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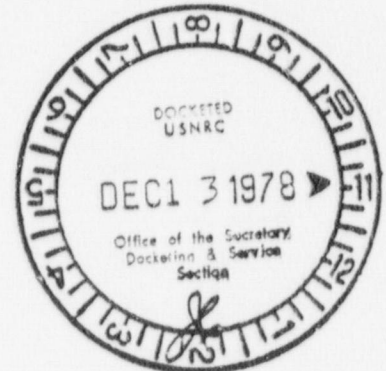
DOCKET NUMBER

PROPOSED RULE

9
PR-72(43FR46309)

November 15, 1978

Mr Russell E L Stanford
Nuclear Regulatory Commission
Fuel Process Systems Standards Branch
Division of Engineering Standards
Office of Standards Development
Washington, D C 20555



Dear Mr Stanford

The attached notice on the proposed spent fuel storage regulation 10 CFR Part 72 was reviewed as requested by your letter of October 27, 1978.

The comments are self explanatory, however we would suggest that in 72.15, sub 13 some acceptable dose criteria with a defined limit be included. The license duration is 20 years in 72.32, however Nuclear Power Plants are 40 years. Is there a specific reason for limiting spent fuel storage to 20 years?

Russ, I will look forward to seeing you at the next ANSI meeting.

Very truly yours

L. W. Keith
L W Keith

LWK NH

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Administrative Control 12/13/78

- (b) Address of applicant;
 (c) Description of business or occupation of applicant;
 (d) (1) If applicant is an individual, state citizenship and age.

TABLE I.—Required licensing documents

Section	Document	No. of copies
72.11	License application	25
72.15	Safety analysis report	70
72.19	Emergency plan	25
72.20	Environmental report	150
72.34	Report of installation and procedures changes	12
72.36	Application for transfer of license	25
72.38	Application for termination of license	25
72.39	Amendment to license	25
72.75	Quality assurance program	25
72.81(a)	Physical security plan ¹	10
72.81(c)	Safeguards contingency plan	10
72.94	Personnel training program	10

¹ Plus 3 signed originals.

² Plus 1 signed original.

³ Physical protection plans should be held exempt from public disclosure pursuant to 10 CFR 2.790(d).

(2) If applicant is a partnership, state name, citizenship and address of each partner and the principal location where the partnership does business.

(3) If applicant is a corporation or an unincorporated association, state:

(i) The State, where it is incorporated or organized and the principal location where it does business;

(ii) The names, addresses and citizenship of its directors and principal officers.

(4) If the applicant is acting as an agent or representative of another person in filing the application, identify the principal and furnish information required under this paragraph with respect to such principal.

(e) Information sufficient to demonstrate to the Commission the financial qualifications of the applicant to carry out, in accordance with the regulations in this chapter, the activities for which the license is sought. This information shall state the place at which the activity is to be performed, the general plan for carrying out the activity and the period of time for which the license is requested. The information shall show that the applicant either possesses the necessary funds or that the applicant has reasonable assurance of obtaining the necessary funds, or that by a combination of the two, the applicant will have the necessary funds available to cover the following:

(1) Estimated construction costs.

(2) Estimated operating costs over the planned life of the installation.

(3) Estimated shutdown and decommissioning costs and the necessary financial arrangements prior to licensing that will insure shutdown, decom-

missioning and decommissioning will be carried out.

§ 72.15 Contents of application: Technical information.

Each application for a license under this part shall include: (a) Safety Analysis Report describing the proposed installation (ISFSI) for the storage of spent fuel, including how the ISFSI will be operated. The minimum information to be included in this report shall consist of the following:

(1) A description and safety assessment of the site on which the ISFSI is to be located, with appropriate attention to features affecting installation design. Such assessment shall contain an analysis and evaluation of the major structures, systems and components of the ISFSI which bear on the suitability of the site assuming that the installation will be operated at the ultimate capacity¹ which is contemplated by the applicant.

(2) A description and discussion of the ISFSI structures with special attention to design and operating characteristics, unusual or novel design features, and principal safety considerations.

(3) The preliminary design of the installation including:

(i) The principal design criteria for the installation pursuant to subpart F of this part, with any additions to or departures from the general design criteria identified and justified.

(ii) The design bases and the relation of the design bases to the principal design criteria;

(iii) Information relative to materials of construction, general arrangement, and approximate dimensions, sufficient to provide reasonable assurance that the final design will conform to the design bases with an adequate margin for safety; and

(iv) Applicable codes and standards.

(4) A preliminary analysis and evaluation of the design and performance of structures, systems, and components of the ISFSI with the objective of assessing the risk to public health and safety resulting from operation of the installation and including determination of

(i) The margins of safety during normal operations and expected operational occurrences during the life of the installation and

(ii) The adequacy of structures, systems, and components provided for the prevention of accidents and the mitigation of the consequences of accidents, including natural and man-made phenomena and events.

(5) The means for controlling and limiting occupational radiation expo-

¹ "Capacity" in this context refers to the quantity in metric tons of spent fuel, its contained radioactivity (curies) and heat generation rate (Btu/hr).

sure to meet the objective of as low as is reasonably achievable and the limits shown in Part 20 of this chapter.

(6) The features of ISFSI design and operating modes to minimize waste volumes generated by the facility.

(7) An identification and justification for the selection of those variables, conditions, or other items which are determined as the result of the safety analysis and evaluation to be probable subjects of license conditions, with special attention given to those items which may significantly influence the final design of the installation.

(8) A preliminary plan for the applicant's organization, training of personnel pursuant to § 72.91, and conduct of operations, including the planned managerial and administrative controls system.

(9) An identification of those structures, systems or components of the installation, if any, which require research and development to confirm the adequacy of their design; an identification and description of the research and development program which will be conducted to resolve any safety questions associated with such structures, systems or components; and a schedule of the research and development program showing that such safety questions will be resolved prior to the initial receipt of materials to be stored at the ISFSI.

(10) The technical qualifications of the applicant to engage in the proposed activities as required by § 72.17.

(11) A description of the applicant's plans for coping with emergencies as required by § 72.19.

(12) A description of the equipment to be installed to maintain control over radioactive materials in gaseous and liquid effluents produced during normal operations and expected operational occurrences. The description shall identify the design objectives, and the means to be employed, for keeping levels of radioactive material in effluents to unrestricted areas as low as reasonably achievable and within the limits shown in Part 20 of this chapter. The description shall include:

(i) An estimate of:

(A) The quantity of each of the principal radionuclides expected to be released annually to unrestricted areas in liquid effluents produced during normal ISFSI operations; and

(B) The quantity of each of the principal radionuclides expected to be released annually to unrestricted areas in gaseous effluents produced during normal ISFSI operations.

(ii) A general description of the provisions for packaging, storage, and disposal of solid wastes containing radioactive materials resulting from treat-

ment of gaseous and liquid effluents and from other sources.

(iii) A description of the equipment and procedures for the maintenance and use of equipment installed in radioactive waste systems.

(iv) Prior to the first receipt of material to be stored, a revised estimate of the information required in paragraph (a)(12)(i)(B) of this section if the expected releases and exposures differ significantly from the estimates submitted in the application.

(v) A description of the measures taken to control the quantities of radioactive wastes for offsite disposal to as low as reasonably achievable levels.

(13) A conservative analysis of the potential dose to an individual off site from accidents and natural phenomena which result in (i) criticality, (ii) release of radioactive materials to the site and surrounding areas, and (iii) the loss of water for water pool type installations. The calculations of dose from any pathway may be limited to direct exposure, inhalation or ingestion occurring within 24 hours of the postulated event.

(b) Periodically during design and normally prior to construction, with final completion at least 90 days prior to the planned receipt of materials to be stored, and annually thereafter, the safety analysis report (SAR) will be updated and submitted to the Commission for approval and shall include the following:

(1) All current information relating to applicable site evaluation factors, including the results of environmental monitoring programs.

(2) A description and analysis of changes in the structures, systems, and components of the installation, with emphasis upon performance requirements, the bases, with technical justification therefor, upon which such requirements have been established, and the evaluations required to show that safety functions will be accomplished.

(i) Such items as the instrumentation and control systems, ventilation and filter systems, electrical systems, auxiliary and emergency systems, and radioactive waste handling systems shall be discussed insofar as they are pertinent.

(3) A final analysis and evaluation of the design and performance of structures, systems, and components taking into account any pertinent information developed since the submittal of the license application.

(c) A description of the quality assurance program to be applied to the design, fabrication, construction, testing and operation of the safety-related structures, systems, and components of the ISFSI as required by § 72.75. The description of the quality assurance program shall identify safety-re-

lated structures, systems and components and shall show how the criteria in Appendix B of Part 50 of this chapter will be applied to such identified safety-related components, systems, and structures in a manner consistent with their importance to safety.

(d) A description of the detailed security measures for physical protection, including design features and a plan as required by § 72.81.

(e) A description of the planned program covering preoperational testing and initial operations.

(f) The decommissioning plan required under § 72.18 of this part.

§ 72.16 Contents of application: license conditions.

Each application under this part shall include proposed license conditions in accordance with the requirements of § 72.33 together with a summary statement of the bases or reasons for such conditions.

§ 72.17 Contents of application: technical qualifications.

An application under this part shall include:

(a) The technical qualifications, including training and experience of the applicant and members of the applicant's staff to engage in the proposed activities in accordance with the regulations in this chapter.

(b) A description of the personnel training program required under Subpart I of this part.

(c) A commitment by the applicant to have an adequate complement of trained and certified plant personnel prior to the receipt of spent fuel for storage.

§ 72.18 Decommissioning Plan, Including its Financing.

(a) Each application under this part shall include a decommissioning plan which shall contain information on proposed procedures for the disposal of radioactive material, decontamination of the site and other procedures, sufficient to provide reasonable assurance that the dismantling and disposal of the ISFSI at the end of its useful life will not be inimical to the common defense and security or to the health and safety of the public. This plan shall include an evaluation of the ISFSI design features which have been selected to facilitate to the maximum degree reasonable its decontamination and decommissioning at the end of its useful life. This plan shall include provisions for minimizing the amount of solid, airborne and liquid wastes generated during decommissioning.

(b) The decommissioning plan will include the financial arrangements for its execution.

§ 72.19 Emergency plan.

An application to store spent fuel in an ISFSI, will include plans for coping with emergencies. These plans shall contain the elements that are listed in Section IV, "Content of Emergency Plans," of Appendix E to Part 50 of this chapter.

§ 72.20 Environmental report.

Each application for a license under this part shall be accompanied by an Environmental Report which meets the requirements of Part 51 of this chapter; 150 copies are required.

Subpart I—Issuance and Conditions of licenses

§ 72.31 Issuance of Licenses.

(a) The Commission will issue a license under this part and updated prior to the receipt of spent fuel in such form and containing such conditions and limitations as it deems appropriate or necessary upon a determination that an application for a license meets the standards and requirements of the act and regulations, that the applicant's proposed site, installation and equipment for the storage of spent fuel are adequate to protect health and minimize danger to life or property; and that:

(1) The proposed site complies with the requirements of § 72.66.

(2) The applicant is qualified by reason of training and experience to conduct the operation covered by the regulations in this part.

(3) The applicant's personnel training program complies with Subpart I of this part.

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

(5) The applicant is financially qualified to engage in the proposed activities in accordance with the regulations in this part.

(6) The applicant's physical security plan complies with § 72.81.

(7) The applicant's quality assurance plan complies with § 72.75.

(8) The applicant's emergency plan complies with § 72.19.

(9) The applicant's decommissioning plan and its financing pursuant to § 72.18 are adequate.

(10) Before commencement of construction of the installation, the Director of the Office of Nuclear Materials Safety and Safeguards or his designee, has concluded, or after a public hearing, the Atomic Safety and Licensing Board has made the finding that on the basis of information filed and evaluations made pursuant to Part 51 of this chapter, and after weighing the environmental, economic, technical and other benefits against environmental costs and considering available alternatives, that the action called for

is the issuance of the proposed license, with any appropriate conditions to protect environmental values. Commencement of construction prior to such conclusion or finding may be grounds for denial of a license to store spent fuel in an ISFSI.

(11) No license will be issued by the Commission to any person within the United States if the Commission finds that the issuance of such a license would be inimical to the common defense and security or would constitute an unreasonable risk to the health and safety of the public.

§ 72.32 Duration of license; renewal.

Each license will be issued for a fixed period of time to be specified in the license but not to exceed 20 years. Licenses may be renewed by the Commission upon expiration of that period, upon application of the licensee.

§ 72.33 License conditions.

(a) Each license issued under this part will include license conditions. The license conditions will be derived from the analyses and evaluations included in the safety analysis report, and amendments thereto, submitted pursuant to § 72.15, and from the proposed license conditions submitted by the applicant pursuant to § 72.16. The Commission may also include such additional license conditions as the Commission finds appropriate.

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

(1) *Functional and operating limits and monitoring instruments and limiting control settings.* (i) Functional and operating limits for an ISFSI are limits upon fuel handling and storage conditions which are found to be necessary to protect the integrity of the stored fuel and guard against excessive occupational exposures and the uncontrolled release of radioactive materials. (ii) Monitoring instruments and limiting control settings for an ISFSI are settings for alarms or mechanical devices related to those fuel handling and storage conditions having significant safety functions.

(2) *Limiting conditions.* Limiting conditions are the lowest functional capability or performance levels of equipment required for safe operation.

(3) *Surveillance requirements.* Surveillance requirements are requirements relating to tests, calibrations, and inspections to assure that the necessary integrity of required systems, components and the fuel in storage is maintained, that operation of the installation will be within the required safety limits, and that the limiting conditions required for safe storage will be met.

(4) *Design features.* Design features to be included are those features of

the installation such as materials of construction and geometric arrangements, which, if altered or modified, would have a significant effect on safety and are not covered in categories described in subparagraphs (1), (2), and (3) of this paragraph (c).

(5) *Administrative controls.* Administrative controls are the provisions relating to organization and management procedures, recordkeeping, review and audit, and reporting necessary to assure that the operations involved in the storage of spent fuel in an ISFSI are performed in a safe manner.

(c) In addition to the conditions described in paragraph (a) of this section, every license issued under this part shall be subject to the following conditions, whether stated therein or not:

(1) Neither the license, nor any right thereunder, shall be transferred, assigned, or disposed of in any manner, either voluntarily or involuntarily, directly or indirectly, through transfer of control of the license to any person, unless the Commission shall, after securing full information, find that the transfer is in accordance with the provisions of the Atomic Energy Act and give its consent in writing.

(2) The license shall be subject to revocation, suspension, modification, or amendment as provided in the Atomic Energy Act and Commission regulations, in accordance with the procedures provided by the Atomic Energy Act and Commission regulations.

(3) The licensee shall at any time before expiration of the license, upon request of the Commission, submit written statements, signed under oath or affirmation, to enable the Commission to determine whether or not the license should be modified, suspended, or revoked.

(4) Prior to the receipt of spent fuel for storage at an ISFSI, the licensee shall have in effect an NRC approved program covering the training and certification of ISFSI personnel which shall meet the requirements of subpart I of this part.

(5) The licensee shall not permit the manipulation of the safety-related equipment and controls of the installation by any one whom the licensee has not certified as being adequately trained to perform such manipulations.

(d) *Effluent controls.* Effluent controls are operating controls, including monitoring and testing controls and systems, and procedures required to keep releases of radioactive materials to unrestricted areas during normal operations and expected operational occurrences within the limits stated in EPA regulation, 40 CFR Part 190, "Environmental Radiation Protection

Standards for Nuclear Power Operations," as an upper limit. Each license authorizing the storage of spent fuels under this part will include license conditions that, in addition to requiring compliance with the limits and the as low as reasonably achievable provisions of part 20 of this chapter and the design objective included (or referenced) in paragraph (2) below, require:

(1) That operating procedures for control of effluents be established and followed and equipment installed in the radioactive waste system be maintained and used as to meet the requirements of 40 CFR Part 190 as established in the license conditions.

(2) The submission of a report to the Commission within 60 days after June 30 and December 31 of each year specifying the quantity of each of the principal radionuclides released to unrestricted areas in liquid and in gaseous effluents during the previous 6 months of operation, and such other information as may be required by the Commission to estimate maximum potential annual radiation doses to the public resulting from effluent releases. If quantities of radioactive materials released during the reporting period are significantly above design objectives, the report shall cover this specifically. On the basis of such reports and any additional information the Commission may obtain from the licensee or others, the Commission may from time to time require the licensee to take such action as the Commission deems appropriate.

(e) Maintenance of safeguards contingency plan procedures pursuant to § 72.81(d).

§ 72.34 Changes, tests and experiments.

(a)(1) The holder of a license issued under this part may (i) make changes in the installation as described in the safety analysis report, (ii) make changes in the procedures as described in the safety analysis report, and (iii) conduct tests or experiments not described in the safety analysis report, without prior Commission approval, unless the proposed change, test or experiment involves a change in the license conditions incorporated in the license or an unreviewed safety question.

(2) A proposed change, test, or experiment shall be deemed to involve an unreviewed safety question (i) if the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the safety analysis report may be increased; or (ii) if a possibility for an accident or malfunction of a different type than any evaluated previously in the safety analysis report may be created; or (iii) if the margin of safety as

posals, and providing for the termination of the license upon completion of such procedures in accordance with any conditions specified in the order.

AMENDMENT TO LICENSE AT REQUEST OF HOLDER AND REVOCATION, SUSPENSION AND MODIFICATION OF LICENSES

§ 72.39 Application for amendment to license.

Whenever a holder of a license desires to amend the license, an application for an amendment shall be filed with the Commission, fully describing the changes desired, and the reasons for such changes, and following as far as applicable the form prescribed for original applications.

§ 72.40 Issuance of amendment.

In determining whether an amendment to a license will be issued to the applicant, the Commission will be guided by the considerations which govern the issuance of initial licenses to the extent applicable and appropriate.

§ 72.41 Revocation, suspension and modification of licenses

(a) The terms and conditions of all licenses are subject to amendment, revision, or modification by reason of amendments to the Atomic Energy Act of 1954, or by reason of rules, regulations or orders issued in accordance with the Act or any amendments thereto.

(b) Any license may be revoked, suspended or modified in whole or in part for any material false statement in the application or any statement of fact required under Section 182 of the Act, or because of conditions revealed by such application or statement of fact or any report, record, or inspection or other means which would warrant the Commission to refuse to grant a license on an original application, or for failure to operate an installation in accordance with the terms of the license, or for violation of, or failure to observe any of the terms and conditions of the Act, or any regulation, license or order of the Commission.

(c) Upon revocation, suspension or modification of a license, the Commission may immediately cause the retaking of possession of all special nuclear material contained in spent fuel held by the licensee. In cases found by the Commission to be of extreme importance to the national defense and security, or to the health and safety of the public, the Commission may take possession of any spent fuel held by the licensee prior to any of the procedures provided under sections 551-558 of title 5 of the United States Code.

§ 72.42 Backfitting.

(a) The Commission may require the backfitting of an ISFSI if it finds that such action will provide substantial, additional protection which is required for either occupational or public health and safety. As used in this section, "backfitting" means a change in storage conditions which may require the addition, elimination or modification of structures, systems or components of an ISFSI after the license has been issued.

(b) Nothing in this section shall be deemed to relieve a holder of a license from compliance with the rules, regulations, or orders of the Commission.

(c) The Commission may at any time require a holder of a license to submit such information concerning the backfitting or the proposed backfitting of the installation as it deems appropriate.

Subpart D—Records, Reports, Inspections and Enforcement

§ 72.51 Material balance, inventory, and records requirements for stored materials.

(a) Each licensee shall keep records showing the receipt, inventory (including location), disposal, acquisition, and transfer of all spent fuel in storage regardless of its origin or method of acquisition.

(b) Each licensee shall conduct a physical inventory of all spent fuel in storage at intervals not to exceed 12 months or as otherwise directed by the Commission.

(c) Each licensee shall establish, maintain and follow written material control and accounting procedures which are sufficient to enable the licensee to account for the spent fuel in storage under license.

(d) Records of spent fuel in storage shall be kept in duplicate for as long as the spent fuel is in storage at an ISFSI. The duplicate set of records shall be kept at a separate location far enough removed from the original records so that a single event would not destroy both sets of records. Records of spent fuel transferred out of an ISFSI shall be preserved for a period of 5 years after the date of transfer.

§ 72.52 Reports of accidental criticality or loss of special nuclear material.

Each licensee shall report immediately to the Director of the appropriate Nuclear Regulatory Commission Inspection and Enforcement Regional Office by telephone, and telegram, or teletype, any case of accidental criticality and any loss of special nuclear material contained in spent fuel.

§ 72.53 Material Status Reports.

Each licensee shall complete and submit to the Commission Material

Status Reports on Form NRC-742, in accordance with printed instructions for completing the form, concerning special nuclear material contained in spent fuel possessed, received, transferred, disposed of or lost by the licensee. All such reports shall be made as of March 31 and September 30 of each year and shall be filed with the U.S. Department of Energy, P.O. Box E, Oak Ridge, Tennessee, 37830, within thirty (30) days after the end of the period covered by the report. The Commission may permit a licensee to submit Material Status Reports at other times when good cause is shown.

§ 72.54 Nuclear Material Transfer Reports.

Each licensee who transfers and each licensee who receives spent fuel shall complete and distribute a Nuclear Material Transaction Report on Form NRC-741, in accordance with printed instructions for completing the form, whenever he transfers or receives spent fuel. Each licensee who transfers spent fuel shall submit a copy of Form NRC-741 to the U.S. Department of Energy, P.O. Box E, Oak Ridge, Tennessee 37830, and three copies to the receiver of the material promptly after the transfer takes place. Each licensee who receives spent fuel shall submit a copy of Form NRC-741 to the Department of Energy and to the shipper of the material within 10 days after the spent fuel is received.

§ 72.55 Inspections and tests.

(a) Each licensee shall afford to the Commission at all reasonable times opportunity to inspect spent fuel in storage and the premises and installation wherein such spent fuel is stored.

(b) Each licensee shall make available to the Commission for inspection, upon reasonable notice, records kept by the licensee pertaining to his receipt, possession, or transfer of spent fuel.

(c) Each licensee shall perform, or permit the Commission to perform, such tests as the Commission deems appropriate or necessary for the administration of the regulations in this part, including tests of (1) spent fuel during handling and storage, (2) spent fuel handling and storage facilities, (3) radiation detection and monitoring equipment, and (4) other equipment used in connection with spent fuel storage.

§ 72.56 Maintenance of other records and reports.

(a) Each licensee shall maintain such records and make such reports in connection with the licensed activities as may be required by the conditions of the license or by the rules, regula-