

STATUS OF NRC RULEMAKING FOR
HIGH-LEVEL RADIOACTIVE WASTE DISPOSAL

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ABSTRACT

The Nuclear Regulatory Commission has initiated four rulemakings related to disposal of high-level radioactive wastes in a deep geologic repository: (1) implementation of the provisions of the Nuclear Waste Policy Act, (2) revision of the Commission's responsibilities under the National Environmental Policy Act, (3) adoption of the high-level waste standards promulgated by the U.S. Environmental Protection Agency, and (4) definition of the term "high-level radioactive waste." The status of each of these rulemakings is summarized in this paper.

INTRODUCTION

Several years ago, the Nuclear Regulatory Commission (NRC) developed regulations (10 CFR Part 60) which establish procedures and technical criteria for licensing high-level waste repositories. However, enactment of the Nuclear Waste Policy Act of 1982 (NWSA) required certain modifications to those regulations, and the NWSA authorized (but did not require) additional changes.

Required changes include (1) procedures concerning site characterization and the participation of States and Indian Tribes, (2) implementation of the NRC's responsibilities under the National Environmental Policy Act (NEPA), and (3) maintaining consistency between Part 60 and the high-level waste standards promulgated by the U.S. Environmental Protection Agency. The NWSA also authorized the NRC to revise the existing, source-based definition of the term "high-level radioactive waste" to take into account the characteristics of various types of wastes.

The NRC initiated four separate rulemakings to address each of the areas where revisions to the NRC's existing regulations are required or authorized. The status of each of these rulemakings is discussed separately below.

SITE CHARACTERIZATION - STATE/TRIBAL PARTICIPATION

The initial procedural portion of 10 CFR Part 60 was developed in February 1981, well before enactment of the NWSA. It included provisions dealing with site characterization and participation of States and Indian Tribes in the process of siting, licensing, and developing a geologic repository. These existing procedural regulations were written in the absence of any comprehensive legislation. Consequently, at the time the procedural rule was finalized, only 10 CFR Part 60 specified opportunities for State, Tribal, or public participation with NRC being the focal point for these activities. The regulation required, among other things, that (1) NRC issue a draft site characterization analysis for public comment, (2) NRC respond to questions from States and Indian Tribes pertaining to DOE's site characterization report, and (3) NRC provide DOE documents to interested parties. It further required that a site characterization report submitted by DOE contain information on the

criteria and methodology of site selection, along with identification of alternative sites. The regulation had detailed provisions describing how States and Indian Tribes may submit proposals to NRC for participation in the licensing process.

While there was, in large part, consistency between NWSA and the requirements of 10 CFR Part 60, there were several statutory changes. An express purpose of the NWSA was to define the relationship between the federal and state governments with respect to disposal of high-level waste. Thus, the NWSA now defines the roles and responsibilities of NRC and DOE with respect to one another, the States, Tribes, and the general public. The NWSA requires that DOE consult and cooperate with the States and Tribes at specified points throughout the repository siting and development process. It requires, for example, that DOE issue its Site Characterization Plans (SCP's) for public comment and directs DOE to hold public hearings during a mandated siting process. It requires DOE to provide funding to States and Tribes to support their participation in the repository siting process, including support for providing information to state residents regarding activities of the Commission. The NWSA establishes a series of steps for DOE to follow in site selection and characterization. The NWSA specifies the content of the SCP's, with some differences from what was required by 10 CFR Part 60. In particular, the SCP's would not include site selection information. Instead, the NWSA specifies that DOE prepare an environmental assessment (EA) for each site nominated for characterization and specifies the content of these EA's to include the type of site selection information previously required by 10 CFR Part 60.

Thus, with the passage of the NWSA, it became necessary to amend Part 60 to (1) conform its procedures to the site selection process specified by the NWSA, (2) provide for State, Tribal and public participation consistent with the NWSA, and (3) avoid duplication of effort. In addition, some changes are desirable to reflect the pre-licensing consultation process as it has evolved since the licensing procedures were promulgated. A proposed rule amending the Part 60 licensing procedures was published for comment on January 17, 1985 (50 FR 2579). The public comment period ended on March 18, 1985. Based on comments received, the NRC staff prepared a final rule

and submitted it to the Commission. The Commission published its final rule in the Federal Register on July 30, 1986 (51 FR 27158). The principal changes to 10 CFR Part 60 resulting from this rulemaking include the following: (1) elimination of a draft Site Characterization Analysis by the NRC staff; (2) addition of a provision that would provide the host State and any affected Indian Tribe with an opportunity to present their views on DOE's Site Characterization Plan and suggestions with respect to NRC's comments on DOE's Site Characterization Plan; (3) elimination of information concerning DOE's site screening and selection process from the Site Characterization Plan; (4) addition of a provision that requires DOE to defer the sinking of shafts at a candidate repository site at least until such time as there has been an opportunity for NRC comments on the Site Characterization Plan to have been solicited and considered by DOE; and (5) addition of a provision that provides the host State and any affected Indian Tribe with an unquestionable legal right to participate as a party in the NRC licensing proceeding.

REVISION OF NEPA REGULATIONS

The NWPA modifies the requirements of the National Environmental Policy Act (NEPA) as applied to both DOE and NRC for the repository program. 10 CFR Parts 51 and 60 need to be amended to conform with the changed environmental review requirements. The NWPA states that DOE shall prepare an environmental impact statement (EIS) which shall accompany its recommendation to the President to approve a site for a repository.

The NWPA requires that DOE's EIS shall, to the extent practicable, be adopted by the Commission in connection with the issuance of a construction authorization and license. The NWPA provides that, to the extent the EIS is adopted, such adoption shall be deemed to also satisfy the NEPA responsibilities of the Commission and no further consideration shall be required. These requirements are in contrast to those currently in 10 CFR Part 60 which assume that the NRC will prepare a separate EIS to support the repository licensing process.

The Commission has recently begun a rulemaking to implement these modifications to NRC's environmental requirements. We currently expect that a proposed rule will be published for public comment in late 1987. We anticipate that these amendments will set out the procedures that will be followed by the Commission in determining whether to adopt DOE's EIS and indicate the criteria that will be used to determine the extent to which the Commission can adopt DOE's EIS.

CONFORMANCE WITH THE EPA STANDARDS

The NWPA directs the Environmental Protection Agency (EPA) to "promulgate generally applicable standards for protection of the general environment from offsite releases from radioactive material in repositories" (Sec. 121). The final EPA standards - 40 CFR Part 191 - were published on September 19, 1985 (50 FR 38066). The NWPA also directs NRC to insure that its regulations "not be inconsistent with any comparable standards promulgated by EPA" (Sec. 121). The staff analyzed the final EPA standards and determined that some modifications to Part 60 were necessary. Consequently, proposed amendments to 10 CFR Part 60 were published in the Federal Register for public comment on June 19, 1986 (51 FR 22288).

Some of the modifications to Part 60 considered necessary for consistency with the EPA standards included: (1) changes in the definitions of certain terms used in Part 60; (2) addition of a requirement that estimates of cumulative releases over 10,000 years from all significant, potentially disruptive processes and events be incorporated into an overall probability distribution of cumulative releases, to the extent practicable; (3) a requirement for information on a program for post-closure monitoring of the repository; (4) replacing the current Part 60 language which requires compliance with "such generally applicable environmental standards for radioactivity as may have been established by the Environmental Protection Agency" with the specific limits promulgated by EPA; (5) incorporation of provisions of EPA's "assurance requirements" where appropriate; (6) adding the individual dose limits which are found in the standards; and (7) incorporation of the "special sources of groundwater" protection requirement of the EPA standards.

Public comments received in response to the proposed rule indicated the need for minor revisions to the proposed changes, but no major alterations were deemed necessary by the staff. Very shortly, a final rulemaking package will be submitted to the Commission for approval, with publication of the final rule anticipated for April or May, 1987.

DEFINITION OF HIGH-LEVEL WASTE

The definition of high-level radioactive waste (HLW) in the NWPA differs from earlier formulations, including the one that appears in 10 CFR Part 60. The NWPA continues to include reprocessing wastes in the "high-level waste" category, but only if such wastes contain "fission products in sufficient concentrations." The NWPA also adds to the "high-level waste" category any "other highly radioactive material that the Commission, consistent with existing law, determines by rule requires permanent isolation."

The Commission has recently approved an advance notice of proposed rulemaking (ANPR) which makes known the Commission's intent to modify the existing HLW definition of Part 60. The ANPR describes a conceptual approach for defining HLW which closely follows the wording of the NWPA definition. As described in the ANPR, wastes might be classified as HLW only if they are both "highly radioactive" and in need of "permanent isolation." Wastes which exhibit only one of these characteristics would then continue to be classified as special types of low-level wastes. The ANPR also contains, for the sake of illustration, numerical definitions of the terms "highly radioactive" and "requires permanent isolation."

While the exact numerical levels will require additional technical analysis, the ANPR suggests using the current Class C limits (for low-level wastes) to numerically define the terms "highly radioactive" and "requires permanent isolation." Thus, a waste would be considered to be "highly radioactive" if it contained short-lived radionuclides in excess of the current Class C concentration limits for such nuclides. Similarly, a waste would "require permanent isolation" only if it contained long-lived radionuclides in excess of the corresponding long-lived Class C concentration limits.

This conceptual waste classification approach, as described in the ANPR, divides wastes into four categories, as follows. Wastes which are (1) neither "highly radioactive" nor in need of "permanent

isolation" would continue to be classified as low-level wastes routinely acceptable for near-surface disposal under the Commission's Part 61 regulations. Wastes which are either (2) "highly radioactive, or (3) in need of "permanent isolation," but not both, would be classified as special types of "above Class C" low-level wastes, and the federal government would be responsible for their disposal under provisions of the Low-Level Radioactive Waste Policy Amendments Act (P.L. 99-240). Finally, wastes which are (4) both "highly radioactive" and in need of "permanent isolation" would be classified as HLW.

The Commission proposes that the classification approach described in the ANPR would apply to all commercially-generated wastes from sources other than reprocessing of spent nuclear fuel. However, certain legal considerations raise questions about the advisability of applying the same classification system to reprocessing wastes (from either commercial or defense sources). The Energy Reorganization Act of 1974 requires the NRC to license disposal of high-level wastes, presumably as the term HLW was used in 1974. Therefore, reclassification of certain reprocessing wastes under the NWPA could result in those wastes being classified differently for purposes of different statutes. The ANPR requests public comment on the merits of applying a revised definition of HLW to reprocessing wastes when such dual classification might result. As provided in the NWPA, the Commission's revised classification system would

not apply to any wastes disposed of in a defense-only facility (e.g., the Waste Isolation Pilot Plant).

As mentioned previously, the ANPR has been approved for publication and should appear in the Federal Register in mid-March, 1987. After public comments have been received and evaluated, and following completion of additional technical analysis of appropriate numerical definitions of the terms "highly radioactive" and "requires permanent isolation," the NRC will develop a proposed rule defining HLW. Publication of the proposed rule is not expected to occur prior to the latter part of 1987.

CONCLUSION

This paper has provided a status report on four areas of rulemaking of current interest to the HLW program: (1) implementation of the provisions of the Nuclear Waste Policy Act, (2) revision of the Commission's responsibilities under the National Environmental Policy Act, (3) adoption of the high-level waste standards promulgated by the U. S. Environmental Protection Agency, and (4) definition of the term "high-level radioactive waste." Completion of these rulemakings will help to assure that the Commission's regulations are consistent with existing law and with the EPA HLW standards, and represent a complete set of licensing requirements for a deep geologic repository for disposal of HLW.