



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

October 24, 1991

OFFICE OF THE  
SECRETARY

MEMORANDUM FOR: James M. Taylor  
Executive Director for Operations

FROM: Samuel J. Chilk, Secretary *[Signature]*

SUBJECT: SECY-91-299 - REVISED COMMENT ON WORKING  
DRAFT NO. 3 OF EPA'S HIGH-LEVEL WASTE  
STANDARDS

This is to advise you that the Commission (with all Commissioners agreeing) has approved the attached letter and comments to EPA.

The Commission commends the staff and the ACNW for working together cooperatively to develop the comments and encourages the staff and ACNW to continue to work together in the same cooperative spirit on future activities. The staff has done a thorough and constructive critique of the complex technical and policy issues raised by Working Draft No. 3 of EPA's environmental standards for high level and transuranic radioactive wastes.

Attachments:  
As Stated

cc: The Chairman  
Commissioner Rogers  
Commissioner Curtiss  
Commissioner Remick  
OGC  
ACNW

Public  
911190 280

Margo Oge, Acting Director  
Office of Radiation Programs, ANR-458  
U.S. Environmental Protection Agency  
Washington, D.C. 20460

Dear Ms. Oge:

Enclosed are comments of the staff of the U.S. Nuclear Regulatory Commission (NRC) on Working Draft 3 of the U.S. Environmental Protection Agency (EPA) environmental standards for management and disposal of high-level and transuranic radioactive wastes. These comments also reflect the views of the Commission's Advisory Committee on Nuclear Waste (ACNW).

Our review of Draft No. 3 indicates that a number of our comments on Draft No. 2 have been addressed by EPA. I am pleased at the progress that has been made. I also appreciate EPA's willingness to solicit the views of other interested parties regarding our suggested concept for the probabilistic containment requirements section of the standards. In the event that comments on this approach are supportive, the staff urges EPA to adopt a qualitative, rather than a quantitative distinction between "unlikely" and "very unlikely" release categories, similar to that originally suggested by the staff.

Of utmost concern in our comments, however, is the need for further consideration of the fundamental basis underlying the containment requirements of the standards. The draft Supplementary Information accompanying Draft No. 3 suggests that EPA will continue to advance "technical achievability" as the basis for these requirements. This approach has led to widespread controversy regarding the stringency of the standards and a growing concern that these standards may not be truly "generally applicable" to the range of sites or technologies for which the NRC may be required to make a licensing determination. Specifically, we note that every disposal concept currently being considered in the U.S. differs substantially from the conceptual models assumed by EPA when deriving its cumulative release limits.

Furthermore, EPA's reliance on a judgement of "technical achievability" as a basis for these limits casts serious doubt on whether the standards are health-based. An enclosed comment elaborates on our reservations about the appropriateness of basing standards on "technical achievability" and we reiterate our view that EPA should place greater emphasis on comparisons with other risks and radiation protection standards.

In addition, the NRC staff continues to object to EPA's assurance requirements, criteria for demonstrating compliance, and implementation guidance. In the staff's view, these are matters of implementation that go beyond EPA's standard-setting authority, and the staff recommends deletion of these sections from the standards. If EPA should receive review authority for DOE facilities not subject to NRC licensing authority, it may be appropriate for EPA to issue these sections in the form of implementing regulations, rather than as environmental standards.

Finally, our comments address the questions posed in the draft Supplementary Information and suggest some additional questions on which the NRC staff believes EPA should seek public comment.

Thank you for the opportunity to review and comment on Working Draft No. 3. We look forward to working closely with EPA during reissuance of your standards.

Sincerely,

Robert M. Bernero, Director  
Office of Nuclear Material Safety  
and Safeguards

Enclosure:  
NRC Comments on Working Draft No. 3  
of EPA's HLW Standards

arbitrarily eliminate from consideration alternative disposal methods capable of providing an acceptable degree of waste isolation.

The NRC staff is concerned about EPA's ability to develop a defensible basis of support for its cumulative release standards using technical achievability considerations. The wide range of potential technologies and the lack of development of many of them raise questions about EPA's approach. Current concerns over the release limits for carbon-14 show that standards derived from the projected performance of a particular type of disposal facility may not be appropriate for the unique release pathways associated with other types of facilities. An alternative standard, expressed in terms of radiation dose and derived from comparisons with the risk levels of other accepted standards and activities, would help to ensure that EPA's standards could be reasonably applied to different types of disposal facilities. For this reason, the NRC staff urges EPA to derive its standards from an evaluation of the acceptability of various risk levels, including those previously determined to be acceptable for uranium fuel cycle facilities, and to consider adding a dose-based alternative to the cumulative release limits of the standards.

2. There appears to be an editing error on page 45 of the draft Supplementary Information, where EPA states that assessments of compliance with the individual-protection requirements "must assume that individuals consume all of their drinking water (2 liters per day) from any portion of an underground source of drinking water outside of the 'controlled area' surrounding the disposal system." EPA has deleted this provision from Working Draft 3, as we recommended in our comments on Working Draft 2.

3. In the NRC staff's comments on Working Draft 2, we recommended that EPA reevaluate the technical base underlying the guidance on frequency and severity of potential human intrusion. There we noted that EPA has apparently based its guidance on data from petroleum exploration. Exploration for non-petroleum resources may take much different forms, including multiple, closely spaced boreholes with highly site-specific drilling frequencies and borehole sealing practices. We continue to urge EPA to reexamine the basis for its guidance, including the credit, if any, given by EPA for deterrence of potential intrusion by passive institutional controls.

4. The NRC staff appreciates EPA's <sup>rewording</sup> solicitation of comment on the staff's suggested ~~alternative wording~~ for the probabilistic containment requirements. We note, however, that our suggestion included a qualitative, rather than a numerical, definition of the boundary between "unlikely" and "very unlikely" release categories. If comments on the staff's basic <sup>concept</sup> are supportive, the staff urges EPA to reconsider the wisdom of a numerical classification of releases of such low likelihood.

5. EPA's probabilistic containment requirements refer to the "likelihood" of releases from a repository. Two extremes of interpretation of "likelihood" are possible, neither of which seems to be that intended by EPA. To some observers, the only permissible way to estimate the likelihood of a release is to extrapolate from the past frequencies of occurrence of the processes and events contributing to a release. In this interpretation, "likelihood" implies a degree of scientific rigor that may be unattainable because the data