CONFORMING CHANGES TO 10 CFR PART 60

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ABSTRACT

One of the important tasks of the U.S. Nuclear Regulatory Commission (NRC) has been and continues to be the promulgation of regulations establishing procedures and technical criteria for the licensing of high-level waste repositories. While final rules have been published for both procedures and technical criteria, the Nuclear Waste Policy Act of 1982 (NWPA) made modifications and additions to those regulations either necessary or desirable. Rulemakings are underway to (1) address technical criteria for repositories in the unsaturated zone; (2) amend procedures concerning site characterization and the participation of states and Indian tribes in the licensing process to be consistent with the NWPA; (3) review the definition of HLW for consistency with requirements of 10 CFR Parts 51 and 60 to reflect the requirements of the NWPA; and (5) conform with the EPA standard when it is issued. The status of these rulemaking proceedings is presented in this paper.

BACKGROUND

Regulations of the U.S. Nuclear Regulatory Commission (NRC) governing disposal of high-level radioactive wastes (HLW) in geologic repositories are codified in Part 60 of Title 10 of the Code of Federal Regulations (10 CFR Part 60). The regulation was promulgated in two separate rulemaking proceedings. The first rulemaking proceeding was related to the procedural aspects of 10 CFR Part 60. Subparts A (General Provisions), B (Licenses), C (Participation by State Governments and Indian Tribes), and D (Records, Reports, Tests, and Inspections) of 10 CFR Part 60 were developed during the first rulemaking proceeding. These subparts relating to the procedural aspects of HLW disposal were issued as a proposed rule on December 6, 1979 (44 FR 70408) and as a final rule on February 25, 1981 (46 FR 13971).

The second rulemaking proceeding related to technical criteria for HLW disposal in geologic repositories. Subparts E (Technical Criteria), F (Performance Confirmation Program), G (Quality Assurance), and H (Training and Certification of Personnel) of 10 CFR Part 60 were developed during the second rulemaking proceeding. These subparts were issued as a proposed rule on July 8, 1981 (46 FR 35280) and as a final rule on June 21, 1983 (48 FR 28194).

Although these rules have been finalized and are not generally subject to change, the Nuclear Waste Policy Act of 1982 (NWPA) has necessitated some amendments to the rules. This paper will present the status of amendments to 10 CFR Part 60 to conform with the NWPA and other required changes.

The rulemakings addressed in this paper include (1) technical criteria for repositories in the unsaturated zone; (2) procedures concerning site characterization and the participation of states and Indian tribes; (3) consideration of modifying the definition of high-level radioactive waste (HLW) in light of the definition provided in the NWPA; (4) amendments to the environmental requirements of 10 CFR Parts 51 and 60 to reflect the NEPA-related requirements of the NWPA; and (5) conformance with the EPA standard when it is issued.

UNSATURATED ZONE AMENDMENT

The technical criteria of 10 CFR Part 60 were primarily developed for disposal of high-level radioactive wastes within the saturated zone. When the final technical criteria (48 FR 28194) were issued, the Commission recognized that some modifications to the criteria were necessary to ensure that the technical criteria applied equally to sites in both the saturated and unsaturated zones.

On February 16, 1984, the NRC published for comment proposed amendments to 10 CFR Part 60 that related to the unsaturated zone (49 FR 5934). These proposed amendments contained provisions for new definitions and favorable and potentially adverse siting criteria related to high-level waste disposal in the unsaturated zone. In general, the commenters on the proposed amendment supported the Commission's action and raised no significant new issues with respect to this rulemaking. The commenters primarily addressed the questions posed by the Commission in the Federal Register notice regarding groundwater travel time calculations and suggested word changes to the proposed amendments for the sake of clarity and technical accuracy.

The existing post-closure performance criteria for the geologic setting require that the pre-waste-emplacement groundwater travel time along the fastest path of likely radionuclide travel from the disturbed zone to the accessible environment be at least 1,000 years or such other travel time as may be approved by the Commission (§60.113(a)(2)). A primary issue in this rulemaking is the applicability of this requirement to the unsaturated zone. In the proposed amendments the Commission discussed several reasons why calculations of pre-waste-emplacement groundwater travel time through the unsaturated zone could have large uncertainties and hence be of questionable value in evaluating the geologic setting. The proposed rule stated that if DOE could demonstrate with reasonable assurance that

groundwater travel time through the unsaturated zone can be quantified, then DOE should be allowed to include such travel time when demonstrating compliance with the performance objectives of §60.113(a)(2). The proposed rule also recognized that it may be more appropriate to specify another parameter upon which performance may be evaluated in the unsaturated zone, or to use the flexibility provided in §60.113(b) to specify variations in the performance objectives on a case-by-case basis. The proposed rule requested public comment on two questions relevant to this issue: (1) how groundwater travel time in the unsaturated zone could be determined with reasonable assurance, and whether or not the existing groundwater travel time performance objective in §60.113(a)(2) should be limited to groundwater movement within the saturated zone; and (2) whether groundwater travel time is an appropriate measure of performance for a site within the unsaturated zone or whether an alternative performance objective would be more appropriate.

A number of commenters recommended groundwater flux as a performance objective rather than groundwater travel time. However, none were able to provide a quantitative measure of groundwater flux that would contribute to performance. DOE initially supported a performance objective based on groundwater flux, but later concluded that it would be impractical to define a performance objective for the geologic setting based on flux through a geologic repository located in the unsaturated zone. Instead, DOE suggested a performance objective based on groundwater travel time as determined by considering the occurrence of certain specified physical events. The staff will be submitting a final rule to the Commission for its consideration in the very near future.

SITE CHARACTERIZATION - STATE/TRIBAL PARTICIPATION

The existing procedural portion of 10 CFR Part 60 was developed well before the enactment of the NWPA. The final procedural rule was promulgated in February 1981. It includes provisions dealing with site characterization and the 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 or other framework specifying the respective roles of NRC, DOE, or the states and Indian tribes in the site selection process. Consequently, at the time the procedural rule was finalized (i.e., February 25, 1981), only 10 CFR Part 60 specified opportunities for public participation with NRC being the focal point for these activities. The regulation requires, among other things, that (1) NRC issue a draft site characterization analysis for public comment, (2) NRC answer questions from states and Indian tribes pertaining to DOE's site characterization report, and (3) NRC provide DOE documents to interested parties. It further requires that a site characterization report submitted by DOE contain information on site selection which the Commission would use in making National Environmental Policy Act (NEPA) determinations. The regulation has detailed provisions describing how states and Indian tribes may submit proposals to NRC for participation in the licensing process.

While the NWPA in large part incorporated, or was consistent with, the existing requirements of 10 CFR Part 60, there were several pertinent statutory changes. An express purpose of the NWPA was to define the relationship between the federal and state governments with respect to disposal of high-level waste. Thus, the NWPA now defines the roles and responsibilities of NRC and DOE in their interaction with one another and in their interaction with the states, tribes, and the general public. The NWPA requires that DOE consult and cooperate with the states and tribes at many specified points throughout the repository siting and development process. It requires, for example, that DOE issue its site characterization plan 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 NWPA establishes a new, involved series of steps for DOE to follow in site selection and characterization and requires added procedural steps of DOE between the time when DOE identifies a potential site, and the time when it submits a site characterization plan to the NRC. The NWPA specifies the content of the site characterization plan, with some differences from what is required by 10 CFR Part 60. In particular, the site characterization plan would not include site selection information. The NWPA specifies that DOE prepare an environmental assessment (EA) for each site nominated for characterization. The content of these EAs is specified in the NWPA and includes the type of site selection information previously required by 10 CFR Part 60 in the site characterization report.

Thus, with the passage of the NWPA, it became necessary to amend 10 CFR Part 60 to (1) conform the licensing procedures to the site selection process specified by the NWPA; (2) provide a framework for state, tribal and public participation consistent with the NWPA; and (3) avoid duplication of effort. In addition, some changes are desirable to better reflect NRC's pre-licensing evaluation process as it has evolved since the licensing procedures were promulgated.

A proposed rule amending 10 CFR Part 60 licensing procedures was published for public comment on January 17, 1985 (50 FR 2579). The public comment period ended on March 18, 1985. A summary of the more significant proposed amendments follows.

Under §60.11, the site characterization report was to be furnished to NRC "as early as possible after commencement of planning" for a particular repository. In contrast, the NWPA requires that DOE first hold public hearings and nominate at least five sites. Three sites would then be recommended as candidate sites which, if approved by the President, would be eligible for site characterization. The NWPA specifies that DOE will submit site characterization plans following these steps and before DOE proceeds to sink shafts. The amendments will conform 10 CFR Part 60 to the NWPA by requiring submittal of the site characterization plans before DOE begins to sink shafts.

The NWPA specifies in detail the contents of a site characterization plan [§113(b)]. The information which is to be submitted is similar to that required by the existing §60.11. Both 10 CFR Part 60 and the statute call for DOE to describe the site, the proposed site characterization activities, a conceptual repository design, and certain information with respect to waste form or packaging. However, several categories of information which were previously listed in §60.11 are omitted under the NWPA from the site characterization plan

contents--notably, the method by which the site was selected for site characterization, the identification and location of alternative media and sites at which DOE intends to conduct site characterization, and a description of the decision process by which the site was selected for characterization. The NWPA still requires a discussion of the omitted items, but in a separate document called an environmental assessment [§112(b)]. The amendment to 10 CFR Part 60 revises the required content of the site characterization plans to essentially restate the content required by the NWPA.

Under the existing 10 CFR Part 60, the site characterization plan was to be submitted as early as possible after commencement of planning for a site. Prior to the NWPA, there was no assurance that either NRC or other interested parties would have had prior information about the site or any opportunity to make concerns known to DOE at the time of submittal of the site characterization plan. There were no provisions for state, tribe, or public comment to DOE on the site characterization plans. It was in this context that the Commission decided to prepare a draft site characterization analysis for public comment.

Under the NWPA, however, DOE's submission comes after an extensive period of state, tribe, and public involvement. There will have been public hearings at each of the nominated sites. There will have been public review and comment on the environmental assessments which contain the site selection information previously required in the site characterization reports. There will be a mandated opportunity for public review and comment directly to DOE on the site characterization plans. Further, under a NRC/DOE Procedural Agreement[1] there is now underway a prelicensing consultation process under which NRC has access to DOE data and assessments as they are developed. The Agreement assures that states and tribes have the opportunity to be informed routinely about the information made available to NRC and NRC's comments thereon and to attend NRC/DOE technical meetings. Also, the NWPA affords an opportunity for the states and tribes to enter into written agreements with DOE specifying procedures for consultation and cooperation that could include early review. Thus, by the time a site characterization plan is submitted, there will have been ample opportunity for NRC to have become aware of both DOE's programs and the public's concerns.

For these reasons, together with the scheduling mandates of the NWPA, it is no longer necessary or advisable to prepare a draft site characterization analysis on which public comment is sought. Thus, the proposed amendment omits this step. However, the proposed rule does provide that NRC may invite comments on DOE's site characterization plan during preparation of NRC's site characterization analysis and may consider the comments made to DOE during their public hearings. Moreover, the proposed amendment requires that public comments be invited on the site characterization analysis. Where such comments provide substantial new grounds for making recommendations or stating objections, these concerns will be expressed to DOE.

[1]Procedural Agreement between the U.S. Nuclear Regulatory Commission and the U.S. Department of Energy identifying guiding principles for interface during site investigation and site characterization (48 FR 38701).

Some concerns have been expressed that the states and tribes should have the benefit of NRC's views and expertise made available in a draft site characterization analysis to aid in the preparation of their own comments. In this regard, it is noted that the site characterization analysis will be issued in essentially the same amount of time that a draft would have been. Thus, the states and tribes will get NRC's views and any benefits available from our expertise on the same schedule from a site characterization analysis as they would from a draft.

The NWPA has necessitated some revisions to 10 CFR Part 60, Subpart C which deals with participation by states and tribes. Under the NWPA, the Commission is directed to provide timely and complete information regarding its determinations or plans. The proposed amendments contain conforming language specifically implementing this requirement.

The NWPA establishes a structure for the involvement of states and tribes. The proposed amendment therefore provides explicitly for consultation with states and tribes but now omits mention of local governments. The Commission anticipates, in the light of NWPA §116(c)(1)(B)(iv) which provides funding for a state to provide information to its residents, that states would establish appropriate procedures to address local government and citizen concerns.

Since the concerns of states and tribes will be dealt with primarily under the statutorily mandated DOE/state/tribe consultation and cooperation procedures set forth in the NWPA (§117), the proposed amendments have eliminated requirements for consultation activities by NRC that will now be carried out by DOE. Thus, questions concerning DOE's site characterization submissions should be directed to DOE rather than NRC. In addition, notification concerning DOE/NRC meetings should be provided by DOE.

The proposed amendments retain the provision for a state or tribe to submit a proposal to facilitate its participation in the review of a site characterization plan or license application. The requirement that proposals be submitted not later than 120 days after docketing of a license application has been eliminated. The amendment omits those portions of the existing rule that contemplated Commission funding of state work in support of the license review. Under the NWPA, funding of such work to improve a state's capacity to review a license application is a responsibility of DOE and is to be financed out of the Nuclear Waste Fund. The information required to be included in a proposal has been modified to conform to the limitation of scope of NRC funded activities under the NWPA.

CONFORMING TO THE ENVIRONMENTAL REQUIREMENTS OF THE NWPA

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) to accompany its recommendation to the President of a site for license application (§114). It states that for purposes of complying with NEPA, the alternative sites to be considered shall be the three candidate sites with respect to which (1) site characterization has been completed; and (2) DOE has made a preliminary

determination that such sites are suitable for development as repositories consistent with the DOE Siting Guidelines.

The NWPA requires that DOE's EIS shall, to the extent practicable, be adopted by the Commission in connection with construction authorization and license issuance. 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 its own, separate EIS to support the repository licensing process. The NWPA also provides that the promulgation by NRC of any standards and criteria required under the NWPA shall not require the preparation of an EIS (§121).

The Commission has recently begun the procedures necessary to initiate staff action on a rulemaking to implement these modifications to environmental requirements. We currently expect that a proposed rule will be published for public comment in late 1985.

We anticipate that these amendments will (1) specify that the alternative sites that must be discussed in an EIS are those sites which have been characterized and for which DOE has made a preliminary determination of suitability in accordance with the NWPA; (2) set out the procedures that will be followed by the Commission in determining whether to adopt the EIS; and (3) exempt the promulgation of NRC licensing requirements and criteria from environmental review. In addition, special provisions may be included that would be applicable to any facilities that DOE might develop exclusively for waste from defense activities. The procedures for adoption of the DOE EIS are mandated generally by the NWPA and regulations of the Council on Environmental Quality (40 CFR 1500).

DEFINITION OF HIGH-LEVEL WASTE

The definition of high-level radioactive waste in the NWPA is a departure from earlier formulations, including the one that appears in 10 CFR Part 60.[2] The NWPA continues to include reprocessing wastes in the "high-level waste" category, but only if such wastes contain "fission products in sufficient concentration." Further, it includes an additional category of "other highly radioactive material that the Commission, consistent with existing law, determines by rule requires permanent isolation." The Commission is initiating a rulemaking proceeding to determine whether or how the definition of HLW in 10 CFR Part 60 should be revised in the light of the differing language in the regulation and the NWPA and the additional provision in the NWPA definition.

The Commission plans to issue an advance notice of proposed rulemaking in mid-1985 discussing and soliciting comment on the issues involved and on tentative options for the future course of action on any revisions to the definition of HLW. There are many complex interrelationships with other regulations and impacts on numerous parties and procedures to be considered when contemplating a revision to the definition of HLW. Some of the issues and factors which the staff has identified as needing consideration are presented below.

Issues which are raised by the definition of HLW in the NWPA include:

- Is there any material difference between the language in 10 CFR Part 60 and Clause (A) of the NWPA?
- How should the term "in sufficient concentrations" be interpreted?
- Are there any additional materials that should be classified as HLW pursuant to Clause (B) so as to assure that they will be covered by waste disposal contracts with DOE?
- What is an appropriate interpretation of the phrase "highly radioactive" in Clause (B)?
- What is an appropriate interpretation of the phrase "requires permanent isolation" in Clause (B)? Does this mean isolation equivalent to that provided by a deep geologic repository or could this in certain cases refer to facilities less secure than a deep geologic repository?

The interrelationships and other factors which may be affected or should be considered when contemplating revision to the definition of HLW include the following.

While this rulemaking is being initiated under the provisions of the NWPA, any revised definition of HLW will significantly affect management of low-level wastes as well, since the Low-Level Radioactive Waste Policy Act (LLRWPA) defines low-level waste to include radioactive wastes other than HLW, transuranic wastes, or mill tailings.

Providing for the disposal of materials classified as HLW by rule would be a federal government responsibility *as provided* by the NWPA, while the states are responsible under the LLRWPA for providing disposal capacity for LLW. Thus, any revised definition of HLW will directly affect the types and quantities of low-level wastes for which the states are responsible.

Under the Energy Reorganization Act of 1979, NRC exercises licensing authority as to certain DOE facilities for the receipt and storage of "high-level radioactive wastes." Thus, the question arises as to whether the classification of additional materials as

[2]Section 2(12) of the NWPA defines HLW as: "(A) the highly radioactive material resulting from the reprocessing of spent nuclear fuel, including liquid waste produced directly in reprocessing and any solid material derived from such liquid waste that contains fission products in sufficient concentrations; and (B) other highly radioactive material that the Commission, consistent with existing law, determines by rule requires permanent isolation."
10 CFR Part 60 §60.2 defines HLW as:
"(1) irradiated reactor fuel, (2) liquid wastes resulting from the operation of the first cycle solvent extraction system, or equivalent, and the concentrated wastes from subsequent extraction cycles, or equivalent, in a facility for reprocessing irradiated reactor fuel, and (3) solids into which such liquid wastes have been converted."

HLW would result in an extension of NRC licensing jurisdiction over DOE facilities.

The Nuclear Waste Fund is to be funded with monies obtained pursuant to contracts entered into between DOE and persons who generate or hold title to HLW. There could be a question if the Commission were to define material licensee's waste as HLW, because the waste might thereby become ineligible for disposal in a repository. The reason is that the NWPA prohibits disposal of HLW in a repository unless such waste was covered by a contract entered into by June 30, 1983. No contracts have been entered into with materials licensees who are not also facility licensees.

These and other relevant considerations will be discussed and comments on them will be solicited in the upcoming advance notice of proposed rulemaking on this topic.

CONFORMANCE WITH THE EPA STANDARD

The NWPA expressly permits NRC to promulgate its requirements and criteria for repository licensing prior to the issuance by EPA of its relevant standards. The NRC regulations have been so promulgated prior to EPA's. The NWPA also requires that if EPA promulgates standards after the NRC promulgates its requirements and criteria, the NRC regulations shall be revised by the Commission if necessary to avoid inconsistency with any comparable EPA standards.

Thus, when EPA issues its final regulations, NRC will assess its regulations for consistency with EPA's, and, if any inconsistencies exist, will undertake a rulemaking proceeding to eliminate such inconsistencies. It is currently anticipated that EPA will issue its regulations in mid-1985.

SUMMARY

The basic regulatory framework for licensing HLW repositories is in place (10 CFR Part 60). The necessary amendments to implement the NWPA have been identified and rulemaking proceedings are underway to promulgate these amendments. These regulations will be in conformance with the NWPA when they are needed for licensing activities so that the NRC will be able to fulfill its statutory role.