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STATE OF WASHINGTON

DEPARTMENT OF HEALTH
DIVISION OF RADIATION PROTECTION

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March 15, 1994

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Secretary of the Commission
Attn: Docketing and Service Branch
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

Dear Sirs:

The Conference of Radiation Control Program Directors E-5 Committee submits the following comments on the U.S. Nuclear Regulatory Commission's January 27, 1994 Draft Generic Radiological Criteria for Decommissioning:

1. At this time, the NRC should limit the focus of the rule to radiological issues. The question of mixed waste will need to be addressed, but it is appropriate to wait until after some consensus about radiological hazards can be achieved.
2. The distinction between goals and limits has little practical value, and can unnecessarily complicate the decision process for applying the cleanup guidance at specific sites.
3. The NRC proposes a dose of 3 millirem per year to the average member of the critical group as a goal. NRC uses, as justification, that it is barely distinguishable from the background radiation dose and is within a variation observed seasonally. We suggest that a dose of 10 millirem per year to the average member of the general public is equally as conservative and easier to comprehend and assess.
4. It is not clear why the NRC has chosen to apply the TEDE to the "average member of the critical group." The public interest is better served if the best possible determination of a realistic dose to the maximum exposed individual is used to set cleanup requirements. Estimating individual dose should be the NRC's preferred approach. However, use of some averaging techniques over some arbitrarily defined critical group can easily mask the results of dose estimates. We suggest simply referring to the maximum exposed individual in the general public. Limiting residual dose to the maximum exposed individual can address all health concerns. If NRC retains the concept of "average member of the critical group," the term "average member" should be clearly defined.

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5. Best available technology and the return to background are not useful concepts in establishing radiological cleanup guidance.
6. It is not clear why the NRC has chosen to use separate concepts of goal and limit. If the limit chosen by the NRC will adequately protect the maximum exposed individual, why is another number needed? The concept of ALARA still exists and should be applied. However, it is not appropriate to quantify what ALARA means in the absence of site-specific data. A properly set cleanup limit should ensure that health and environmental considerations have been addressed. Experience has shown that when a cleanup limit as low as 10 millirem per year to the maximum exposed member of the general public is used, the intent of the ALARA concept will almost always be realized. The mere existence of 3 millirem per year to the average member of the critical group will cause some to use it as a cleanup limit. Given the considerable uncertainty in estimating dose, it might seem we are making too fine a point of distinguishing between 3 millirem per year to the average member of the critical group and 15 millirem per year to the maximum exposed member of the general public. The only major consequence of going below the 15 millirem per year is the potential creation of substantially more waste requiring disposal. 10 millirem per year to the maximum exposed member of the general public could be used as a compromise between 3-15 millirem per year, and is a very reasonable and workable limit.
7. The unrestricted release cleanup standard of a dose of less than 15 millirem per year and "as close to the decommissioning goal as reasonably achievable" should be clarified. For example, what is meant by "reasonably achievable?"
8. It is very important that the NRC establish radiation cleanup risk levels that are consistent with other cleanup guidance for radiologically contaminated sites. Consistency of the risk levels of the proposed rules with the risk levels associated with EPA's CERCLA and spent nuclear fuel regulations, for example, will help ensure nationwide regulatory consistency and fairness.
9. There must be confidence that the procedures used to determine cleanup requirements will lead to a final resolution. The issue is not that the dose limit (15 millirem per year to the average member of the critical group proposed here, or 10 millirem per year to the maximum exposed member of the general public now in use in New York State) might be too high to ensure adequate protection--that is extremely doubtful. Rather, if additional radiological material was found at a later date, or if a significant change should be made in some critical input parameter used to estimate dose, the NRC will need the authority to revisit the site. However, if the

site characterization, sample analysis, and the modeling are done well, the chance of this happening is very remote. As long as it can be demonstrated that the dose limits will be met with the technologies available today, that other involved governmental agencies agree with the procedures used to estimate residual contamination doses, and that the terms of the release (restricted or unrestricted) are complied with, the responsible party can and should be assured that no further remediation will be required.

10. The establishment of the Site-Specific Advisory Board for those sites that will not be released to the public, but instead will require institutional controls, should allow more public involvement in the process. In order for this board to succeed, the NRC should take steps to ensure that local communities have some influence over the remedial and control actions. It is possible that their involvement can significantly improve the outcome of a project. Because of their direct involvement with activities at or near the site, and their knowledge of unique historical or environmental aspects of the area, they can help define some of the constraints or cleanup choices.
11. Since the membership of the Site-Specific Advisory Board is drawn primarily from public interest groups, it is not clear why the NRC wants to assign to the SSAB in the proposed regulation much of the responsibility usually given to technical review panels.
12. The proposed generally applicable dose limits should have sufficient flexibility so that site-dependent characteristics can be intelligently accommodated. It is clear that some sites in the United States will never be free-released, and the proposed new rule reflects that fact. An example of the rule's flexibility is how it allows site-specific modeling and remedial action. Were these proposed regulations to not allow such flexibility, it is clear that the final risk and cost of individual sites could vary widely.
13. The NRC states in its response that all significant public health and environmental risks should be evaluated. This should include comparing the impacts of waste transportation and disposal with the impacts of leaving the material onsite.
14. The use of 3 millirem per year to the average member of the critical group should not be used as a quantification of ALARA. Rather, the dose limit should be used for all activities associated with the cleanup: residual activity, dose to the worker, or transportation and disposal. If a compelling case can be made that other issues (worker safety or environmental damage) can pose serious problems, then the alternative to unrestricted release may be needed. The NRC is correct with regard to the issues of cost, practicality and common sense being used to dictate alternatives

to unrestricted release at specific sites. In addition to continued licensee responsibility, deed restrictions for sites contaminated with relatively short-lived radionuclides can be a viable option.

15. In its response, the NRC states that the radiation protection standards do not warrant treatment different from those for other health issues. This seems to imply that the decommissioning criteria should apply to all NORM-contaminated sites (mine tailings, phosphate gypsum, etc.). EPA also agree? This implication seems to be contradicted by Section 20.1401 of the proposed rule, where mine tailings are specifically excluded. In its response, the NRC refers to sites that are so contaminated with naturally occurring radionuclides that the license must be maintained indefinitely. The NRC should distinguish between naturally occurring radionuclides and NORM that has been enhanced by processing.
16. A set of default criteria should be established for the more simple decommissioning projects. The danger in setting default criteria, even if only in a guidance document, is that they will become de facto limits, and no other criteria will be accepted. The NRC should take care to limit the applicability of the default criteria to those uncomplicated situations where deriving site-specific criteria to meet the dose limits would waste time and effort.
17. The NRC should assure that its license fees are not so prohibitive as to prevent sites from continuing to be licensed when they cannot meet the unrestricted release criteria.
18. NRC acknowledges that decommissioning to radiation levels approaching background may produce large volumes of low-level waste that could affect the availability of regional disposal capacity. This must be addressed in the generic environmental impact statement for this rule. The NRC states that the impacts associated with the types of radioactive waste generated during decommissioning were considered in NRC's environmental impact statement in support of 10 CFR Part 61. However, that EIS was written over ten years ago and did not anticipate decommissioning to the goals now being proposed. In addition, the EIS did not address the volumes of waste that this proposal would produce. The decommissioning goal of "indistinguishable from background" will change the type of waste produced, and increase the volume. The NRC should not postpone assessing the impacts of this goal until the decommissioning criteria are applied to the specific sites. This issue must be addressed in the EIS for the decommissioning rule. Regional impacts will also need to be assessed in light of the fact that access to waste disposal sites, and the costs thereof, vary significantly from state to state. Increases in waste volumes should be

estimated so that disposal site designs can be developed to include the increase in waste volumes. The release of sites for restricted use could reduce the amount of waste to be sent to disposal sites.

19. The NRC response deals with the future, and is appropriate. The same goals should apply to sites that are already contaminated. The rule should also recommend that radioactively contaminated waste that requires disposal at low-level waste sites be kept to a minimum. This is done by careful excavation and/or demolition so that the volume of material removed and requiring disposal is kept to a minimum. The definition of natural background, for example, includes radon. This is a "natural" definition, since radon dominates annual dose. The difficulty lies in the proposed regulation's incremental dose standard, which is to be used to set cleanup radionuclide concentrations by models that include a residential scenario. It is clear that radon, in a residential scenario, will dominate total dose and therefore must be included in the model. Since the report admits that modeling potential doses due to radon has very large uncertainties, the owner of a site to be remediated would presumably be forced to set cleanup levels of uranium, thorium, and their daughters at extremely low levels. Another difficulty with inclusion of radon into background involves the 3 millirem TEDE standard in the rule. Part of the rationale for 3 millirem is that it is "barely distinguishable from variations in local and national radiation background levels." If radon is included in background in a residential scenario, this claim is not true. For example, Washington State has found that individuals living in adjacent homes often differ in their annual dose from radon by a few hundred millirems, and this is not unique to Washington State. If one were to use the "barely distinguishable from local variations" rationale to set up the cleanup standard, then the cleanup standard would be well above 3 millirem. One solution to this very difficult issue is to eliminate radon from the definition of background and from dose modeling; however, this makes little sense, since radon is the principal contributor to dose. Another possible solution is to place building code restrictions on sites where radon-generating radionuclides are present. Regardless of the solution chosen, the inclusion of radon in background and residential dose assessments and adhering to the 3 millirem rule is untenable.
20. Historically, the environmentally unique areas deserve special consideration. Environmental and cultural issues associated with a particular decommissioning action may require special attention. For example, to destroy a critical habitat in order to meet the cleanup guidance may not be the best overall solution to a site decommissioning.
21. Whenever possible, contaminated materials should be allowed to be recycled.

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22. The term "critical group" needs a discussion of the timeframe to be considered. For example, how will the critical group be defined for sites contaminated with extremely long-lived radionuclides?
23. The phrase "average member of the critical group" should be defined.
24. The term "unrestricted use" should be defined.
25. The term "significant" could be defined in a manner similar to the definition of "significantly" in the Council of Environmental Quality's regulations. 40 CFR 1508.27.
26. The NRC should also consider adding more detailed criteria in the regulations, to provide a better indication of the future conditions that could lead the NRC to order further decommissioning. These conditions could include the discovery of new information regarding site characteristics or changes in site characteristics that could result in doses greater than the dose limit. There should also be a provision for requiring additional decommissioning at sites released for a restricted use where the restrictions have proven to be ineffective.
27. It would appear that two cleanup levels could lead to frequent and costly litigation between environmental groups and industry, concerning where in the 3-15 millirem range a facility must be cleaned to. Further, the draft states that "remediation costs rise rapidly" in this dose range. Thus, the cost of remediating two identical sites, because of small differences in the negotiated dose limits, could be vastly different. In our view, it would make more sense to set one cleanup level below which the site can be released to the public, as has been done for uranium mill sites.

Sincerely,



Gary Robertson, Head
Waste Management Section
For the E-5 Committee

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