UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

JUL 18 1991

OFFICE OF
AIR AND RADIATION

Mr. Robert Bernero, Director
Office of Nuclear Material
Safety and Safeguards
U.S. Nuclear Regulatory Commission
Washington, DC 20555

Dear Mr. Bernero:

I want to thank you for your visit of July 12, 1991. The perspectives and comments presented by you and your staff were helpful to my understanding of your views on our standards for management and disposal of high-level radioactive waste. I hope we can continue to interact in this open and candid manner.

Two of the areas that NRC has suggested for our inclusion in our standards will require some additional supporting information and analysis before we can consider them further. These areas are the containment requirement modification referred to as the three-bucket approach, and the use of an intergenerational equity basis for the risk limits. Further information on the technical analysis requirements is presented in the enclosed staff paper.

Our Agencies have many areas where we interact. I believe that our efforts on the high-level waste standards will set the example of how well we are able to manage this interface on future issues. Please feel free to call me whenever you have suggestions on how to improve this process.

Sincerely,

Margo T. Oge
Acting Director, Office of
Radiation Programs

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Supporting Information Required to Consider NRC Suggested Revisions to 40 CFR 191

Three-bucket Alternative

Additional supporting information is required for further consideration of the containment requirement modification referred to as the three-bucket approach. In this approach scenarios with less than a 0.1 probability would not have to be included in the regulatory CCDF. The consequences of these less probable, mutually exclusive scenarios would be evaluated directly against ten times the values in Table 1 of 40 CFR 191. Although this would avoid having to develop a precise probability for many events, some of the lower probability scenarios will still require a single probability to be used in order to build a CCDF at probabilities above 0.1. With these considerations in mind we would require technical support to assist in answering the following questions:

1. What technical analysis is there to support the contention that the level of protection is equivalent for the three-bucket methodology and the 1985 presentation of the containment requirements?

2. Why is the use of a deterministic analysis preferable at scenarios with a probability below 0.1? How would the uncertainties in the consequences be handled in the second bucket in order to consider the different possible orders of occurrence and the change in their probability over time, (what are the options and rationale for recommended method)?

3. To what extent (either quantitative or qualitative) is the three-bucket methodology felt to reduce the uncertainty of the analysis and make it more meaningful, and how can this be shown?

4. What kind of statistical analysis and presentation would be appropriate for determining compliance for analyses in the second bucket?

5. What criteria should be used to decide at what probability level the development of the CCDF for the first bucket should be started?

6. How would one develop the analysis without definitive quantitative probability value boundaries between the buckets?

7. What would be the rationale for a predetermination that no intrusion events were to fall into bucket 1, as might be inferred by the Commissions definition of "anticipated" events? Would this approach also preclude using intrusion events in developing the bucket 1 CCDF while at probabilities at less than 0.1 probability?

8. What are the alternative rationales for having the analysis cut of at a low probability of one in one thousand vs. one in ten thousand? Which should be used and why?

Alternative Risk Basis for EPA Standard

The NRC representatives recommended that we consider changing the basis for the standard to a risk based on intergenerational equity, rather than the present technological achievability basis. EPA staff would appreciate any information that the NRC might have that would assist with answering the following questions relative to such a rationale.

1. What would be the proper basis to use for the present acceptable risk to present generations, and how would this be expressed?

2. EPA staff have reviewed some assessments of the uranium fuel cycle and its collective risk, but such evaluations seem to be quite old. Does NRC have a more current assessment of the collective risk of the uranium fuel cycle that reflects dose commitment, current dose conversion, and emission estimates?

3. Since both the commercial sector and the DOE will be using the repository would you think that the present releases and impacts of both these activities should be analyzed in order to arrive at intergenerational equity?

4. Initial considerations of this approach indicate that it might not provide a basis to discern a "good" repository. Is it the NRC belief that this should not be a role for the EPA standard?