements.
21. Page 118, lines 11-18 - see General Comment No. 2 above.
22. Page 123 line 5. It is important to add at the end of the sentence "... for the specified situation." Since there are different limits, we need to be careful to avoid someone picking one limit, like the 100 mrem, and then saying it is intolerable at 101, even though that might be the right answer in another situation, like a medical care giver or occupational exposure.
23. Page 129, lines 13 to 19. We don't believe the comparison of the 1 mrem level to the EPA risk goal is appropriate (see general comments), since the value does not appear in any of the NRC regulations. This seems to introduce confusion into the discussion.

24. Page 131 lines 11-17 - the description of the lack of evaluating the societal impacts of decommissioning activities under an ALARA analysis is misleading. The ALARA analysis is a cost/benefit (i.e., cost vs dose) analysis and it is not appropriate to attempt to include the societal impacts in this analysis. These impacts are more appropriately addressed under the NEPA analysis that is conducted for decommissioning actions.
25. Page 134, line 20. Presumably the report is intended to say that the non-governmental scientific organizations were authoritative. However, it reads as if there were authoritative organizations, and then there were non-governmental scientific organizations. This should be corrected.
26. Page 139, lines 10-12 - This sentence appears to have been copied from the previous section and is not appropriate in this section.
27. Page 145-146, table - it is important to note that the use of this table may be misleading as the NRC screening values are not required cleanup values at sites and the site may actually use values that are much higher, if it can be demonstrated that the dose meets NRC's criteria (see general comments).
28. Statements on page 155, last paragraph, call into question the site closure decisions of both NRC and EPA. This statement should be reviewed to determine if it is appropriate for inclusion in this document.
29. Page 160 - see General Comment No. 2, above
30. Page 164 line 14 - insert "Project" between "Demonstration" and "Act"
31. Page 164, line 25-26 - delete the last sentence of this paragraph and replace it with "The WVDP Act requires DOE to decontaminate and decommission any material and hardware used in connection with the project in accordance with the requirements that the NRC may prescribe. On February 01, 2002, the Commission published the WVDP Policy Statement that established the cleanup criteria for the site as 10 CFR Part 20, Subpart E"
32. On Page 164, it's stated that DOE is preparing two EISs. The first EIS, dealing with waste management, was completed in December 2003.
33. In the last sentence on page 164, the authors meant to say "NRC's **LTR** was chosen by the Commission as the cleanup criteria." The word LTR seems to have been left out.
34. Page 187, Lines 9 – 17. Perhaps there should be a reference back to the table earlier in the document, because without some type of foundation the statements seem unsupported.
35. Page 188, Lines 1 – 7. The statements are made in a summary fashion, and without quantification. They simply state that the differences are small, without it being apparent that this is supported.
36. Page 191, line 10-11. It is not clear how the use of an ALARA approach will result in the groundwater at a site meeting the MCL. Suggest this line be deleted.

37. Page 191, Line 22. We believe there is a misrepresentation of the NRC because the NRC regional offices do make determinations on many of the smaller decommissioning and license terminations (see general comments).
38. Page 195, Lines 14 – 19. This is a very long sentence that is difficult to understand. See General Comment.
39. Statements on Page 197 regarding the role of the States in resolving EPA and NRC differences in decommissioning is misleading and the tone is out of context with an otherwise well written document. We suggest that lines 18 through the end of the document be deleted, as they do not add to the discussion of the management of risk at sites undergoing decommissioning.
40. Page 197-198, last two paragraphs. While probably true, the paragraphs contain some language which is not substantiated, and the report could lose credibility without support.
41. Page 224, line 6 - the correct spelling of the author is "McCann," not "McAnn."