



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

FEB 17 1981

The Honorable Alan Simpson, Chairman  
Subcommittee of Nuclear Regulation  
Committee on Environment and Public Works  
United States Senate  
Washington, D.C. 20510

Dear Mr. Chairman:

Enclosed for your information are copies of a notice of final rulemaking to be published in the FEDERAL REGISTER and a public announcement concerning that rulemaking.

On December 6, 1979 the Commission published for public comment a proposed rule that would implement the NRC's statutory authority to license and regulate the disposal of high-level radioactive wastes in geologic repositories to be constructed and operated by the Department of Energy (44 Fed. Reg. 70408). The final rule reflects changes made in response to the public comments received, and changes made as a result of further staff evaluation.

The final rule establishes the license process that will be followed for the construction and operation of a geologic repository for disposal of high-level radioactive waste. The stages of the licensing process consist of review of site characterization plans, issuance of construction authorization, issuance of a license to receive waste at the repository, and decommissioning of the repository. The rule also establishes detailed provisions to ensure extensive opportunities for participation by State and local government and the general public throughout the entire licensing process.

The licensing procedures are sensitive to the fact that expedient licensing can be achieved only if the licensing process is conducted deliberately with full consideration of alternatives. To this end the final rule requires the Department of Energy to submit for Commission review a Site Characterization Report describing the proposed site and the criteria and decision process used to select that site for further investigation. A site characterization program of exploration and testing, including in-situ testing at depth, must be initiated at a number of sites in a variety of geologic media before any one site can be proposed for construction authorization.

The technical criteria against which a license application will be reviewed are still under development. The basic approach of these criteria was set

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The Honorable Alan Simpson

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out in an Advance Notice of Proposed Rulemaking, published in the  
FEDERAL REGISTER on May 13, 1980 (45 Fed. Reg. 31393).

Sincerely,



Ray G. Smith, Acting Director  
Office of Standards Development

cc: Sen. Gary Hart

Enclosure:

"A" FR Notice of Final Rulemaking  
"B" Public Announcement

## NUCLEAR REGULATORY COMMISSION

10 CFR Parts 2, 19, 20, 21, 30, 40, 51, 60, and 70

### Disposal of High-Level Radioactive Wastes in Geologic Repositories; Proposed Licensing Procedures

AGENCY: Nuclear Regulatory Commission.

ACTION: Proposed rule.

**SUMMARY:** This notice invites public comment on a proposed rule for licensing the receipt and disposal of high-level radioactive wastes (HLW) at geologic repositories. The proposed rule sets forth requirements applicable to the Department of Energy (Department) in submitting an application for a license for such activities and specifies the procedures which the Commission will follow in considering such an application. The proposed rule also sets forth provisions for consultation and participation in the license review by State governments.

**DATE:** Comments must be received by March 3, 1980.

**ADDRESS:** Written comments or suggestions on the proposed rule should be sent to the Secretary of the Nuclear Regulatory Commission, Washington, D.C. 20555, Attention: Docketing and Service Branch. Copies of comments may be examined in the U.S. Nuclear Regulatory Commission Public Document Room, 1717 H Street, NW, Washington, D.C.

**FOR FURTHER INFORMATION CONTACT:** L. C. Roberts, Assistant Director for Siting Standards, Office of Standards Development, U.S. Nuclear Regulatory Commission, Washington, D.C. 20555, telephone (301) 443-5985.

#### SUPPLEMENTARY INFORMATION:

##### Background

In November of 1978, the Nuclear Regulatory Commission published for comment a proposed General Statement of Policy outlining procedures for licensing geologic high-level radioactive wastes (HLW) repositories to be constructed and operated by the Department of Energy. At the same time, a draft rule to implement the policy was circulated to State governments for review. Comments on the Policy Statement were received from thirty groups and individuals. Fourteen States commented on the draft rule. The rule that is presently being proposed reflects a change in our earlier views, stimulated in part by those comments and by a somewhat different appreciation of the

quality and quantity of information needed to select a site for a repository. The Commission is withdrawing the proposed General Statement of Policy as being superseded by this action.

#### Authority and Rationale

Sections 202(3) and (4) of the Energy Reorganization Act of 1974, as amended, provide the NRC with licensing and regulatory authority regarding Department of Energy facilities used primarily for the receipt and storage of high-level radioactive wastes resulting from activities licensed under the Atomic Energy Act and certain other long-term, high-level waste storage facilities of the Department of Energy. Pursuant to that authority, the Commission is developing procedures and criteria appropriate for licensing geologic disposal of HLW by the Department. The requirement contained in the instant proposed rule that the Department submit a site characterization report in advance of performing exploration which may include in situ testing at depth also implements Section 14(a) of the NRC Authorization Act of 1979 (Pub. L. 95-601).<sup>2</sup>

Alternatives to rulemaking that were considered included the issuance of regulatory guides and NUREG reports, which would be applied in the context of other, existing parts of NRC regulations. However, the considerable differences between a geologic repository and other licensed facilities, particularly in view of the significance of a repository with respect to the health and safety of future generations, make it desirable to develop rules tailored specifically to geologic disposal of HLW. Moreover, the rulemaking proceeding should provide the Commission the broadest opportunity to receive and consider the views of the public.

#### Comments

Comments on the Policy Statement touched upon many issues. Some of the comments dealt with details of implementation that are being addressed for the first time in these proposed rules. The principal comments

<sup>2</sup>The Commission interprets "storage" as used in the Energy Reorganization Act to include disposal.

<sup>3</sup>Section 14(a) reads as follows: Any person, agency, or other entity proposing to develop a storage or disposal facility, including a test disposal facility, for high-level radioactive wastes, non-high-level radioactive wastes including transuranium contaminated wastes, or irradiated nuclear reactor fuel, shall notify the Commission as early as possible after the commencement of planning for a particular proposed facility. The Commission shall in turn notify the Governor and the State legislature of the State of proposed sites whenever the Commission has knowledge of such proposal.

of a policy nature related to the timing and scope of the Commission's review, opportunities for State and public participation, and the respective NEPA responsibilities of the Commission and the Department of Energy.

Comments about the initial review straddled the position set forth in the Policy Statement. Some commenters urged the Commission to schedule hearings early in the Department's site selection process; others recommended that hearings be deferred until construction has been completed and an application to receive waste is filed. The Commission has undertaken a thorough review of the matter and now proposes a more extensive informal involvement during early phases of site characterization<sup>3</sup> and a deferral of formal proceedings until site characterization has been completed. The scope of the review procedures would be expanded, as urged by several commenters, to include an assessment of site characterization data for multiple sites. The reasons for the modifications are explained in the text below.

The proposed rule also provides detailed provisions to ensure extensive opportunities for State and public participation. We have not made specific provision for funding of intervenors, as requested by some commenters. This question may be addressed separately in the context of rulemaking applicable to various adjudicatory proceedings. Provisions for State participation would be reviewed in the light of any pertinent statutory changes that may be enacted.

The proposed regulations do not explicitly address the NEPA responsibilities of the Commission regarding matters within the scope of the Department's generic environmental impact statement on the management of commercially generated radioactive wastes. The possibility of adopting the Department's statement may be considered by the Commission, as suggested in comments, at an appropriate time.

<sup>3</sup>Note.—Site characterization means the program of exploration and research, both in the laboratory and in the field, undertaken to establish the geologic conditions and the ranges of those parameters of a particular site relevant to the procedures under this part. Site characterization includes borings, surface excavations, excavation of exploratory shafts, limited subsurface lateral excavations and borings, and in situ testing needed to determine the suitability of the site for a geologic repository. It does not include preliminary borings and geophysical testing needed to decide whether site characterization should be undertaken. The intent of permitting these activities is to allow the timely gathering of information needed both to characterize a site and for a meaningful comparison of alternatives.

### Departures From the General Statement of Policy

The procedures delineated in the proposed rule depart from those set forth by the proposed General Statement of Policy in three ways. These departures all bear on the initial stages of the licensing process. First, it is clearly stated that review of the Department's plans for site characterization as well as the site selection methods and criteria to be used by the Department is required in advance of site characterization and that the Director of NMSS will issue an opinion on the basis of that review. Second, the review does not presume that the Department has selected a repository site, but only that it has identified a number of sites in appropriate media to undergo site characterization. The third departure from the Policy Statement is the elimination of the provisional construction authorization and expansion of the concept of site characterization. These changes are being proposed to reflect our current appreciation of the quality and quantity of information needed to bring the licensing proceeding to an appropriate conclusion.

### Site Characterization Review

The provision for early review of the Department's site characterization plans will provide an opportunity for the Director to point out those aspects of a location which in the judgment of the staff require special attention or present special problems, and to indicate particular items of information needed for the Commission to make licensing decisions with respect to the sites being considered. Moreover, the Director will be able to consider the methods and procedures of exploration contemplated for use by the Department. The opportunity to review those methods and procedures is valuable because if the process of characterizing a site to obtain information necessary to determine if a site is suitable for a repository is not carefully done, it may render the site unusable for a repository. For example, an excessive number of bore holes or improper excavation of an exploratory shaft or drift could make the repository unsealable. Presumably, this concern for possible exploration-induced damage is one reason that some commenters on the Policy Statement suggested a multi-step review process begun before commencement of site exploration. This factor and the desirability of evaluating whether the Department's program will generate data suitable to support a Commission

licensing decision are reasons that the Commission regards some provision for preapplication review to be appropriate. Further, early guidance on development and consideration of alternative sites will help to avoid later delay caused by inadequate discussion of alternatives as required by NEPA.

In addition to providing for the early review of the Department's site characterization and site selection programs, the submittal of a site characterization report assures an early opportunity for other Federal and State agencies and the public to become involved in the decision making process with respect to those programs. The opportunity for involvement is provided through publication of the Department's site characterization report and the Commission staff assessment of same and by means of meetings between the Commission staff and State officials, residents of the areas near the sites to be characterized, and other interested persons. Furthermore, where other Federal agencies have decisionmaking authority regarding the Department's proposed action, it is expected that they will consider the recommendations of the Director in carrying out their responsibility.

The change is also intended to implement the requirements of Pub. L. 95-601, as set out above, and to ensure that the notice from the Department will, in fact, initiate a meaningful, substantive review. Although the Commission cannot direct the Department to comply with the provisions for involving it during the site characterization activities, any failure to do so is likely to result in imprudent expenditures and subsequent delays, and ultimately could result in the denial of the application for the proposed site.

In sum, the Commission believes that the required submission of a site characterization report and subsequent public review will achieve early Commission, State and public involvement without undue schedule delays.

Consideration has been given to providing for formal hearings prior to site characterization, with the objective of resolving alternative site issues. Early Site Review (ESR) regulations (10 CFR Part 2 Subpart F) certainly provide a precedent for this approach. However, this is a reasonable approach for reactors only because of the considerable experience we have had with siting such facilities, the knowledge we have of typical light water reactor designs and characteristic impacts, and the extent to which engineered features can be relied upon to accommodate deficiencies in site characteristics. The

situation in the case of geologic repositories is different in each of these respects. With a geologic repository, reconnaissance level data alone will not support a presumption that a site is suitable with respect to safety for a repository. Hence, any decision on alternative site issues at this early point is likely to require reexamination at the construction authorization proceedings and, therefore, would be of questionable value.

However, other findings could be made: the adequacy and appropriateness of the Department's site characterization program, including the development of a slate of alternatives, can be reviewed in a licensing action which would allow the Department to proceed with that program. But, considering the preliminary nature of the geologic and hydrologic data available, the fact that the Director's review of these items as described earlier will include the benefit of public comment, and the relatively insignificant environmental impact of site characterization, the Commission has concluded that the considerable time and effort on the part of the Commission, the Department, and the public demanded by formal proceedings would not be justified.

### Provision for Characterizing Several Sites

The revised procedures permit the Department to include exploration and in situ testing at depth as part of its site characterization activities. We anticipate that it will be necessary for the Department to explore at depth more than one site at different locations and in different geologic media. This position follows from consideration of both the long-term performance required of and the technical uncertainties involved in geologic disposal of HLW, and the need for the Commission to discharge its NEPA responsibilities with respect to evaluation of alternatives.

It is expected that each site selected for site characterization and testing will potentially satisfy the technical criteria in 10 CFR 80, i.e., no obvious deficiency will be evident when the site is assessed in terms of NRC's preliminary site

\*The principal impact of site characterization at a typical site can be attributed to management of the spoils from excavation of an exploratory shaft. The spoils will be in the neighborhood of 8000 cubic yards which either would be disposed of on site or trucked off site. The volume of these spoils is about 10% of that from excavation of a main shaft for a repository and less than 0.1% of the spoils from total excavation. The absence of formal Commission proceedings, of course, would not excuse the Department from considering this and other environmental impacts associated with major actions which it proposes to undertake.

review. NRC will examine the Department's site selection process with this in mind, and the results of this review will be reflected in the Director's opinion. Thus, application of the technical criteria will guide the Department toward a slate of candidate sites that are among the best that reasonably can be found. Under this approach, the selection of a proposed site from among the alternatives would be deferred until site characterization of the slate of candidate sites is at least substantially complete.

It can be noted that the procedure here is consistent with the recommendation of the Interagency Review Group on Nuclear Waste Management which calls for simultaneous investigation of several potential sites.<sup>6</sup>

#### • Site Characterization and Authorization of Construction

Under the proposed Policy Statement, only surface exploration combined with some test borings would be permitted prior to the Commission's initial licensing decision—either a construction authorization or a provisional construction authorization. This procedure was intended to allow the Commission to complete a safety and environmental review before the Department undertook a major commitment of resources (money and manpower).

We now perceive two grounds for questioning our previous thinking. First, the quality of the data that will be available before completion of site characterization as currently envisioned is unlikely to provide a satisfactory basis for arriving at the technical judgments reflected in the standards for construction authorization and provisional construction authorization that are contained in the Policy Statement. Second, further study persuades us that the commitment of resources involved is not so great nor the environmental impacts so large as to lead the Commission to exercise its licensing authority in advance of site characterization. Our revised position now more closely resembles an approach presented in comments submitted by the Natural Resources Defense Council, among others, that deferment of some specific safety findings may be desirable in order to avoid decisions based on inadequate information and analyses so long as the increased financial investments and institutional commitments do not

thereby reduce the stringency of the subsequent safety reviews.

Support for our revised position is bolstered not only by comments received on the Policy Statement but also by many in the earth science community with whom we have discussed this matter, including members of the U.S. Geological Survey staff. These experts agree that exploration and testing at depth should be performed if sufficient data are to be obtained to determine whether the surrounding geology will retard waste migration and to make meaningful comparisons among alternatives. Further, the importance of exploration at depth has been cited by both the IRG report (Appendix A) and the recent National Academy of Sciences report, "Implementation of Long-term Environmental Radiation Standards: The Issue of Verification" (Committee on Radioactive Waste Management, 1979).

The investigations which the Policy Statement would have allowed prior to construction authorization were limited to surface geophysical techniques such as aeromagnetic and gravity surveys and seismic traverses augmented by a few borings and well logs. Insofar as subsurface geology and hydrology are concerned, such investigation would provide substantial information regarding the stratigraphy and hydrogeology of the site. While this information is obviously relevant and extremely important in evaluating a site, the data needed to establish the ultimate suitability of the site is likely to be obtained only through exploration and in situ testing at depth, i.e., in the proposed host rock unit. This exploration and testing are needed not only to determine whether serious but not readily observed defects are present, but also to determine specific properties such as homogeneity, porosity, the extent of fracturing and jointing, and thermal response of the rock including expansion, fluid migration and decrepitation. Of course, the kinds of defects—fractures, breccia pipes, etc.—will vary from one kind of medium to another, and from site to site, as will the properties which are key to isolation of the wastes. But the important point is that without exploration and in situ testing in the proposed host rock unit, neither the defects nor the key parameters can be determined with confidence. It might be argued that deferring the initial licensing decision to a later stage in some cases could lead to the expenditure of some resources and the waste of time pursuing projects that might otherwise have been found to be

unacceptable on the basis of careful examination of surface reconnaissance data. However, this situation is rare for two reasons. First, the process of characterization is also a process of elimination. There is no point to proceeding with exploration and testing at depth if the surface reconnaissance data reveal an insuperable defect. Second, under the procedures contemplated by the proposed rule, the Department will augment the site characterization report with semiannual reports to the Director, Office of Nuclear Material Safety and Safeguards. These reports along with any comment by the Director will be made public. If review of a report reveals such a defect, the Director will publicly inform the Department of the problem and, if warranted, could caution the Department from proceeding further with the site. Moreover, in the context of overall project costs for a repository, incremental site characterization costs are small indeed. Again, it is difficult to generalize since different media and sites will present a variety of factual situations. In our analysis, however, we have determined that total site characterization expenses for a generic hypothetical site could be expected to amount to about \$20 million.

We do not minimize the amount of public funds that we have identified as a reasonable estimate of incremental site characterization costs or the increasing urgency for disposing of the wastes which may accompany any delay in licensing action. These factors should be examined, however, in the light of the requirement discussed above that multiple sites must be characterized. The effect of this change is to decrease, in a highly significant way, the level of commitment of the Department or the Commission to any particular site. Also, the delay will help to assure that the Commission avoids making any improvident, premature commitment to a particular site by making a licensing decision before it has the necessary technical data that would permit it to make a commitment with confidence. Further, this approach could provide a ready alternative for consideration in the event that the Department's proposed site is found unsuitable. As discussed earlier, it would be possible for the Commission to structure its proceedings so as to provide for formal hearings on limited issues at an early stage in the process. The hearing process has clear advantages as a mechanism for fact-finding. But it can be an inefficient and cumbersome means for arriving at decisions. Moreover, since several sites are to be

<sup>6</sup>Report of the Interagency Review Group on Nuclear Waste Management, March 1979.

characterized, hearings would not be so well-focused as they would be after a single site had been identified in a license application.

We are satisfied that the opportunities for public participation and the Commission's staff review that have been included in the proposed rule will provide an acceptable avenue for achieving early identification of relevant issues and concerns. The proposed rule contemplates an opportunity for formal Commission proceedings before construction, before receipt of radioactive waste, and before and after decommissioning. Each of these decision points may involve issues of great significance to the health and safety of the public. Questions arising during site characterization can be resolved less formally, in our judgment, without jeopardizing public health and safety. Moreover, the independent NEPA obligations of the Department provide additional structured opportunities for evaluation of environmental issues.

#### Scope of Proposed Rule

The proposed rule addresses only the licensing of geologic disposal of HLW. Alternative methods of disposal are not addressed chiefly because information from the department indicates that geologic disposal is the only technology likely to be the subject of a license application in the foreseeable future. Some methods are still developing technologies, e.g., transmutation. For others it is not clear what the Commission's licensing authority would be. For example technical feasibility issues aside, sea bed emplacement or disposal in Antarctic ice sheets would require international arrangements involving legislative action. In general, the Commission does have licensing authority over surface storage and disposal facilities within the United States. However, surface disposal is not anticipated; and surface storage, *per se*, could be covered under other parts of the commission's regulations.

The proposed rule contains only the procedural requirements for licensing. The technical criteria against which the license application will be reviewed are still under development. However, the scope of the technical criteria is regarded as being sufficiently developed to determine an appropriate licensing procedure for their implementation. This enables the Commission to propose a procedural rule even though the technical criteria are still under review. In the interest of proceeding with development of the necessary regulatory framework for licensing, these licensing procedures, therefore, are being proposed at this time.

Licensing of a geologic repository would be a major Federal action which requires the preparation of an environmental impact statement by the Commission. While development of disposal technologies and methods is a programmatic activity for which the department must assume responsibility, issues related to alternative technologies will be considered by the Commission in the context of later decisions.

#### Procedures

The Commission will participate in four stages in the review of the Department activities involving high-level waste disposal at a particular geologic repository. Although essentially the same features are addressed, with each stage there is a progressive increase in knowledge regarding these features and a corresponding increase in confidence in a decision whether HLW can be disposed of at a repository at the site.

In the first stage when the Department has formulated plans for a prospective repository to the extent that it wishes to begin site characterization, it will be required to submit a site characterization report which contains, among other things, the program plan by which the Department will investigate and characterize sites. The report will address the process by which the media and site(s) were chosen for characterization and the Department's program for further development of alternatives.<sup>6</sup> The report also will contain a description of the media and site(s) to be characterized and the site characterization program. The report will be reviewed by the NRC staff with opportunity for public comment on both the report and a staff analysis of the report. Also, it is anticipated that the Commission will hold local public meetings in the immediate area of the site(s) to be characterized. These meetings will be held both to disseminate information and to obtain public input which will be factored into the final version of the staff analysis. Included in the final analysis will be a statement by the Director expressing his opinion on the site, the site report and the Department's site selection and characterization program. The Department should consider the site characterization analyses before publishing a final environmental impact statement, where such may be required.

<sup>6</sup>Note.—This will include the identification and location of other media and sites which the Department considers alternatives to the site being put forth for site characterization and for which the Department intends to submit subsequent site characterization reports.

under NEPA for site characterization activities proposed for a particular site. Once site characterization is initiated, the Department should inform the Director by semiannual report of the progress of the site characterization activities and schedules. The Commission staff should be permitted to visit the site and to observe excavation, boring and testing activities. The Director may respond from time to time in writing to the Department to express his current views on questions raised in the semiannual reports or site visits. Inasmuch as the site characterization activities could have an adverse impact upon site safety, i.e., could affect the site's ability to contain the waste, failure by the Department to involve the NRC in the manner described here and to implement the recommendations of the Director could result in denial of the subsequent license application. These procedures will be followed for each of the number of sites in appropriate geologic media which the Department intends to characterize, prior to its selecting a proposed site. We believe that these procedures will provide adequate regulatory participation so that a site will not be made unusable by characterization, and at the same time will assure that the data needed to enable a comparison of alternatives and a reasoned choice in the selection of a site is gathered.

The second stage begins with the submission by the Department of an application for construction authorization at a particular site from among those characterized.<sup>7</sup> We do not anticipate that action will be taken on an application until the site characterization efforts at several sites are substantially complete.

Subsequent to staff review and preparation of an Environmental Impact Statement, it is anticipated that a licensing board will be appointed and the license application will undergo the first formal review, including public hearings. If the Commission finds after considering reasonable alternatives that the benefits of the proposal exceed the costs under NEPA and that there is reasonable assurance that the types and amounts of wastes described in the application can be received, possessed, and disposed of in a repository of the design proposed at the site without

<sup>7</sup>To satisfy the requirements of NEPA, the Commission anticipates such characterization at a minimum of three sites representing a minimum of two geologic media. However, in light of the significance of the decision selecting a site for a repository, the Commission fully expects the Department to submit a wider range of alternatives than the minimum suggested here.

unreasonable risk to the health and safety of the public or being inimical to the common defense and security, construction of the repository will be authorized.

Stage three is a further review of the application prior to receipt of wastes at the repository. The Commission will issue a license to the Department if it finds, among other things, that the issuance of the license will not constitute an unreasonable risk to the health and safety of the public. The findings would be based upon a review of an update of the application submitted for construction authorization and an updated environmental report if needed. Among items to be considered in the review are additional data acquired during construction, conformance of construction with design, and resolution of questions not answered during the construction authorization review. It is expected that adjudicatory hearings would be held to consider appropriate issues. (All hearings would be conducted in accordance with subpart G of 10 CFR Part 2.)

Once all the wastes have been emplaced, the Department may submit an application to decommission the repository, and the final review of repository activities will begin.<sup>6</sup> Additional geologic and hydrologic data acquired during the emplacement period as well as the results of test and experiments on backfilling and shaft sealing, along with the Department's planned decommissioning program, will be considered by the Commission in determining whether the planned method for decommissioning is adequate. Following decommissioning, DOE may seek an amendment to terminate the license. The Commission may terminate the license if it finds that the final disposition of wastes is in conformance with the Department's license, that the final state of the repository site is in conformance with the requirements of the license, and that termination of the license is authorized under the Atomic Energy Act. Alternatively, the Department may continue to be a licensee of the repository and conduct such monitoring and exercise such control at the repository as might be appropriate.

<sup>6</sup>Unless expressly authorized in the license to receive and possess HLW, an amendment to that license will be required to allow the Department to conduct partial backfilling in parts of the repository once all the wastes have been emplaced in those parts. (This does not apply to backfilling tests that are described in the license.)

### State Participation

The submittal of a site characterization report by the Department not only begins the Commission's involvement in the planning and development of a geologic repository, but also marks the beginning of State participation in the licensing process. States may submit proposals for participation in the review of the Site Characterization Report and any subsequent license application from the Department. In addition, at that time Commission staff will be made available to discuss with representatives of both State and local governments information submitted by the Department.

States may request to participate in several ways. States could assist the Commission in the review of specific portions of license applications. States could perform other technical assistance work for the Commission, particularly in the area of environmental studies and the like. States might perform environmental and radiation monitoring for the Commission throughout the operational period and perhaps after closure as well. States could also participate through employment or exchange of State and Federal personnel under the Intergovernmental Personnel Act. In addition, States could participate in hearings on a license application under the applicable provisions of the rules of practice. The Commission intends to develop further guidance to assist the States in planning for such participation.

Besides review of site characterization reports, license applications, and ongoing work in support of the license application, States might also be involved by the Department (in response to the regulations for implementation of NEPA or otherwise) in the site selection process itself. The requirement that the Department must describe in its site characterization report how States were involved in the site selection process reflects the Commission's expectation that the Department will involve State and local governments in its site selection programs. The Commission believes that many issues, including the NEPA questions related to alternatives and alternative sites, will be more easily resolved if State concerns are identified and addressed at the earliest possible time. In any case, these procedures have been designed to allow affected States to participate to the fullest extent possible within the limits of the Commission's authority and the State's own desires and capabilities.

The Commission recently submitted to the Congress a report on "Means for

Improving State Participation in Siting, Licensing and Development of Federal Nuclear Waste Facilities," NUREG-0539, March 1978. The extent State participation may be affected by legislative action on the matters discussed in that report.

### Other Reviews

In addition to reviewing applications from the Department and materials submitted in support of those applications, the Commission's staff will follow closely the unfolding of the Department's overall program for the disposal of radioactive wastes. The Director will comment from time to time on all matters pertinent and appropriate to the Nuclear Regulatory Commission's role as the licensing agency. The Director also will provide the Department with specific guidance on technical matters relevant to licensing requirements.

Two areas to which the Commission staff intends to pay particular attention are the Department's site screening procedure and its waste form research and development program. Both the screening of sites for site characterization and selection of a waste form are programmatic decisions within the prerogatives of the Department as the agency charged with the responsibilities to dispose of the wastes. However, it is important to the Commission's ability to discharge its licensing responsibilities that the course which the Department follows to select sites is systematic, well-reasoned, publicly accessible, and ultimately will result in a slate of characterized sites whose members are among the best that reasonably can be found. Moreover, because selection of a waste form commits significant resources to the development and production of that waste form, as well as influences repository design, the Commission believes that the Department's research and development program must address and compare alternative waste forms. The Commission also must be familiar with the Department's waste form research and development program so the results of the program can be factored into the licensing process.

The Commission has decided not to prepare an Environmental Impact Statement for the rule here proposed. An Environmental Impact Appraisal setting forth the basis for this decision is available for public inspection in the Commission's Public Document Room.

Pursuant to the Atomic Energy Act of 1954, as amended, The Energy Reorganization Act of 1974, as amended, and section 553 of title 5 of the United States Code, notice is hereby given that

adoption of a new 10 CFR Part 60 and the following conformation amendments to 10 CFR Parts 2, 19, 20, 21, 30, 40, 51 and 70 is contemplated. All interested persons who desire to submit written comments or suggestions for consideration in conjunction with the proposed amendments should send them to the Secretary of the Commission, U.S. Nuclear Regulatory Commission, Washington, D.C. 20555, Attention: Docketing and Service Branch by March 3, 1980.

Copies of comments received on proposed amendment may be examined in the Commission's Public Document Room at 1717 H Street, NW, Washington, D.C.

## PART 2—RULES OF PRACTICE

1. 10 CFR 2.101 is amended to add a new paragraph (f) to read as follows:

### § 2.101 Filing of application.

(f)(1) Each application for a license to receive and possess high-level radioactive waste at a geologic repository operations area pursuant to Part 60 of this chapter and any environmental report required in connection therewith pursuant to Part 51 of this chapter shall be processed in accordance with the provisions of this paragraph.

(2) To allow a determination as to whether the application or environmental report is complete and acceptable for docketing, it will be initially treated as a tendered document, and a copy will be available for public inspection in the Commission's Public Document Room. Twenty copies shall be filed to enable this determination to be made.

(3) If the Director of Nuclear Material Safety and Safeguards determines that the tendered document is complete and acceptable for docketing, a docket number will be assigned and the applicant will be notified of the determination. If it is determined that all or any part of the tendered document is incomplete and therefore not acceptable for processing, the applicant will be informed of this determination and the respects in which the document is deficient.

(4) With respect to any tendered document that is acceptable for docketing, the applicant will be

requested to (i) Submit to the Director of Nuclear Material Safety and Safeguards such additional copies as the regulations in Parts 60 and 51 require, (ii) serve a copy on the chief executive of the municipality in which the geologic repository operations area is to be located or, if the geologic repository operations area is not to be located within a municipality, on the chief executive of the county, and (iii) make the direct distribution of additional copies to Federal, State, and local officials in accordance with the requirements of this chapter and written instructions from the Director of Nuclear Material Safety and Safeguards. All such copies shall be completely assembled documents, identified by docket number. Subsequently distributed amendments, however, may include revised pages to previous submittals and, in such cases, the recipients will be responsible for inserting the revised pages.

(5) The tendered document will be formally docketed upon receipt by the Director of Nuclear Material Safety and Safeguards of the required additional copies. Distribution of the additional copies shall be deemed to be complete as of the time the copies are deposited in the mail or with a carrier prepaid for delivery to the designated addressees. The date of docketing shall be the date when the required copies are received by the Director of Nuclear Material Safety and Safeguards. Within ten (10) days after docketing, the applicant shall submit to the Director of Nuclear Material Safety and Safeguards a written statement that distribution of the additional copies to Federal, State, and local officials has been completed in accordance with requirements of this chapter and written instructions furnished to the applicant by the Director of Nuclear Material Safety and Safeguards.

(6) Amendments to the application and environmental report shall be filed and distributed and a written statement shall be furnished to the Director of Nuclear Material Safety and Safeguards in the same manner as for the initial application and environmental report.

(7) The Director of Nuclear Material Safety and Safeguards will cause to be published in the Federal Register a notice of docketing which identifies the State and location at which the proposed geologic repository operations area would be located and will give notice of docketing to the governor of that State.

2. 10 CFR 2.103(a) is revised to read as follows:

§ 2.103 Action on applications for byproduct, source, special nuclear material, and operators' licenses.

(a) If the Director of Nuclear Reactor Regulation or the Director of Nuclear Material Safety and Safeguards, as appropriate, finds that an application for a byproduct, source, special nuclear material, or operator license complies with the requirements of the Act, the Energy Reorganization Act, and this chapter, he will issue a license. If the license is for a facility or for receipt of waste radioactive material from other persons for the purpose of commercial disposal by the waste disposal licensee, or if it is to receive and possess high-level radioactive waste at a geologic repository operations area pursuant to Part 60 of this chapter, the Director of Nuclear Reactor Regulation or the Director of Nuclear Material Safety and Safeguards, as appropriate, will inform the State and local officials specified in § 2.104(e) of the issuance of the license.

3. 10 CFR 2.104(e) is revised to read as follows:

### § 2.104 Notice of hearing.

(e) The Secretary will give timely notice of the hearing to all parties and to other persons, if any, entitled by law to notice. The Secretary will transmit a notice of hearing on an application for a facility license or for a license for receipt of waste radioactive material from other persons for the purpose of commercial disposal by the waste disposal licensee or for a license to receive and possess high-level radioactive waste at a geologic repository operations area pursuant to Part 60 of this chapter to the Governor or other appropriate official of the State and to the chief executive of the municipality in which the facility is to be located or the activity is to be conducted or, if the facility is not to be located or the activity conducted within a municipality, to the chief executive of the county.

4. 10 CFR 2.105(a) is amended by renumbering existing subparagraphs (3) and (4) as (4) and (5), by adding a new subparagraph and revising the subparagraph numbered as (4) to read as follows:

### § 2.105 Notice of proposed action.

(a) If a hearing is not required by the Act or this chapter, and if the Commission has not found that a hearing is in the public interest, it will, prior to acting thereon, cause to be published in the Federal Register a notice of proposed action with respect to an application for:

\*Amendments to 10 CFR Part 51 were published as a proposed rule on October 25, 1979 (44 FR 61372). It is anticipated that rules similar to the ones there proposed will have been issued in final form before the instant amendments have been acted upon. If so, the amendments to Part 51 would be different in form, though not necessarily in substance, from those presently being proposed.

(3) A license to receive and possess high-level radioactive waste at a geologic repository operations area pursuant to Part 60 of this chapter;

(4) An amendment of a license specified in paragraph (a) (1), (2), or (3) of this section and which involves a significant hazards consideration; or

(5) Any other license.

5. 10 CFR 2.105(e) is amended by replacing the words "will issue the license" with the words "may take the proposed action" following the phrase ". . . or Director of Nuclear Material Safety and Safeguards, as appropriate," and by adding the words "or other action" following the phrase ". . . published in the Federal Register a notice of issuance of the license."

6. 10 CFR 2.106 is amended by adding a paragraph (c) to read as follows:

**§ 2.106 Notice of issuance.**

(c) The Director of Nuclear Material Safety and Safeguards will also cause to be published in the Federal Register notice of, and will inform the State and local officials specified in § 2.104(e) of, any action with respect to an application for a license to receive and possess high-level radioactive waste at a geologic repository operations area pursuant to Part 60 of this chapter for which a notice of proposed action has been previously published.

**PART 19—NOTICES, INSTRUCTIONS AND REPORTS TO WORKERS; INSPECTIONS**

**§ 19.2 [Amended]**

7. 10 CFR 19.2 is amended by adding "60," following "30, 40."

**§ 19.3 [Amended]**

8. 10 CFR 19.3(d) is amended by adding "60," following "35, 40."

**PART 20—STANDARDS FOR PROTECTION AGAINST RADIATION**

**§ 20.2 [Amended]**

9. 10 CFR 20.2 is amended by adding "60," following "30, 40."

**§ 20.3 [Amended]**

10. 10 CFR 20.3(a)(9) is amended by adding "60," following "35, 40."

**§ 20.301 [Amended]**

11. 10 CFR 20.301(a) is amended by adding "60," following "35, 40."

12. 10 CFR 20.408(a) is amended by deleting the word "or" following the phrase "of this chapter;" in subparagraph (a)(3), inserting the word "or" following the phrase "of the following quantities;" in subparagraph

(a)(4), and adding a new subparagraph (a)(5) to read as follows:

§ 20.408 Reports of personnel monitoring on termination of employment or work.

(5) Possesses high-level radioactive waste at a geologic repository operations area pursuant to Part 60 of this chapter.

**PART 21—REPORTING OF DEFECTS AND NONCOMPLIANCE**

**§ 21.2 [Amended]**

13. 10 CFR 21.2 is amended by inserting "60," after "35, 40," and also by inserting "60," after "40, 50."

**§ 21.3 [Amended]**

14. 10 CFR Part 21, § 21.3(a), 21.3(a-1)(1), 21.3(a-1)(2), and 21.3(k) are amended by adding "60," after "40, 50."

**§ 21.21 [Amended]**

15. 10 CFR 21.21(b)(1)(i) and 21.21(b)(1)(ii) are amended by adding "60," after "40, 50."

**PART 30—RULES OF GENERAL APPLICABILITY TO LICENSING OF BYPRODUCT MATERIAL**

16. 10 CFR 30.11 is amended by adding a new paragraph (c).

**§ 30.11 Specific exemptions.**

(c) The Department of Energy is exempt from the requirements of this part to the extent that its activities are subject to the requirements of Part 60 of this chapter.

**PART 40—DOMESTIC LICENSING OF SOURCE MATERIAL**

17. 10 CFR 40.14 is amended by adding a new paragraph (c).

**§ 40.14 Specific exemptions.**

(c) The Department of Energy is exempt from the requirements of this part to the extent that its activities are subject to the requirements of Part 60 of this chapter.

**PART 51—LICENSING AND REGULATORY POLICY AND PROCEDURES FOR ENVIRONMENTAL PROTECTION**

18. 10 CFR 51.5(a) is amended by adding new paragraphs (10) and (11), and renumbering present paragraph (10) as paragraph (12) to read as follows:

§ 51.5 Actions requiring preparation of environmental impact statements, negative declarations, environmental impact appraisals; actions excluded.

(a) An environmental impact statement will be prepared and circulated prior to taking any of the following types of actions:

(10) Issuance of an authorization for geologic repository operations area pursuant to part 60 of this chapter.

(11) Issuance of a license to receive and possess high-level radioactive waste at a geologic repository operations area pursuant to Part 60 of this chapter.

(12) Any other action which the Commission determines is a major Commission action significantly affecting the quality of the human environment.

19. 10 CFR 51.5(b) is amended by replacing the period at the end of subparagraph (4)(iii) with a semicolon; adding a new subparagraph (4)(iv); substituting "(b)(4)(iv)" for "(b)(4)(iii)" in paragraph (5); inserting "60," following "40, 50," in paragraph (6); and adding a new paragraph (9). With these changes, 10 CFR 51.5(b)(4) reads in part as follows:

§ 51.5 Actions requiring preparation of environmental impact statements, negative declarations, environmental appraisals; action excluded.

(b) . . .

(4) Issuance of an amendment which would authorize a significant change in the types or significant increase in the amounts of effluents or a significant increase in the potential for accidental releases of a license for:

(iv) The receipt and possession of high-level radioactive waste at a geologic repository operations area pursuant to part 60 of this chapter.

(5) Renewal of licenses to conduct activities listed in paragraph (b)(4)(i)-(iv) of this section;

(9) Termination of a license for the possession of high-level radioactive waste at a geologic repository operations area at the request of the licensee.

20. 10 CFR 51.5(d)(3) is amended by adding "60," following "40, 50."

21. 10 CFR 51.40 is amended by revising subsection (a) to start "except as provided in paragraphs (b), (c), and (d) of this section, . . ." and by adding a new subsection (d) to read as follows:

**§ 51.40 Environmental reports**

(a) Except as provided in paragraphs (b), (c), and (d) of this section...  
(d) The Department of Energy, as an applicant for a license to receive and possess radioactive waste at a geological repository operations area pursuant to Part 60 of this chapter, shall submit at the time of its application or in advance, and at the time of amendments, in the manner provided in § 60.22 of this chapter, environmental reports which discuss the matters described in § 51.20. The discussion of alternatives shall include site characterization data for a number of sites in appropriate geologic media\* so as to aid the Commission in making a comparative evaluation as a basis for arriving at a reasoned decision under NEPA.

22. 10 CFR 51.41 is revised to read as follows:

**§ 51.41 Administrative procedures.**

Except as the context may otherwise require, procedures and measures similar to those described in §§ 51.22-51.28 will be followed in proceedings for the issuance of materials licenses and other actions covered by § 51.5(a) but not covered by § 51.20 or 51.21. The procedures followed with respect to materials licenses will reflect the fact that, unlike the licensing of production and utilization facilities, the licensing of materials does not require separate authorizations for construction and operation. In the case of an application for a license to receive and possess high-level radioactive waste at a geological repository operations area pursuant to Part 60 of this chapter, however, the environmental impact statement required by § 51.5(a) shall be prepared and circulated prior to the issuance of a construction authorization; the environmental impact statement shall be supplemented prior to issuance of a license to take account of any substantial changes in the activities proposed to be carried out or significant new information regarding the environmental impacts of the proposed activities.

**PART 70—DOMESTIC LICENSING OF SPECIAL NUCLEAR MATERIAL**

23. 10 CFR 70.14 is amended by adding a paragraph (c).

To satisfy the requirements of NEPA, the Commission anticipates such characterization at a minimum of three sites representing a minimum of two geologic media. However, in light of the significance of the decision selecting a site for a repository, the Commission fully expects the Department to submit a wider range of alternatives than the minimum suggested here.

**§ 70.14 Specific exemptions**

(c) The Department of Energy is exempt from the requirements of the regulations in this part to the extent that its activities are subject to the requirements of Part 60 of the chapter.

24. A new Part 60 is added to read as follows:

**PART 60—DISPOSAL OF HIGH-LEVEL RADIOACTIVE WASTES IN GEOLOGIC REPOSITORIES**

**Subpart A—General Provisions**

- Sec. 60.1 Purpose and scope.
- 60.2 Definitions.
- 60.3 License required.
- 60.4 Communications.
- 60.5 Interpretations.
- 60.6 Exemptions.

**Subpart B—Licenses**

**Preapplication Review**

- 60.21 Content of application.
- 60.22 Filing and distribution of application.
- 60.23 Elimination of repetition.
- 60.24 Updating of application and environmental report.

**Construction Authorization**

- 60.31 Construction authorization.
- 60.32 Conditions of construction authorization.
- 60.33 Amendment of construction authorization.

**License Issuance and Amendment**

- 60.41 Standards for Issuance of a license.
- 60.42 Conditions of license.
- 60.43 License specifications.
- 60.44 Changes, tests, and experiments.
- 60.45 Amendment of license.
- 60.46 Particular activities requiring license amendment.

**Decommissioning**

- 60.51 License amendment to decommission.
- 60.52 Termination of license.

**Subpart C—Participation by State Governments**

- 60.61 Site review.
- 60.62 Filing of proposals for State participation.
- 60.63 Approval of proposals.

**Subpart D—Records, Reports, Tests, and Inspections**

- 60.71 Records and reports.
- 60.72 Tests.
- 60.73 Inspections.

Authority: Secs. 81, 83, 82, 83, 85, 81, 101b, 1, L. L. o.p., 182, 183, Pub. L. 93-703, as amended, 68 Stat. 929, 930, 932, 933, 935, 948, 953, 954, as amended (42 U.S.C. 2071, 2072, 2092, 2093, 2095, 2111, 2201, 2232, 2233); Secs. 202, 206, Pub. L. 93-438, 68 Stat. 1244, 1246 (42 U.S.C. 5842, 5846); Sec. 14, P.L. 95-601 (42 U.S.C. 2021a).

For the purposes of Sec. 223, 68 Stat. 958, as amended, 42 U.S.C. 2273, §§ 60.71 to 60.73 are issued under Sec. 1610, 68 Stat. 950, as amended (42 U.S.C. 2201(o)).

**Subpart A—General Provisions**

**§ 60.1 Purpose and scope.**

This part prescribes rules governing the licensing of the Department of Energy to receive and possess source, special nuclear, and byproduct material at a geologic repository operations area.

**§ 60.2 Definitions.**

As used in this part: (a) "Candidate area" means a geologic and hydrologic system within which a geologic repository may be located.

(b) "Commencement of construction" means clearing of land, surface or subsurface excavation, or other substantial action that would adversely affect the environment of a site, but does not include changes desirable for the temporary use of the land for public recreational uses, site characterization activities, other preconstruction monitoring and investigation necessary to establish background information related to the suitability of a site or to the protection of environmental values, or procurement or manufacture of components of the geologic repository operations area.

(c) "Decommissioning" means final backfilling of subsurface facilities, sealing of shafts, and decontamination and dismantlement of surface facilities.

(d) "Department" means the Department of Energy or its duly authorized representatives.

(e) "Disposal" means permanent emplacement within a storage space with no intent to retrieve for resource values.

(f) "Director" means the Director of the Office of Nuclear Material Safety and Safeguards.

(g) "Geologic repository" means a system which is intended to be used for, or may be used for, the disposal of radioactive wastes in excavated geologic formations. A geologic repository includes (1) the geologic repository operations area and (2) all surface and subsurface areas where natural events or activities of man may change the extent to which wastes are effectively isolated from the biosphere.

(h) "Geologic repository operations area" means an HLW facility that is part of a geologic repository, including both surface and subsurface areas, where waste handling activities are conducted.

(i) "High-level radioactive waste" or "HLW" means (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.

(j) "HLW facility" means a facility subject to the licensing and related regulatory authority of the Commission pursuant to Section 202(3) and 202(4) of the Energy Reorganization Act of 1974 (88 Stat. 1244).

(k) "Important to safety" with reference to structures, systems, and components, means those structures, systems, and components that provide reasonable assurance that radioactive waste can be received, handled, and stored without undue risk to the health and safety of the public.

(l) "Public Document Room" means the place at 1717 H Street NW, Washington, D.C., at which the records of the Commission will ordinarily be made available for public inspection and any other place, the location of which has been published in the Federal Register, at which public records of the Commission pertaining to a particular geologic repository are made available for public inspection.

(m) "Radioactive waste" means HLW and any other radioactive materials other than HLW that are received for emplacement in a geologic repository.

(n) "Site characterization" means the program of exploration and research, both in the laboratory and in the field, undertaken to establish the geologic conditions and the ranges of those parameters of a particular site relevant to the procedures under this part. Site characterization includes borings, surface excavations, excavation of exploratory shafts, limited subsurface lateral excavations and borings, and in situ testing needed to determine the suitability of the site for a geologic repository, but does not include preliminary borings and geophysical testing needed to decide whether site characterization should be undertaken.

(o) "Traceability" means the ability, through the use of container identification and preparation and maintenance of appropriate records, to delineate a step-by-step history of any radioactive waste.

#### § 60.3 License required.

(a) The Department shall not receive or possess source, special nuclear, or byproduct material at a geologic repository operations area except as

These are Department of Energy facilities used primarily for the receipt and storage of high-level radioactive wastes resulting from activities licensed under such act (the Atomic Energy Act) and "Retrievable Surface Storage Facilities and other facilities authorized for the express purpose of subsequent long-term storage of high-level radioactive wastes generated by DOE, which are not used for, or are part of, research and development activities."

authorized by a license issued by the Commission pursuant to this part.

(b) The Department shall not commence construction of a geologic repository operations area unless it has filed an application with the Commission and has obtained construction authorization as provided in this part. Failure to comply with this requirement shall be grounds for denial of a license.

#### § 60.4 Communications.

Except where otherwise specified, all communications and reports concerning the regulations in this part and applications filed under them should be addressed to the Director of Nuclear Safety and Safeguards, U.S. Nuclear Regulatory Commission, Washington, D.C. 20555. Communications, reports, and applications may be delivered in person at the Commission's offices at 1717 H Street, NW, Washington, D.C., or 7915 Eastern Avenue, Silver Spring, Maryland.

#### § 60.5 Interpretations.

Except as specifically authorized by the Commission, in writing, no interpretation of the meaning of the regulations in this part by any officer or employee of the Commission other than a written interpretation by the General Counsel will be considered binding upon the Commission.

#### § 60.6 Exemptions.

The Commission may, upon application by the Department, any interested person, or upon its own initiative, grant such exemptions from the requirements of the regulations in this part as it determines are authorized by law, will not endanger life or property or the common defense and security, and are otherwise in the public interest.

### Subpart B—Licenses

#### Preapplication Review

##### § 60.11 Site characterization report.

(a) As early as possible after commencement of planning for a particular geologic repository operations area, and prior to site characterization, the Department shall submit to the Director a site characterization report. The report shall include (1) A description of the site(s) to be characterized; (2) a description of the site characterization program including extent of planned excavations, plans for in situ testing, investigation activities which may affect the ability of the site to isolate wastes, and provisions to control any adverse, safety-related impacts from site characterization

including appropriate quality assurance programs; (3) the criteria used to select candidate areas; (4) the methods by which the site(s) was selected for characterization; (5) identification of the location of alternative media and on which DOE intends to conduct characterization for which DOE anticipates submitting subsequent characterization reports; (6) a description of the decision process by which the site(s) was selected for characterization, including the means used to obtain public and State views during selection; and (7) any issues related to the site selection, alternative candidate areas or sites, or design of geologic repository operations areas which the Department wishes the NRC staff to review. The Department may include multiple sites in a single site characterization report. Also included shall be a description of the research and development activities being conducted by the Department which deal with the waste forms which may be considered appropriate for the sites to be characterized, including research planned or underway to evaluate the performance of such waste forms.

(b) The Director shall cause to be published in the Federal Register a notice that the information submitted under paragraph (a) of this section has been received and that a staff review of that information has begun. The notice shall identify the site(s) selected for site characterization and alternate areas considered by the Department and shall advise that consultation may be requested by State and local governments in accordance with § 60.5.

(c) The Director shall make available a copy of the above information at the Public Document Room. The Director also shall transmit copies and the published notice of receipt thereof to the Governor and legislature of the State and to the chief executive of the municipality in which a site to be characterized is located (or if it is not located within a municipality, then to the chief executive of the county) and to the Governors of any contiguous States.

(d) The Director shall prepare a draft site characterization analysis which shall discuss the items cited in paragraph (a) of this section. The Director shall publish a notice of availability of the draft site characterization analysis and request comment in the Federal Register. Copies shall be made available at the Public Document Room.

(e) A reasonable period, not less than 60 days, shall be allowed for comment on the draft site characterization analysis. The Director shall then prepare a final site characterization analysis

which shall take into account comments received and any additional information acquired during the comment period. Included in the final site characterization analysis shall be either an opinion by the Director that he has no objection to the Department's site characterization program, if such an opinion is appropriate, or specific objections of the Director to the Department's proceeding with the site characterization of the named site(s). In addition, the Director may make specific recommendations to the Department on the matters pertinent to this section.

(f) Neither issuance of a final site characterization analysis nor the opinion of no objection by the Director shall constitute a commitment to issue any authorization or license or in any way affect the authority of the Atomic Safety and Health Commission, the Atomic Safety and Licensing Appeal Board, Atomic Safety and Licensing Boards, other presiding officers, or the Director, in any proceeding under Subpart G of Part 2 of this chapter. If the Department prepares an environmental impact statement with respect to site characterization activities proposed for a particular site, it should consider NRC's site characterization analyses before publishing its final environmental impact statement with respect to site characterization activities proposed for that particular site.

(g) During site characterization, the Department should inform the Director by semiannual report of the progress of the site characterization and waste form research and development including schedules as appropriate. During this time, NRC staff should be permitted to visit the site(s) and observe excavations, borings, and in situ tests as they are done. Inasmuch as these site characterization activities could have adverse impact upon site safety, failure by the Department to involve the Commission in the manner described here and to accommodate the recommendations of the Director could result in denial of the subsequent license application.

(h) The Director may respond from time to time in writing to the Department, expressing his current views on questions raised in the semiannual reports referred to above. Comments received from States in accordance with § 60.61 shall be considered by the Director in formulating his views. All correspondence between the Department and the NRC including the reports cited in paragraph (g) of this section shall be placed in the Public Document Room.

(i) The activities described in paragraphs (a) through (h) of this section

constitute informal conference between a prospective applicant and the staff, as described in § 2.101(a)(1) of this chapter, and are not part of a proceeding under the Atomic Energy Act of 1954, as amended.

#### License Applications

§ 60.21 Content of application.

(a) An application shall consist of general information and a safety analysis report. An environmental report shall be prepared in accordance with Part 51 of this chapter and shall accompany the application. Any Restricted Data or National Security Information shall be separated from unclassified information.

(b) The general information shall include:

(1) A general description of the proposed geologic repository identifying the proposed site of the geologic repository operations area, the general character of the proposed activities, and the basis for the exercise of licensing authority by the Commission.

(2) Proposed schedules for construction, receipt of waste, and emplacement of wastes at the proposed geologic repository operations area.

(3) A certification that the Department will provide at the geologic repository operations area such safeguards as it requires at comparable surface facilities (of the Department) to promote the common defense and security.

(c) The safety analysis report shall include:

(1) A description and analysis of the site at which the proposed geologic repository operations area is to be located with appropriate attention to those features that might affect facility design. The assessment shall contain an analysis of the geology, hydrology, geochemistry, and meteorology of the site and the major design structures, systems, and components, both surface and subsurface, that bear significantly on the suitability of the geologic repository for disposal of radioactive waste. It will be assumed that operations at the geologic repository operations area will be carried out at the maximum capacity and rate of receipt of radioactive waste stated in the application.

(2) A description and discussion of the design, both surface and subsurface, of the geologic repository operations area including: (i) the principal design criteria and their relationship to any general design criteria promulgated by the Commission, (ii) the design bases and the relation of the design bases to the principal design criteria, (iii) information relative to materials of construction

(including geologic media, general arrangement, and approximate dimensions), and (iv) codes and standards that the Department proposes to apply to the design and construction of the geologic repository operations area.

(3) A description and analysis of the design and performance requirements for structures, systems, and components of the geologic repository which are important to safety. The analysis and evaluation shall consider (i) the margins of safety under normal conditions and under conditions that may result from anticipated operational occurrences, including those of natural origin; (ii) the adequacy of structures, systems, and components provided for the prevention of accidents and mitigation of the consequences of accidents, including those caused by natural phenomena; and (iii) the effectiveness of engineered and natural barriers, including barriers that may not be themselves a part of the geologic repository operations area, against the release of radioactive material to the environment.

(4) A description of the quality assurance program to be applied to the design, fabrication, inspection, construction, testing, and operation of the structures, systems, and components of the geologic repository operations area important to safety.

(5) A description of the kind, amount, and specifications of the radioactive material proposed to be received and possessed at the geologic repository operations area.

(6) An identification and justification for the selection of those variables, conditions, or other items which are determined to be probable subjects of license specifications. Special attention shall be given to those items that may significantly influence the final design.

(7) A description of the program for control and monitoring of radioactive effluents and occupational radiation exposures to maintain such effluents and exposures in accordance with the requirements of Part 20 of this chapter.

(8) A description of the controls that the applicant will apply to restrict access and to regulate land use at the geologic repository operations area and adjacent areas.

(9) Plans for coping with radiological emergencies at any time prior to completion of decommissioning of the geologic repository operations area.

(10) A description of the nuclear material control and accounting program.

(11) A description of design considerations that are intended to facilitate decommissioning of the facility.

(12) A description of plans for retrieval and alternate storage of the radioactive wastes should the geologic repository prove to be unsuitable for disposal of radioactive wastes.

(13) An identification of those structures, systems, and components of the geologic repository, both surface and subsurface, which require research and development to confirm the adequacy of design. For systems, structures, and components important to safety, the Department shall provide a detailed description of the programs designed to resolve safety questions, including a schedule indicating when these questions will be resolved.

(14) The following information concerning activities at the geologic repository operations area:

(i) The organizational structure of the Department, offsite and onsite, including a description of any delegations of authority and assignments of responsibilities, whether in the form of regulations, administrative directives, contract provisions, or otherwise.

(ii) Managerial and administrative controls to be used to ensure safety.

(iii) Identification of key positions which are assigned responsibility for safety at and operation of the geologic repository operations area.

(iv) Personnel qualifications and training requirements.

(v) Plans for startup activities and startup testing.

(vi) Plans for conduct of normal activities, including maintenance, surveillance, and periodic testing of structures, systems, and components of the geologic repository operations area.

(vii) Plans for decommissioning.

(viii) Plans for any uses of the geologic repository operations area for purposes other than disposal of radioactive wastes, with an analysis of the effects, if any, that such uses may have upon the operation of the structures, systems, and components important to safety.

§ 60.22 Filing and distribution of application.

(a) An application for a license to receive and possess source, special nuclear, or byproduct material in a geologic repository at a site which has been characterized, and an accompanying environmental report, and any amendments thereto, shall be filed in triplicate with the Director and shall be signed by the Secretary of Energy or his authorized representative.

(b) Each portion of such application and environmental report and any amendments shall be accompanied by 30 additional copies. Another 120 copies shall be retained by the Department for distribution in accordance with written

instructions from the Director or his designee.

(c) The Department shall, upon notification of the appointment of an Atomic Safety and Licensing Board, update the application and environmental report, eliminating all superseded information and serve them as directed by the board. In addition, at that time the Department shall serve one such copy on the Atomic Safety and Licensing Appeal Panel. Any subsequent amendments to the application or environmental report shall be served in the same manner.

(d) At the time of filing of an application and environmental report, and any amendments thereto, one copy shall be made available in an appropriate location near the site of the proposed geologic repository (which shall be a public document room, if one has been established) for inspection by the public and updated as amendments to the application or environmental report are made. This updated copy shall be produced at any public hearing on the application for use by any parties to the proceeding.

(e) The Department shall certify that the updated copies of the application and environmental report, as referred to in paragraphs (c) and (d) of this section, contain the current contents of such documents submitted in accordance with the requirements of this part.

§ 60.23 Elimination of repetition.

In its application, environmental report, or site characterization report, the Department may incorporate by reference information contained in previous applications, statements, or reports filed with the Commission: *Provided*, That such references are clear and specific and that copies of the information so incorporated are available in each public document room.

§ 60.24 Updating of application and environmental report.

(a) The application and environmental report shall be as complete as possible in the light of information that is reasonably available at the time of submission.

(b) The Department shall update its application in a timely manner so as to permit the Commission to review, prior to issuance of a license:

(1) Additional geologic, hydrologic, meteorologic and other data obtained during construction.

(2) Conformance of construction of structures, systems, and components with the design.

(3) Results of research programs carried out to confirm the adequacy of designs.

(4) Other information bearing on the Commission's issuance of a license, which was not available at the time of construction authorization.

(c) The Department shall update its environmental report in a timely manner so as to permit the Commission to review, prior to issuance of a license, the environmental impacts of any substantial changes in the activities proposed to be carried out or any significant new information regarding the environmental impacts of activities previously proposed.

Construction Authorization

§ 60.31 Construction authorization.

Upon review and consideration of an application and environmental report submitted under this part, the Commission may authorize construction if it determines:

(a) *Safety*: That there is reasonable assurance that the types and amounts of wastes described in the application can be received, possessed, and disposed of in a repository of the design proposed without unreasonable risk to the health and safety of the public. In arriving at this determination, the Commission shall consider whether:

(1) The Department has described the proposed geologic repository including but not limited to (i) the geologic, geochemical and hydrologic characteristics of the site; (ii) the kinds and quantities of radioactive waste to be received, possessed, stored, and disposed of in the geologic repository; (iii) the principal architectural and engineering criteria for the design of the geologic repository operations area; (iv) construction procedures which may affect the capability of the geologic repository to serve its intended function; and (v) features or components incorporated in the design for the protection of the health and safety of the public.

(2) The site and design comply with the criteria contained in Subparts E and F of this part.

(3) The Department's quality assurance program complies with the requirements of Subpart G of this part.

(4) The Department's personnel training program complies with the criteria contained in Subpart H of this part.

(5) The Department's emergency plan complies with the criteria contained in Subpart I of this part.

(6) The Department's proposed operating procedures to protect health and to minimize danger to life or property are adequate.

(b) *Common defense and security*: That there is reasonable assurance that

the activities proposed in the application will not be inimical to the common defense and security.

(c) *Environmental*: That, after weighing the environmental, economic, technical and other benefits and considering reasonable alternatives, the action called for is issuance of the construction authorization.

**§ 60.32 Conditions of construction authorization.**

(a) A construction authorization shall include such conditions as the Commission finds to be necessary to protect the health and safety of the public, the common defense and security, or environmental values.

(b) The Commission may, at its discretion, incorporate provisions requiring the Department to furnish periodic or special reports regarding: (1) progress of construction, (2) any site data obtained during construction which are not within the predicted limits upon which the facility design was based, (3) any deficiencies in design and construction which, if uncorrected, could adversely affect safety at any future time, and (4) results of research and development programs being conducted to resolve safety questions.

(c) A construction authorization shall be subject to the limitation that a license to receive and possess source, special nuclear, or byproduct material at the geologic repository operations area shall not be issued by the Commission until (1) the Department has updated its application as specified in § 60.24, and (2) the Commission has made the findings stated in § 60.41.

**§ 60.33 Amendment of construction authorization.**

(a) An application for amendment of a construction authorization shall be filed with the Commission fully describing any changes desired and following as far as applicable the format prescribed for construction authorization applications.

(b) In determining whether an amendment of a construction authorization will be approved, the Commission will be guided by the considerations which govern the assurance of the initial construction authorization to the extent applicable.

**License Issuance and Amendment**

**§ 60.41 Standards for issuance of a license.**

A license to receive and possess source, special nuclear, or byproduct material at a geologic repository operations area may be issued by the Commission upon finding that:

(a) Construction of the geologic repository operations area has been substantially completed in conformity with the application as amended, the provisions of the Atomic Energy Act, and the rules and regulations of the Commission. Construction may be deemed to be substantially complete for the purposes of this paragraph if the construction of (1) surface and interconnecting structures, systems, and components, and (2) any underground storage space required for initial operation are substantially complete.

(b) The activities to be conducted at the geologic repository operations area will be in conformity with the application as amended, the provisions of the Atomic Energy Act and the Energy Reorganization Act, and the rules and regulations of the Commission.

(c) The issuance of the license will not be inimical to the common defense and security and will not constitute an unreasonable risk to the health and safety of the public.

(d) All applicable requirements of Part 51 have been satisfied.

**§ 60.42 Conditions of license.**

(a) A license issued pursuant to this part shall include such conditions, including license specifications, as the Commission finds to be necessary to protect the health and safety of the public, the common defense and security, and environmental values.

(b) Whether stated therein or not, the following shall be deemed conditions in every license issued:

(1) The license shall be subject to revocation, suspension, modification, or amendment for cause as provided by the Atomic Energy Act and the Commission's regulations.

(2) The Department shall at any time while the license is in effect, upon written request of the Commission, submit written statements to enable the Commission to determine whether or not the license should be modified, suspended or revoked.

(3) The license shall be subject to the provisions of the Atomic Energy Act now or hereafter in effect and to all rules, regulations, and orders of the Commission. The terms and conditions of the license shall be subject to amendment, revision, or modification by reason of amendments to or by reason of rules, regulations, and orders issued in accordance with the terms of the Atomic Energy Act.

(c) Each license shall be deemed to contain the provisions set forth in section 183 b-d, inclusive, of the Atomic Energy Act, whether or not these provisions are expressly set forth in the license.

**§ 60.43 License specifications.**

(a) A license issued under this part shall include license conditions derived from the analyses and evaluations included in the application, including amendments made before a license is issued, together with such additional conditions as the Commission finds appropriate.

(b) License conditions shall include items in the following categories:

(1) Restrictions as to the physical and chemical form and radioisotopic content of radioactive waste.

(2) Restrictions as to size, shape, and materials and methods of construction of radioactive waste packaging.

(3) Restrictions as to the location, size, configuration, construction and physical characteristics (e.g., physical, chemical and thermal properties) of the storage medium.

(4) Restrictions as to the amount of waste permitted per unit volume of storage space considering the physical characteristics of both the waste and the storage medium.

(5) Requirements relating to test, calibration, or inspection to assure that the foregoing restrictions are observed.

(6) Controls to be applied to restrict access and to avoid disturbance to the geologic repository operations area and adjacent areas.

(7) Administrative controls, which are the provisions relating to organization and management, procedures, recordkeeping, review and audit, and reporting necessary to assure that activities at the facility are conducted in a safe manner and in conformity with the other license specifications.

**§ 60.44 Changes, tests, and experiments.**

(a)(1) Following authorization to receive and possess source, special nuclear, or byproduct material at a geologic repository operations area, the Department may (i) make changes in the geologic repository operations area as described in the application, (ii) make changes in the procedures as described in the application, and (iii) conduct tests or experiments not described in the application, without prior Commission approval, provided the change, test, or experiment involves neither a change in the license conditions incorporated in the license nor an unreviewed safety question.

(2) A proposed change, test, or experiment shall be deemed to involve an unreviewed safety question if (i) the likelihood of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the application is increased, (ii) the possibility of an accident or malfunction

of a different type than any previously evaluated in the application is created, or (iii) the margin of safety as defined in the basis for any license condition is reduced.

(b) The Department shall maintain records of changes in the geologic repository operations area and of changes in procedures made pursuant to this section, to the extent that such changes constitute changes in the geologic repository operations area or procedures as described in the application. Records of tests and experiments carried out pursuant to paragraph (a) of this section shall also be maintained. These records shall include a written safety evaluation which provides the basis for the determination that the change, test, or experiment does not involve an unreviewed safety question. The Department shall prepare annually or at such shorter intervals as may be specified in the license, a report containing a brief description of such changes, tests, and experiments, including a summary of the safety evaluation of each. The Department shall furnish the report to the appropriate NRC Regional Office shown in Appendix D of Part 20 of this chapter with a copy to the Director of Inspection and Enforcement, U.S. Nuclear Regulatory Commission, Washington, D.C. 20555. Any report submitted pursuant to this paragraph shall be made a part of the public record of the licensing proceedings.

#### § 60.45 Amendment of license.

(a) An application for amendment of a license may be filed with the Commission fully describing the changes desired and following as far as applicable the format prescribed for license applications.

(b) In determining whether an amendment of a license will be approved, the Commission will be guided by the considerations that govern the issuance of the initial license, to the extent applicable.

#### § 60.46 Particular activities requiring license amendment.

(a) Unless expressly authorized in the license, an amendment of the license shall be required with respect to any of the following activities:

(1) Any action which would make emplaced high-level radioactive waste irretrievable or which would substantially increase the difficulty of retrieving such emplaced waste.

(2) Dismantling of structures.

(3) Removal or reduction of controls applied to restrict access to or to avoid

disturbance of the geologic repository operations area or adjacent areas.

(4) Destruction or disposal of records required to be maintained under the provisions of this part.

(5) Any substantial change to the design or operating procedures from that specified in the license.

#### (6) Decommissioning.

(b) An application for such an amendment shall be filed, and shall be reviewed, in accordance with the provisions of § 60.45.

#### Decommissioning

##### § 60.51 License amendment to decommission.

(a) The Department shall submit an application to amend the license prior to decommissioning. The application shall consist of an update of the license application and environmental report submitted under §§ 60.21 and 60.22 including:

(1) A description of the program for post-decommissioning monitoring of the geologic repository.

(2) A detailed description of the measures to be employed—such as land use controls, construction of monuments, and preservation of records—to regulate or prevent activities that could impair the long-term isolation of emplaced waste within the geologic repository and to assure that relevant information will be preserved for the use of future generations.

(3) Geologic, hydrologic, and other site data that are obtained during the operational period pertinent to the long-term isolation of emplaced radioactive wastes.

(4) The results of test, experiments, and any other analyses relating to backfill of excavated areas, shaft sealing, waste interaction with emplacement media, and any other tests, experiments, or analysis pertinent to the long-term isolation of emplaced wastes within the geologic repository.

(5) Any substantial revision of plans for decommissioning.

(6) Other information bearing upon decommissioning that was not available at the time a license was issued.

(b) The Department shall update its environmental report in a timely manner so as to permit the Commission to review, prior to issuance of an amendment, substantial changes in the decommissioning activities proposed to be carried out or significant new information regarding the environmental impacts of such decommissioning.

##### § 60.52 Termination of license.

(a) Following decommissioning, the Department may apply for an amendment to terminate the license.

(b) Such application shall be filed and will be reviewed, in accordance with provisions of § 60.45 and this section.

(c) A license shall be terminated when the Commission finds with respect to the geologic repository:

(1) That the final disposition of radioactive wastes has been made in conformance with the Department's plan, as amended and approved as part of the license.

(2) That the final state of the geologic repository operations area site conforms to the Department's decommissioning plans, as amended and approved as part of the license.

(3) That the termination of the license is authorized by law, including sections 57, 62, and 81 of the Atomic Energy Act as amended.

#### Subpart C—Participation by State Governments

##### § 60.61 Site review.

(a) Upon publication in the Federal Register of a notice that the Department has selected a site for site characterization, in accordance with § 60.11(b), and upon the request of a State, the Director shall make available NRC staff to consult with representatives of State and local governments to keep them informed of the Director's view on the progress of site characterization and to notify them of any subsequent meetings or further consultations with the Department.

(b) Requests for consultation shall be made in writing to the Director.

(c) The Director also shall respond to written questions or comments from the States, as appropriate, on the information submitted by the Department in accordance with § 60.11 of this part. Copies of such questions or comments and their responses shall be made available in the Public Document Room and shall be transmitted to the Department.

##### § 60.62 Filing of proposals for State participation.

(a) Consultation under § 60.61 may include, among other things, a review of applicable NRC regulations, licensing procedures, potential schedules, and the type and scope of State activities in the license review permitted by law. In addition, staff shall be made available to cooperate with the State in developing proposals for participation by the State.

(b) States potentially affected by siting of a geologic repository operations area at a site that has been selected for characterization may submit to the Director a proposal for State participation in the review of the site

characterization report and/or license application. A State's proposal to participate may be submitted at any time prior to docketing of an application or up to 120 days thereafter.

(c) Proposals for participation in the review shall be signed by the Governor of the State submitting the proposal and shall at a minimum contain the following information:

(1) A general description of how the State wishes to participate in the review, specifically identifying those issues which it wishes to review.

(2) A description of material and information which the State plans to submit to the NRC staff for consideration in the review. A tentative schedule referencing steps in the review and calendar dates for planned submittals should be included.

(3) A description including funding estimates of any work that the State proposes to perform for the Commission, under contract, in support of the review.

(4) A description of State plans to facilitate local government and citizen participation.

(5) A preliminary estimate of the types and extent of impacts which the State expects should a geologic repository be located at the site in question.

(d) If the State desires educational or information services (seminars, public meetings) or other actions on the part of NRC, such as establishing additional public document rooms or employment or exchange of State personnel under the Intergovernmental Personnel Act, these shall be included with the proposal.

#### § 60.63 Approval of proposals.

(a) The Director shall arrange for a meeting between the representatives of the State and the NRC staff to discuss any proposal submitted under § 60.62(b), with a view to identifying any modifications that may contribute to the effective participation by the State.

(b) Subject to the availability of funds, the Director shall approve all or any part of a proposal, as it may be modified through the meeting described above, if he determines that:

(1) The proposed activities are suitable in light of the type and magnitude of impacts which the State may bear, and

(2) The proposed activities (i) will enhance communications between NRC and the State, (ii) will contribute productively to the license review, and (iii) are authorized by law.

(c) The decision of the Director shall be transmitted in writing to the Governor of the originating State. A copy of the decision shall be made available at the Public Document Room.

If all or any part of a proposal is rejected, the decision shall state the reason for the rejection.

(d) A copy of all proposals received shall be made available at the Public Document Room.

#### Subpart D—Records, Reports, Tests, and Inspections

##### § 60.71 Records and reports.

(a) The Department shall maintain such records and make such reports in connection with the licensed activity as may be required by the conditions of the license or by rules, regulations, and orders of the Commission as authorized by the Atomic Energy Act and the Energy Reorganization Act.

(b) Records of the receipt, handling, and disposition of radioactive waste at a geologic repository operations area shall contain sufficient information to assure traceability from the shipper through all phases of storage and disposal.

(c) The Department shall promptly notify the Commission of each deficiency found in the site characteristics, and design and construction of the geologic repository which, were it to remain uncorrected, could (1) be a substantial safety hazard, (2) represent a significant deviation from the design criteria and design bases stated in the application, or (3) represent a significant deviation from the conditions stated in the terms of a construction authorization or the license, including license specifications. The notification shall be in the form of a written report, copies of which shall be sent to the Director and to the appropriate Nuclear Regulatory Commission Inspection and Enforcement Regional Office listed in Appendix A to Part 73 of this chapter.

##### § 60.72 Tests.

The Department shall perform, or permit the Commission to perform, such tests as the Commission deems appropriate or are necessary for the administration of the regulations in this part. These may include tests of (a) radioactive waste, (b) the geologic repository including its structures, systems, and components, (c) radiation detection and monitoring instruments, and (d) other equipment and devices used in connection with the receipt, handling, or storage of radioactive waste.

##### § 60.73 Inspections.

(a) The Department shall allow the Commission to inspect the premises of the geologic repository operations area

and adjacent areas to which the Department has rights of access.

(b) The Department shall make available to the Commission for inspection, upon reasonable notice, records kept by the Department pertaining to activities under this part. (Amendments to all parts issued pursuant to citations of authority presently codified or, in the case of 10 CFR Part 60, as proposed to be codified.)

Dated at Washington, D.C. this 3rd day of December, 1979.

For the U.S. Nuclear Regulatory Commission.

John C. Hoyle,  
Assistant Secretary of the Commission.

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