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PROPOSED RULE **(52 FR 5992)**

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

WASHINGTON, D.C. 20460

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**OFFICE OF
EXTERNAL AFFAIRS**

Mr. Samuel Chilk
Secretary of the Commissioner
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

Attn: Docketing and Service Branch

Dear Mr. Chilk:

In accordance with our responsibilities under Section 309 of the Clean Air Act, the National Environmental Policy Act, the Nuclear Waste Policy Act of 1982, and the Atomic Energy Act, the U.S. Environmental Protection Agency (EPA) has reviewed the U.S. Nuclear Regulatory Commission's (NRC) Advance Notice of Proposed Rulemaking (ANPRM) for the Definition of High-Level Radioactive Waste (52 FR 5992).

At this point, EPA cannot provide definitive comments without a clearer description of the purpose and effect of NRC's proposal and without additional data and analyses. We believe the proposed rulemaking should specifically include discussions, with supporting data and analyses, of the following:

- changes in classification of existing and projected wastes;
- a rationale for using Class C concentration limits as the basis for addressing what is "highly radioactive" material;
- characterization of wastes affected by the rulemaking;
- impacts of repository disposal of natural and accelerator-produced radioactive material (NARM); and
- implications for creation of general rules under Section 161 of the Atomic Energy Act applicable to wastes and associated methods of disposal other than those contemplated in 10 CFR 60, 10 CFR 61, 40 CFR 191, or 40 CFR 193.

EPA is concerned about the use of concentration limits in defining high-level radioactive wastes. Without adequate safeguards, this approach seems susceptible to abuse since high-level wastes could be diluted or intermixed with lower concentration wastes, thereby changing the "high-level" classification. The Commission needs to address this issue.

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add: W.C. Richard, NI-005
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Acknowledged by card

EPA considered some of these issues in developing its Environmental Standards for the Management and Disposal of Spent Nuclear Fuel, High-Level and Transuranic Radioactive Wastes (40 CFR 191). These issues also have a direct bearing on forthcoming EPA rules on management and disposal of low-level radioactive waste. We believe that a follow-up meeting with the Commission staff would be helpful for EPA to better understand the Commission's approach and for your staff to have the benefit of EPA's views. I am enclosing EPA's detailed comments and responses to NRC's issues, and I have instructed Dr. W. Alexander Williams (382-5909) of my staff to follow up. We appreciate the opportunity to provide early input to the Commission on this rulemaking.

Sincerely,



Richard E. Sanderson
Director
Office of Federal Activities

Enclosure

Detailed Comments of the
U.S. Environmental Protection Agency
on the U.S. Nuclear Regulatory Commission's
Advance Notice of Proposed Rulemaking
for the Definition of High-Level
Radioactive Waste (HLW)

1. Page 5993, first column: Why is plutonium excluded from the content of HLW? It is certainly present in spent fuel and if that spent fuel is reprocessed, it is not possible to completely remove it; therefore, it is a certainty that plutonium will be present in the aqueous wastes even after plutonium-removal treatment.
2. Page 5994, third column, third paragraph: There are conflicting statements concerning salts in reprocessing wastes. First, it is incorrectly stated that such salts are "non-radioactive"; two sentences later NRC states, "Nevertheless, any salts removed from liquid HLW would retain residual amounts of radioactive contaminants." This apparent contradiction needs either further explanation or correction.
3. Page 5994, third column, third paragraph: NRC states that reduction of the volume of HLW would reduce cost. It is not clear that radiological impacts would be reduced. The NRC discussion should consider whether volume reduction in HLW will also lead to reductions in radiological impacts.
4. Page 5995, first full paragraph: The Commission should explain why it believes that transuranic (TRU) nuclides "must be considered as well in defining reprocessing wastes that should be regarded as HLW." It is not apparent that simply by their presence and long life that TRU nuclides "must" be considered. Did the Commission examine the possibility of a definition based solely on fission product concentrations?
5. Page 5995, second column, section B.2: The only mention of risks to the public occurs briefly in subsection "e." The Commission needs to explain what it intends to do to estimate public health risks, how it will measure such risks, what levels of risk will be found acceptable, and how such findings will contribute to the decision making process for this rulemaking. EPA believes that the overall objective of performance analyses is to assess potential impacts on public health and not only to predict the effectiveness of the facility's isolation capability.
6. Page 5995, column 3, "repository" footnote: The phrase "whether or not such system is designed to permit the recovery, for a limited period during initial operation, of any materials placed in such system" is superfluous since the Commission recognized, in 51 FR 22294, that any mined geologic repository does permit recovery for a period after closure.

7. Page 5996, first column, paragraph "d": Is the discussion here describing the same type of performance assessment required for repository licensing and referred to as a complementary cumulative distribution function? If so, we believe that this should be made explicitly clear and that a much more detailed description will be necessary to allow judgment as to the adequacy of the method.
8. Page 5996, third column, revised definition: Why is the phrase, "in a facility for reprocessing irradiated reactor fuel," necessary? Such a phrase could be interpreted to mean that once the waste is out of the reprocessing "canyon", it is no longer a HLW. If the purpose of the phrase is to segregate spent fuel facilities from chemical separation plants in general, we suggest rewriting the phrase to the effect of, "... (2) liquid wastes resulting from the operation of the first cycle solvent extraction system, or equivalent, for the reprocessing of irradiated reactor fuel, and the concentrated wastes ..." (suggested change highlighted).
9. Page 5996, column 3, revised definition, part (3): There needs to be a definition of the word "solid". Various interpretations could lead to implementation problems and, in the worst case, could leave certain materials not classified as HLW when they should be. One example of a potential problem is the sludge in some HLW storage tanks. Such material may have a much higher viscosity than the supernatant in the same tanks but is not a "solid."
10. Page 5996, column 3, Tables 1 and 2: The Commission should explain the selection of the Class C tables as the minimum concentration limits for HLW, and the basis for deciding what nuclides and limits are in the tables. Further, did the Commission consider any alternatives?

ISSUES IDENTIFIED BY THE COMMISSION

1. NRC: "Two options are presented for defining reprocessing wastes under Clause (A) of NWPA. The first option proposes to define the 'sufficiency' of fission product concentrations in solidified reprocessing wastes in a manner analogous to its treatment of 'highly radioactive' and 'requires permanent isolation' under Clause (B) (i.e., by examining the hazards posed by wastes if disposed of in facilities other than a repository). The second option interprets Clause (A) as encompassing all those wastes which have heretofore been considered high-level waste under Appendix F to 10 CFR Part 50 and the Energy Reorganization Act. Which of these two approaches is preferable?"

EPA RESPONSE: Without an analysis of how a proposed definition would affect the classification of existing and projected wastes, it is not possible to give a definitive answer. However, a definitive, objective classification scheme such as the option to define "sufficient concentrations" is desirable and necessary step in the regulation and oversight of such materials.

2. NRC: "The Commission proposes that the current Class C concentration limits of 10 CFR Part 61 serve to identify radionuclide concentrations which are 'highly radioactive' for purposes of Clause (B) of the NHPA definition. Would an alternative set of concentration limits be preferable?"

EPA RESPONSE: It is necessary for the Commission to explain how and through what process it arrived at the proposed Class C concentration limits before EPA will be able to decide if these limits are sufficient or if others may be preferable.

3. NRC: "The Commission proposes to equate the 'requires permanent isolation' wording of the NHPA definition with a level of long-term radiological hazard requiring disposal in a geologic repository. Are the Commission's proposed analyses appropriate for identification of concentrations requiring permanent isolation?"

EPA RESPONSE: It is necessary for the Commission to be more definitive about how it proposes to analyze for appropriate concentrations.

4. NRC: "Although, under section 121 of NHPA, no environmental review is required with respect to the definition of HLW, the Commission would welcome identification of any environmental consequences associated with the matters discussed in this notice."

EPA RESPONSE: Environmental consequences from changes in the HLW definition depend on the overall change in volume and radionuclide contents of the wastes potentially changing classification. Therefore, it will be necessary for the Commission to present an analysis showing what wastes, particularly at DOE facilities, will be moving in and out of the HLW classification, their radionuclide concentrations and volumes, their likely disposal modes, and, if not HLW, their potential classification (i.e., low-level or TRU wastes), and any changes in impacts predicted.

5. NRC: "Some waste materials, such as certain laboratory wastes or some sealed sources, may be highly concentrated, yet contain only relatively small total quantities of radioactive materials. Is there a need for a special provision (e.g., a minimum total quantity of activity) before a waste should be classified as HLW?"

EPA RESPONSE: While a minimum total activity provision may be advantageous for various reasons, the Commission needs to base any special provision decisions on environmental, health, and economic factors, and to delineate the decisionmaking process followed in reaching such decisions.

6. NRC: "What difficulties (legal, administrative, financial, or other) would an expanded definition of HLW cause in implementing the provisions of the NHPA?"

EPA RESPONSE: Based on existing information, there would be no major difficulties in the implementation of 40 CFR 191. Depending on the outcome of the rulemaking, it may be necessary to reexamine the EPA definition of HLW. However, this would be expected only if a major change was made by the Commission. Pending review of further analyses, we believe the current conceptual, revised definition would be acceptable. A related question would be whether an NRC rule that had the effect of creating a category of waste not considered for disposal in promulgating 10 CFR 61 but not requiring deep geologic disposal would lead to further rulemaking by EPA to supplement its 40 CFR 191 and 193 rules.

7. NRC: "The Commission's regulations do not generally require that any particular type of waste be disposed of in any specified type of facility. Would such a requirement be appropriate?"

EPA RESPONSE: The Commission currently makes such evaluations as a part of a case-by-case analysis and determines what method is appropriate to meet the pertinent performance requirements. EPA has no information or view as to whether this approach should be modified.

8. NRC: "As discussed in this notice, the Commission has no legal authority to classify naturally-occurring or accelerator-produced radioactive materials (NARM) as HLW or non-HLW. Nevertheless, such materials may be presented for disposal at facilities licensed by the Commission. When the Commission carries out its proposed analyses to identify 'other highly radioactive material that .. requires permanent isolation', should NARM be included in the analyses?"

EPA RESPONSE: Yes, NARM should be included in the analyses. If the Commission believes that such material may be disposed of in the same facility as HLW, then EPA knows of no reason to ignore the presence and potential impacts of NARM.

9. NRC: "Are there issues other than those identified in this notice which the Commission should consider in developing approaches to implement its authority?"

EPA RESPONSE: The Commission should examine the need for a category of HLW using limits based solely on any or all the factors of half life, radiation level, and quantity. Such a category may be justified if it is determined, based on an analysis of impacts on public health, that these factors make some wastes desirable for permanent isolation.