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Analyses of Comments on 10 CFR Part 72

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INTRODUCTION

A proposed new regulation, 10 CFR Part 72, "Licensing Requirements for the Storage of Spent Fuel in an Independent Spent Fuel Storage Installation (ISFSI)," was published for comment in the Federal Register, October 6, 1978 (Vol. 43, No. 195, pages 46309-46321). In response to this request for comments, the NRC received seventy letters presenting the views of individuals, utility companies, government agencies, law firms, and other interested organizations.

All of these comments were considered with respect to improving and revising the final text of 10 CFR Part 72. This document presents the staff's analyses of these comments. Chapter I contains a summary discussion of major issues as listed in Table of Contents; Chapter II contains the staff discussion of individual comments.

To reduce repetition in Chapter II, similar comments were combined. The comments, and the staff discussions of the comments, are arranged according to the subject matter and applicable sections of the proposed new regulation as published. The source of each comment is identified by author and PDR number.

To further avoid repetition, revisions of the rule have not been repeated in individual discussions as a copy of the revised text of the rule with changes and additions underlined is provided in Appendix A, "Comparative Texts of the Proposed and Final Rule."

Appendix B contains copies of the individual comment letters received.

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CHAPTER I

SUMMARY DISCUSSION OF MAJOR ISSUES

General Subjects

1. Need for a Rule at this Time

There is a history of licensing the storage of spent fuel from nuclear power reactors in an away-from-reactor installation under 10 CFR Part 70, "Domestic Licensing of Special Nuclear Material," and this practice could be continued. The spent fuel receiving and storage facility at the Nuclear Fuel Services, Inc.-West Valley plant, which was built for the New York Atomic and Space Development Authority, was covered by a Part 70 license until it was incorporated into the NFS reprocessing plant license. The GE Morris Operation is licensed pursuant to 10 CFR Part 70 covering its present storage-only mode of operation. An application was submitted for licensing under Part 70 of spent fuel receiving and storage activities only at the AGNS-Barnwell reprocessing plant. No action is being taken on this application.

Some licensees and some NRC staff personnel recommended that if an independent spent fuel storage installation (ISFSI) were to be built on the site of an existing licensed reactor, its licensing should be covered by an amendment to the Part 50 facility license for the main plant. However, both 10 CFR Parts 70 and 50 lack specific requirements that are applicable to spent fuel storage in an ISFSI. Part 70 was written primarily to cover the possession of special nuclear material in connection with a manufacturing process such as fuel fabrication. Part 50 is designed to cover "production and utilization" facilities as defined by the Atomic Energy Act of 1954. Its orientation is to the design and operations of such facilities, not a static storage type of operation. (There is also a legal question on its applicability since an ISFSI is not included in the Acts' definition of production and utilization facility.)

In either case, the guidance needed by both a prospective applicant and the NRC staff is lacking on the specific requirements of spent fuel storage in

an ISFSI. Lacking specific requirements, licensing actions under either of these regulations must be done on ad hoc case-by-case basis at the risk of inconsistent evaluation and regulation.

Following the President's deferral of reprocessing of spent fuel, announced in April, 1977, came the general recognition that, regardless of future developments, spent fuel would have to be stored for a number of years prior to its ultimate disposition, and that the storage of spent fuel in an ISFSI would be a likely additional new step in the nuclear fuel cycle. The NRC expects a number of license applications covering this activity in the near future. Part 72 establishes specific regulatory requirements for this activity.

Fifty commenters showed a broad recognition of the need for the proposed rule at this time and endorsed the proposed action by the NRC, although exceptions were taken to some of the specific requirements. Twelve commenters were opposed to this new rule, and its promulgation at this time. For example, some of these commenters expressed a concern that the promulgation of a rule covering spent fuel storage would decrease pressures on both industry and government to solve the radioactive waste disposal problem. Others advocated a halt to the generation of spent fuel, i.e., shut down nuclear power plants, until the waste problem was solved.

It is the judgment of the Commission that the promulgation of Part 72, which is designed to codify certain existing regulatory practices and better define licensing requirements covering the storage of spent fuel in an ISFSI is consistent with the NRC objective of having applicable regulations in place to meet anticipated needs.

2. Purpose and Scope of Part 72

There are two aspects to this subject: (1) some commenters consider spent fuel to be a high-level waste and hence the licensing of spent fuel storage is de facto licensing of the temporary storage of high-level waste, and (2) technically, high-level wastes may require temporary storage in a facility like an ISFSI to allow for further radioactive decay prior to placement in a repository.

Part 72 is limited in scope to the temporary storage (up to 20 years with renewal at the option of the Commission) of spent fuel and radioactive materials associated with spent fuel storage in facilities specifically designed

for this purpose. The purpose of Part 72 is to prescribe the regulatory requirements for this activity.

The Commission has stated that spent fuel from power reactors is high-level waste for the purposes of Section 202(3) of the Energy Reorganization Act.[1] Thus, an ISFSI that is operated by the Department of Energy must be licensed by the NRC.

3. De Facto Support of Nuclear Power

Some commenters interpreted the promulgation of Part 72 as de facto support by the Commission of the continuing production of electricity by nuclear power (and its resultant waste generation) without a national waste management policy. The Commission's intent in promulgating Part 72 is simply to have applicable regulations in place for the protection of the health and safety of the public and of the environment if applications are received for the storage of spent fuel in an ISFSI.

The Commission's position on the subject of waste management was addressed in the FEDERAL REGISTER notice on 10 CFR Part 51, published on August 2, 1979 (44 FR 45362) promulgating a final rule which sets out in Table S-3 -Table of Uranium Fuel Cycle Environmental Data, revised environmental impact values for the uranium fuel cycle including waste disposal and in the notice of proposed rulemaking on 10 CFR Parts 50 and 51. "Storage and Disposal of Nuclear Wastes," published on October 25, 1979 (44 FR 61372).

4. Adequacy of Technology Base

A number of commenters questioned the adequacy and availability of the technology base for the development of a rule covering extended spent fuel storage. In fact, there is a very broad technology base for both wet and dry modes of spent fuel storage for the contemplated lifetime of an ISFSI.

Water basins are simple structures, that have been used since the mid-1940s for the handling, transfer, and storage of spent fuel and other highly radioactive sources such as ^{60}Co and for the shielding of research reactors, initially at government plants, later at commercial reactors. The engineering practices and procedures involved in their design and construction are well

[1]Statement by Dr. Joseph R. Hendrie, then Chairman of the Nuclear Regulatory Commission before the Committee on Energy and Natural Resources, U.S. Senate, May 10, 1979.

established. The operation of a water basin is also straightforward, the water chemistry is well established and the maintenance of high quality basin water is readily achievable. These water conditions are essentially non-corrosive to both the materials involved in the basin itself and the components of spent fuel assemblies from commercial light water reactors. Both experience and theoretical analyses of basin storage conditions indicate that spent fuel can be stored under water for several decades without serious degradation.

Although dry storage has not been used for commercial light water reactor (LWR) fuels, dry storage has been used for a number of years for other types of spent fuels and other highly radioactive materials, particularly at the Idaho Nuclear Engineering Laboratory. Dry storage is used for spent MAGNOX fuels at the Wylfa Power Station in Wales. Canada is developing dry storage for CANDU reactor fuels, and the U.S. Department of Energy (DOE) is evaluating the storage of high burnup LWR fuels both in concrete and steel canisters similar to the Canadian design and in near-surface dry-well storage at the Nevada Test Site. Dry storage technology and experience both here and abroad has been published in NUREG/CR-1233, "Dry Storage of Spent Nuclear Fuel."

5. Is Spent Fuel Storage a Low Risk Operation?

Some commenters questioned that spent fuel storage is a low risk operation as stated in the preamble to the proposed rule.

Radiological risks to the public result from a release of radioactive materials and their dispersal to the environment. Once in place, spent fuel storage is a static operation and during normal operations, the conditions necessary for the release and dispersal of significant quantities of radioactive materials are not present. There are no high temperatures or pressures present during normal operations or even under design basis accident conditions to cause the release and dispersal of radioactive materials. This is primarily due to the low heat generation rate of spent fuel with more than one year of decay before storage in an ISFSI (required by the rule) and with the low inventory of volatile radioactive materials readily available for release to the environs. The long-lived and potentially biologically hazardous materials present in spent fuel are tightly bound up in the fuel materials and are not readily dispersible. The short-lived volatile nuclides, such as ^{131}I, which could be released by the rupture of fuel assemblies due to accidents or other causes are no longer present in aged spent fuel.

However, it is essential to maintain safe storage conditions. For water basins, this means that the pool structure, storage racks and possibly other items such as crane tiedowns, must be designed to withstand the maximum potential natural phenomena, including earthquakes, to which the ISFSI may be exposed. For this reason, the rule stresses the selection of sound sites and designing for the most severe natural phenomena reported for the site and surrounding area. The same considerations are applicable to ISFSI designs other than water basins.

6. Stringency of Some Provisions of Rule

Some commenters interpreted some of the requirements of Part 72 to be more stringent than those for reactors, particularly in the areas of siting criteria, general design criteria, decommissioning, and a broader application of quality assurance programs. It is not so much that the requirements for an ISFSI are more stringent than those for a power reactor, but that the differences reflect the different roles of these facilities in the overall nuclear power industry.

Because the role of an ISFSI is quite different from that of a power reactor, the siting criteria are not comparable. However, the emphasis in Part 72 on selecting the best site from available alternative sites has been retained in the final rule. Because of different requirements, the general design criteria for an ISFSI are not the same nor, as revised, more stringent than those for a power reactor. The requirement that an applicant present a decommissioning plan and design the complex for its ultimate decommissioning is a new requirement in NRC regulations. The application of the quality assurance plan to cover items such as the physical security system is considered good practice.

7. Arbitrary Requirements, Ambiguous Wording

Some commenters expressed concern over what they considered to be arbitrary requirements and ambiguous wording in the proposed rule.

Some people in the nuclear industry consider the storage of aged spent fuel to be such a low risk operation that the regulatory requirements covering this activity should be minimal. The NRC agrees that this is a low risk operation provided the conditions of storage are adequate. The requirements of Part 72 are based on definable needs to ensure such adequacy.

The final rule has been revised to eliminate any ambiguity of wording, particularly in the definition of terms used.

8. Rule Needs More Specificity

Some commenters suggested that more specificity in the wording of the requirements of the rule would be desirable.

NRC regulations define general requirements. Regulatory guides, national standards and NRC position papers identify acceptable methods of meeting specific requirements. The NRC does not specify in its regulations the means for meeting the requirements of a regulation because this would put the NRC in the position of licensing its own designs.

Subpart A - General Provisions

1. Purpose and Scope, Coverage of Dry Storage and Existing Facilities.

A number of commenters suggested that the purpose and scope be written in more definitive language and specifically broadened to cover dry storage and other radioactive materials associated with spent fuel storage, recognizing that this was intended in the proposed rule.

The wording was changed for improved clarity in response to these suggestions. In addition, paragraph 72.2(c) was added to the scope to clarify the fact that the rule covers both wet and dry storage. Other appropriate changes were made in the body of the rule to further clarify this point.

The Department of Energy (DOE), in particular, suggested that the coverage of existing spent fuel storage facilities be more explicit. In response, paragraph 72.2(d) was added to require existing facilities to meet the requirements of Part 72 except for the site selection criteria in Subpart E.

2. Types of Fuel Covered and Decay versus Fuel Characteristics

Comments were received suggesting that the coverage of the rule be broadened to cover other than LWR spent fuel, e.g., CANDU reactor fuel that might be received from abroad. In response, the definition of spent fuel was broadened to cover all types of power reactor fuels. Obviously an ISFSI would have to be designed to accommodate the types of spent fuel to be stored and any restrictions on fuel types could be a subject of license conditions.

Some commenters questioned the one-year decay stipulation, preferring this requirement be expressed in terms of specific power, burnup, or other pertinent

fuel characteristics. In practice, specific power is important only for freshly discharged fuel as the power level of the reactor immediately prior to shutdown is the controlling factor for the concentration of short-lived radionuclides present in spent fuel. The long-lived radionuclides present in spent fuel are proportional to burnup; but within the limits of expected burnups, this is not a significant factor for spent fuel aged more than one year.

The one-year decay stipulation has been retained as this is the basis for the requirements of Part 72, i.e., the presumption is made that no short-lived radionuclides are present and the concentrations of volatile radioactive materials are very substantially reduced. Any facility for temporary storage of fuel irradiated in a power reactor which has not undergone a year's decay, would be licensed under Part 50 rather than Part 72.

3. Prevention of Sunk Costs

Some commenters expressed concern over allowing the procurement or manufacture of components of an ISFSI in advance of a license being issued. Their concern was based on the possibility that prior investment by an applicant could be so large that this might be prejudicial to NRC licensing actions, even though such expenditures (sunk costs) are at an applicant's own risk. Such concerns are not applicable to an ISFSI as the major equipment items, such as cranes and spent fuel handling equipment, do not represent a large increment in the cost of an ISFSI.

4. The Use of New Site-related Terms

One subject of particular interest to many commenters was the use in Part 72 of new site-related terms ("controlled area," "neighboring area," and "region") rather than the more familiar site-related terms used in 10 CFR Parts 20 and 100.

Several considerations went into the development of new terms for site-related areas around an ISFSI. While, the terminology used in 10 CFR Part 20, specifically 'restricted' and 'unrestricted' areas, applies to all nuclear facilities, it is limited to radiation protection concerns associated with normal operations and the means used by the licensee to control access to areas of potential radiation exposure. With the advent of "as low as is reasonably achievable" objectives and environmental radiation protection standards promulgated by the Environmental Protection Agency in 40 CFR Part 190, the term

"unrestricted" used in 10 CFR Part 20 is too narrow in meaning for areas beyond the boundaries of the licensee's property.

The current terminology used in 10 CFR Part 100, specifically 'exclusion area' and 'low population zone', is applicable to postulated radiological consequences from potential accidents in test and power reactors to individuals beyond the site boundary. Its applicability is limited to specific types of nuclear reactors, not other nuclear installations, and to well-defined reference dose guidelines and accompanying risks associated with such nuclear reactors. The terminology used in 10 CFR Part 100 is too restrictive in meaning for use at multi-purpose sites and was never intended to be used for other than reactor sites. The use of these terms from 10 CFR Part 100 for an ISFSI is inappropriate.

Furthermore, the "Report of the Siting Policy Task Force," NUREG-0625, has recommended several changes in the basic criteria of 10 CFR Part 100. Therefore, using the current terminology of 10 CFR Part 100 in 10 CFR Part 72 is not appropriate due to the potential changes that may be made in Part 100. For example, it is proposed to change the term (and definition) of "low population zone" to "emergency planning zone" (EPZ). This terminology was used in the proposed revision of Appendix E (now titled "Emergency Planning and Preparedness for Production and Utilization Facilities") to 10 CFR Part 50, that was published for comment on December 19, 1979. Consistent with this proposed revision, the term "neighboring area" in 10 CFR Part 72 has been changed to "ISFSI - Emergency Planning Zone" (ISFSI-EPZ) because these are comparable in concept. The size of an ISFSI-EPZ is expected to be much smaller than that of a reactor EPZ.

5. Definition of Temporary Storage

In response to comments, a definition of temporary storage has been added as paragraph 72.3(x). Temporary storage, in the context of Part 72, means "interim storage of spent fuel for a limited time only, pending its ultimate disposal."

6. Definition of the term "Independent"

The meaning of the term "Independent" as used in Part 72 when applied to an ISFSI that is located on the site of another licensed facility, was the subject of a number of comments and considerable staff discussion.

An ISFSI may be a free-standing, away-from-reactor, fully independent type of facility or it may be located on the site of an existing facility such as a nuclear power plant. Such a location could have the economic benefit of sharing some utilities, services and personnel between the ISFSI and an existing facility on the site.

The rule is applicable to either type of location and an ISFSI may be provided with services from an existing facility and still be considered "independent." The use of services from an existing facility (i.e., electricity, makeup water, waste treatment, etc.) is allowable provided the Commission finds there is reasonable assurance that the construction and operation of the ISFSI will provide adequate protection to the health and safety of the public from the standpoint of both facilities involved.

Any physical connection between facilities must be evaluated, but any penetration of the reactor storage pool walls will be considered a conclusive showing that the ISFSI is not "independent" and hence is not within the scope of Part 72 and should be covered by licensing action under Part 50.

Subpart B - License Application, Form, and Contents

1. Material versus Facility License

Some confusion and misunderstanding over the differences between a Part 70 "material" license and a Part 50 "facility" license was reflected by a number of commenters. Under Part 70, a licensee is authorized to receive title to, own, acquire, deliver, receive, possess, use, and transfer special nuclear material for a stated purpose, such as fuel manufacturing, to be carried out in an approved plant complex; however, the plant itself is not licensed although its operations may be regulated to assure adequate protection of operating personnel and public health and safety. Under Part 50, a licensee is authorized to transfer or receive in interstate commerce, manufacture, produce, transfer, acquire, possess or use any production and utilization facility, as defined by the Atomic Energy Act; the license covers the facility, not the material. The possession of fuel by a reactor licensee is covered under a Part 70 license, which is incorporated into the Part 50 license. The licensing of spent fuel storage in an ISFSI under Part 72 is a possession type of license; however, Part 72 includes requirements for an ISFSI that are conditions under which a license to possess spent fuel will be issued.

2. One License Application and One Safety Analysis Report

For some time the NRC has endeavored to simplify its regulations and licensing activities. Since spent fuel storage in an ISFSI is a simple operation, does not require a complex plant and is subject to few controversial technical issues, a one step licensing procedure requiring only one application and one SAR was adopted in Part 72. This one step licensing procedure was the subject of a number of comments. It is believed that the rewording of the text of the rule plus the responses to individual comments have clasified requirements. The one application/one SAR principle has been retained in Part 72.

However, it should be recognized that locating an ISFSI on a nuclear power plant site may require an amendment to the Part 50 license to take into account possible interactions with the ISFSI.

10 CFR Part 2 has been amended by adding a new paragraph which provides that an initial decision directing the issurance under Part 72 of an initial license for the construction and operation of an ISFSI shall not become effective until review by the Commission has been completed and that the Director of Nuclear Materials Safety and Safeguards shall not issue an initial license until expressly authorized by the Commission.

3. Accident Analyses

A number of comments addressed the subject of accident analyses. Particularly an apparent inconsistency between the 24 hours inhalation/ingestion dose addressed in paragraph 72.15(a)(13) and the 2 hours direct radiation dose used as a site evaluation factor in §72.67.

In response to those comments and upon further consideration paragraph 72.15(a)(13) was revised to require accident analyses to cover both immediate dose and long-term dose commitment based on the duration of the postulated event rather than on an arbitrary time limit. Accident criteria to be used in site evaluation were removed from §§72.65 and 72.67 and placed in a new §72.68 which addressed the criteria for establishing the controlled area for an ISFSI.

4. Decommissioning Plan

The requirement in Part 72 that the license application include a plan for decommissioning of the proposed ISFSI and the financial arrangements therefore were the subject of many comments. The reason for this requirement is that the decommissioning plan provides design input (see §72.76) and the basis for

the costs of decommissioning. Part 72 makes it a requirement that adequate financial arrangements to cover the cost of decommissioning should be made before a license is issued.

Although decommissioning of an ISFSI should require only the removal of surface contamination, the planning for decontamination and decommissioning is an essential element of design input. The principal value of a decommissioning plan being developed at the license application stage of an ISFSI project is that this plan demonstrates the extent to which the proposed ISFSI has been designed for decommissioning.

The provisions for financing the ultimate decommissioning of an ISFSI were also the subject of many comments reflecting that this is a problem yet to be resolved. This should not be a serious problem as the cost of decommissioning an ISFSI that is designed for decommissioning should be small compared to these costs for some other nuclear facilities.

5. Prequalification of Part 50 Licensees

Some commenters, particularly utilities, suggested that Part 50 licensees should be considered to be prequalified.

This suggestion was not adopted, although no serious difficulty is anticipated in the qualifications of a Part 50 licensee. A Part 50 licensee must satisfy the requirement in Part 72 that an applicant have an adequately trained staff committed to the design, construction and operation of the proposed ISFSI. The storage of spent fuel in an ISFSI is a low risk operation provided the ISFSI is designed, constructed and operated in accordance with required standards. A commitment to this effect on the part of an applicant is considered important.

6. Required Detail and Updating of the SAR

Questions were raised on the required detail in the SAR and its updating. The single license granted under Part 72 prior to the start of construction requires considerable detail in the license application, particularly in the SAR. There must be sufficient detail to:

(1) support the findings enumerated in §72.31 for the issuance of a license, and

(2) Serve as the bases for both the license conditions applicable to design and construction and the license conditions, including technical specifications, applicable to operations.

The wording has been changed throughout the rule to clarify this point.

Updating the SAR during the design and construction phase of the project is required. However, such updating is limited to an elaboration or modification of the information in an approved SAR. Any change involving an unreviewed safety question requires an amendment to the license. An annual updating after the ISFSI is built is required only if changes have been made. The annual updating will also address the significance of any changes to codes, standards, regulations, or regulatory guides which the licensee has committed to meeting that are applicable to the design, construction or operations of the ISFSI. Changes expected at an ISFSI complex after it is built are expected to be limited to support systems with only marginal safety significance. The updating requirement is comparable to the amendment to §50.71 of 10 CFR Part 50, commonly called the "FSAR Update Rule."

7. Content of Environmental Reports

The content of the environmental report required by §72.20 was the subject of a number of comments. The environmental report required for an ISFSI is limited to an evaluation of the environmental impact of the ISFSI on the region in which the site is located including the transportation that is involved. Discussions of generic issues covered by DOE and NRC generic environmental impact statements may be incorporated by reference.

Subpart C - Issuance and Conditions of Licenses

1. Provision for Public Hearings

A number of commenters expressed concern over the omission in the draft of Part 72 of any reference to public hearings or other provisions covering State and local participation in the licensing process. In accordance with the requirements of Section 189a of the Atomic Energy Act, as amended, which provides, in part that "... the Commission shall grant a hearing upon a request of any person whose interest may be affected by the proceeding...," the Office of Nuclear Material Safety and Safeguards has established the practice of publicizing proposed spent fuel storage licensing actions and holding public hearings on a

request by any person whose interest may be affected. A section based on the provisions of §§2.104 and 2.105 of 10 CFR Part 2 has been added to the rule. (§72.34).

2. Licensee Organization Limitations

A number of commenters expressed concern over what types of organizations should be granted a license under Part 72. They expressed concern over the need for long term continuity of the organization and its solvency and the funding for ultimate decommissioning of an ISFSI at the end of its useful life.

The NRC recognizes that this could be an important consideration. Obviously, it is not important for another government agency such as DOE. It is probably not too important for a utility that owns a nuclear power plant or for a major U.S. corporation. However, it could be a very important consideration for a corporation of limited resources and experience established for the specific purpose of owning and operating an ISFSI. An application from such an entity will be closely scrutinized on this point.

The NRC is in the process of reevaluating its policy on decommissioning. The plan for accomplishing this is described in NUREG-0436, Revision 1, "Plan for Reevaluation of NRC Policy on Decommissioning of Nuclear Facilities," December 1978. One element of the plan involves a study and evaluation by NRC staff of the alternatives for assuring the funding for decommissioning activities.

3. Does Renewal Provide for Permanent Storage?

Some commenters expressed concern over the possibility that the license renewal provision of the rule could develop into a permanent storage situation.

Part 72 is specifically designed to cover only interim or temporary storage of spent fuel. Permanent storage and/or disposal may require a completely passive system. Such systems will be more appropriately covered under the (Part 60 series) waste management regulations now under development.

Licenses under Part 70 were initially subject to an annual renewal. This has since been extended to a renewal period of five years. For the static type of activity of spent fuel storage in an ISFSI, a renewal period of 20 years is considered appropriate.

4. Justification for Backfitting

A number of commenters expressed concern over the section on backfitting. Their concerns included (1) the inclusion of reductions in occupational exposure as a basis for backfitting and (2) how and by whom backfitting is justified.

For the pool types of spent fuel storage with which industry is most familiar, occupational exposure levels can be just as important as the public exposure levels. Hence, the occupation exposure criterion was retained and environmental protection was added as a criterion in the revised rule.

As stated in §72.42(a), the Commission must make a finding that any backfitting ordered will provide substantial additional protection to the environment or occupational or public health and safety.

5. Applicability of Licen e Conditions

Some commenters raised questions on the content and applicability of license conditions, recognizing that license conditions are an important aspect of the single preconstruction license to be issued under Part 72. In response to these comments, the wording of §72.33 was changed to clarify the point that license conditions are applicable to design, construction and operational activ-'+.es. Since license conditions applicable to ISFSI operations are technical in nature, these have been identified by the more familiar term "Technical Specifications."

Subpart D - Records, Reports, Inspections and Enforcement

1. NRC Form 741

The wording of §72.54 was changed in response to suggestions that the Nuclear Material Transfer Report should not be completed until the contents of a shipping cask are verified.

Subpa.' E - Siting Criteria

1. At-Reactor versus Away-From-Reactor Siting

Positions on both sides of this subject were expressed by commenters. Some favored restricting the siting of ISFSIs to reactor sites only with the thought that this might reduce perceived transportation risks and keep pressure on reactor owners to help solve the waste management problem. Others favored away-from-reactor siting, perceiving this to be safest solution even though transportation might be increased.

Also, some commenters interpreted the promulgation of Part 72 as reflecting an NRC bias favoring away-from-reactor siting. This conclusion is not correct. The NRC is not aware of any compelling reasons generally favoring either at-reactor or away-from-reactor siting of an ISFSI. There are many factors to be considered in each situation and in the licensing actions involved; accordingly, the rule permits either.

2. Criteria for Establishing the Controlled Area, Neighboring Area* and Region as Applied to the Site of an ISFSI

A number of commenters expressed the need for criteria for establishing the controlled area, the neighboring area and the region for an ISFSI as these terms are used in Part 72 and that there was a potential conflict of terms in the proposed rule. In response to these comments, more definitive criteria have been incorporated into the pertinent section of the rule and clarifying changes in the text and definitions have been made.

Another concern with the implementation of these defined areas for an ISFSI is the possible conflict in terminology for an ISFSI located on the same site with a nuclear power reactor licensed under 10 CFR Parts 50 and 100 requirements.

Part of this concern appears due to a misunderstanding and the impression that the controlled area for an ISFSI is the same as the exclusion area for a reactor and that the neighboring area (since changed to ISFSI-EPZ) for an ISFSI is the same as the low population zone for a reactor. In concept, these areas are similar but the bases for their establishment are different. The controlled area for an ISFSI is not the same as the exclusion area for a reactor because the design basis accidents are different. Reactor accidents involve a potential release of radioactive materials, including short-lived species such as ^{131}I. Design basis accidents of concern at an ISFSI primarily involve direct radiation from exposure to the spent fuel rather than releases of radioactive materials. The areas requiring control or protective action measures for the protection of the public are quite different and hence using different terminology for each avoids confusion.

The four site-related terms and their definitions, i.e., site, controlled area, neighboring area (now ISFSI-EPZ), and region, establish each of the

*The term "neighboring area" has been changed to ISFSI-EPZ.

geographical areas and the interrelationship that would exist between these areas and the need to protect public health and safety and the environment. The site means the real property on which the ISFSI is located. The controlled area, which may or may not be the same as the site, has the purpose of defining licensee control for meeting regulatory licensing requirements. The controlled area, in most cases, will be enclosed by some physical barrier such as a fence, to provide the needed control of activities within the area. Beyond the controlled area, the licensee does not necessarily exercise authority over activities.

The ISFSI-Emergency Planning Zone (ISFSI-EPZ) is that area in the immediate vicinity of an ISFSI upon which local and State governments should base their radiological response plans. The requirement to define a neighboring area in the proposed 10 CFR Part 72, in which State and local governments could take protective action in the event of an emergency, is comparable in concept to the emergency planning zones for reactors. The term ISFSI-EPZ has been adopted to differentiate this zone and its requirements from those of an EPZ for a reactor.

The regions around an ISFSI site will vary in geographical area and location depending upon the design basis external event being evaluated to determine its impact on the ISFSI or the impact of an ISFSI on the population. A region has the purpose of defining the area within which such an event can have an impact on the public health and safety or environment. This impact must be assessed from the consequences postulated for the design basis events evaluated.

3. Dose Limits for Normal Operations and Accidents

A number of commenters addressed the subject of dose limits for normal operations and accidents. Although spent fuel storage is not specifically identified as a fuel cycle operation in 40 CFR Part 190, "Environmental Radiation Protection Standards for Nuclear Power Operations," the dose limits specified in this regulation are used in Part 72. Section 72.67 was rewritten to better clarify the requirements on effluents and direct radiation during normal operations and anticipated occurrences.

The accident dose limit of 5 rems was placed in a new §72.68 that defines the criteria for establishing a controlled area for an ISFSI. The 2-hour criterion was deleted; the controlling design basis accident for the specific ISFSI covered in the application is to be evaluated. The 5 rem cumulative exposure

limit is derived from protective actions recommended by EPA for projected doses to populations for planning purposes (see Table 1).

The reference to 24 hours in paragraph 72.15(a)(13) was deleted; the requirements for the accident analysis section of the SAR was changed to call for the evaluation of a dose commitment due to the event that would take into account the total dose from a single exposure as well as dose reduction due to protective action.

In response to comments on the applicability of Appendix I to 10 CFR Part 50 and Part 100 to an ISFSI, Appendix I is applicable only to light-water-cooled power reactors and Part 100 is applicable only to power and test reactors. Neither of these regulations is applicable to an ISFSI.

4. Geological and Seismological Investigations

In the proposed rule, the geological and seismological investigation requirements for an ISFSI site were based on the reasoning that it should be possible to select sound sites for the few ISFSIs expected to be built. Seismologically, a sound site was considered one having potential ground motion of (much) less than 0.25 g from an earthquake with a return period of 500 years. This earthquake potential could be determined on a probabilistic basis; i.e., read from seismic zonation maps such as those published by the U.S. Geological Survey.[2] Uncertainties in such determinations could be offset by overdesign.

This use of probabilistic techniques was considered appropriate as a site selection criterion; it was not intended to be used for determining the design earthquake for structures. Assuming a sound site as defined above, the use of a standard design earthquake of 0.25 g (which has a return period that is much greater than 500 years) was considered conservative and adequate to offset uncertainties in an evaluation of a specific site on a probabilistic basis.

However, it was not possible to obtain a consensus among experts in the field on this approach. It was generally agreed that probabilistics techniques are adequate to determine potential seismicity on a regional basis, but these techniques are not yet adequately developed for application to a specific site.

As an alternative, the proposed rule allowed a site specific "g" value to be determined by procedures of Appendix A to Part 100, "Seismic and Geologic

[2]Such as Algermissen and Perkins, USGS, Open File Report 76-416, 1976, "A Probabilistic Estimate of Maximum Acceleration in Rock in the Contiguous United States."

Table 1. Recommended protective actions to avoid whole body and thyroid dose for exposure to a gaseous plume.(a)

Projected Dose (Rem) to the Population	Recommended Actions(b)	Comments
Whole body <1 Thyroid <5	.No protective action required. .State may issue an advisory to seek shelter and await further instructions or to voluntarily evacuate. .Monitor environmental radiation levels.	Previously recommended protective actions may be reconsidered or terminated
Whole body 1 to <5 Thyroid 5 to <25	.Seek shelter and wait further instructions. .Consider evacuation particularly for children and pregnant women. .Monitor environmental radiation levels. .Control access.	
Whole body 5 and above Thyroid 25 and above	.Conduct mandatory evacuation of populations in the predetermined area .Monitor environmental radiation levels and adjust area for mandatory evacuation based on these levels .Control access.	Seeking shelter would be an alternative if evacuation were not immediately possible.
Projected Dose (Rem) to Emergency Team Workers		
Whole body 25 Thyroid 125	.Control exposure of emergency team members to these levels except for lifesaving missions. (Appropriate controls for emergency workers, include time limitations, respirators, and stable iodine)	Although respirators and stable iodine should be used where effective to control dose to emergency team workers, thyroid dose may not be a limiting factor for lifesaving missions.
Whole body 75	.Control exposure of emergency team members performing lifesaving missions to this level. (Control of time of exposure will be most effective.)	

(a) This table summarizes the information contained in EPA 520/1-75-001, "Manual of Protection Action Guides and Protective Actions for Nuclear Incidents," September, 1975.

(b) These actions are recommended for planning purposes. Protective action decisions at the time of the incident must take into consideration the impact of existing constraints.

Siting Criteria for Nuclear Power Plants." This provision was in Subpart E, "Siting Criteria," and was intended for use in the evaluation of site characteristics, such as potential soil liquefaction, under earthquake conditions in areas of low potential seismic activity where the use of the standard design earthquake of 0.25 g was considered to be unduly restrictive.

The final rule makes a differentiation between the regions east and west of the Rocky Mountain Front, approximately 104° west longitude, and in the east makes a further differentiation between areas of low seismic potential and areas of known seismic potential, including, but not limited to, New Madrid, Mo.; Charleston, S.C.; and Attica, N.Y.

In areas of low seismic potential in the eastern United States, a proposed site will be considered acceptable if the results from onsite foundation and geological investigation, literature review, and regional geological reconnaissance show no unstable geological characteristics, soil stability problems, or potential for vibratory ground motion at the site in excess of an appropriate response spectrum anchored at 0.2 g. Unstable geological characteristics are defined as capable faults, surface affect potential, subsidence or collapse features, uplift or downwarp, active tectonism, or landslide or mudflow potential. In the western United States and in regions of known seismic potential in the eastern United States, the seismicity at a proposed site must be evaluated by the criteria and level of investigations of Appendix A of 10 CFR Part 100, "Seismic and Geologic Siting Criteria for Nuclear Power Plants."

The conservatism reflected both in the use of a standard design earthquake of 0.25 g for the design of structures at sites in areas of low seismic potential or the alternative of developing a site specific design earthquake by the very thorough investigation required by Appendix A of Part 100 is considered necessary and appropriate for the protection of an ISFSI which could contain a large inventory of spent fuel. The Commission is considering a revision of Appendix A to Part 100. However, it is anticipated that such revision would be in the nature of a clarification of its requirements and that the rule would still be applicable to ISFSI siting.

The principle of selecting sound sites has been retained in the final rule. For exarple, floodplains and sites that lie within the range of strong nearfield ground motion form earthquakes on larger capable faults should be avoided. This principle is consistent with the recommendations in the "Report of the Siting Policy Task Force," NUREG-0625.

5. The ISFSI Design Earthquake (ISFSI-DE)

The standardized ISFSI-DE of 0.25 g for massive structures, such as water basins or air-cooled canyons, has been retained in the final rule for use at sites east of the Rocky Mountain Front that are in areas of low potential seismic activity and hence do not need to be evaluated by the criteria and level of investigations of Appendix A of 10 CFR Part 100.

For sites west of the Rocky Mountain Front and in regions in the eastern United States of known seismic activity, the ISFSI-DE must be determined using the level of investigations and the criteria of Appendix A of 10 CFR Part 100, including the requirement that it be no less than 0.10 g.

For an ISFSI that is located on a power plants site which has been evaluated by the criteria and level of investigations of Appendix A of 10 CFR Part 100, the ISFSI-DE for structures shall be equivalent to the safe shutdown earthquake (SSE) for a nuclear power plant.

For ISFSIs which do not involve massive structures, such as dry storage casks and cannisters, the required design earthquake will be determined on a case-by-case basis until more experience is gained with the licensing of these types of units.

6. Probability Basis Used for Other Natural Phenomena

Some commenters wanted to go one step further and use a probabilistic basis for other natural phenomena such as tornadoes and floods. It has been common practice in the United States to use probable maximum events as design bases for radiological safety-related structures, systems, and components. When a frequency or probabilistic analysis of historical data is used to estimate such a low probability event, there is generally too much uncertainty to make the estimate useful for design purposes. Therefore, the probable maximum flood, for example, is estimated using deterministic hydrologic models which utilize meteorological input that approaches the upper limit possible for that location, taking into account existing climate and time of year.

7. Prequalification of Reactor Sites and Their Population Distributions

Some commenters recommended that reactor sites be prequalified with no site specific investigations required for an at-reactor siting of an ISFSI. While a site that has undergone in full safety and environmental review and has been approved as a Part 50 facility is likely to be acceptable for an

ISFSI, the pre-qualification of sites licensed under Part 50 without review in relation to the proposed design of the ISFSI does not seem prudent. Information on a specific site that has been submitted to the NRC in connection with other licensing actions need not be repeated in a Part 72 license application: It can be incorporated by specific references to previous submissions.

8. Transportation Considerations

A number of commenters considered that the transportation involved in spent fuel shipments to an ISFSI could be an important consideration in an evaluation of site suitability. This might be particularly true of a large installation such as the one under consideration by DOE. The Commission agrees and a new §72.70 has been added to the rule to specifically address this point.

Subpart F - General Design Criteria

1. Missile Protection

Part 72 requires protection from natural phenomena with the exception of tornado missiles which was questioned by some commenters. Tornado missile protection at reactors is of concern because rupture of recently discharged fuel at a reactor could cause the potential release of volatile short-lived radionuclides, particularly ^{131}I. Since the quantity of ^{131}I present in aged fuel at an ISFSI is reduced by a factor of 10^9 due to radioactive decay in the first year after discharge, the potential risk from the rupture of aged fuel is orders of magnitude lower for an ^{131}I release. The radionuclides which could potentially be released as a result of a tornado missile event are long-lived ^{85}Kr and ^{129}I. However, an accident evaluation in NUREG-0575,[3] Section 4.2.3.2 using conservative assumptions demonstrates that the consequences from a release of the nuclides attributable to a tornado missile would not be significant. Hence a requirement for protection from tornado missiles cannot be justified.

[3] NUREG-0575, "Final Generic Environmental Impact Statement on Handling and Storage of Spent Light Water Reactor Fuel," August 1979.

2. Protection of Aquifers

Some comments reflected uncertainity over the requirement for the protection of aquifers. The requirement is that measures must be taken to protect aquifers that are a major water resource.

3. Criticality

A number of commenters expressed concern over the prospect of a criticality in an ISFSI.

Criticality has been a subject of study and experiment in the nuclear industry and has received a lot of attention among nuclear engineers. The technology used in evaluating a given design for criticality potential is now highly developed with sophisticated computer codes. These codes have been bench-marked by actual measurements in various kinds of lattices and configurations of critical arrays of fuel elements. Because spent fuel storage racks are designed with a large safety factor to prevent criticality, the possibility of a significant criticality in an ISFSI is considered to be very remote.

4. Application of ALARA to Occupational Exposures

Some commenters objected to the application of the ALARA principle to the design of a facility as this might affect occupational exposures. These objections were based on two points:

(1) The thought that ALARA applied only to public health and safety, and

(2) Occupational exposures are controlled by administrative procedures.

In response, the ALARA concept does apply to occupational health protection as specified in paragraph 20.1(c) of 10 CFR Part 20. Furthermore, although it is recognized that occupational exposures can be controlled to some extent by administrative procedures, design provisions such as adequate shielding of sources and proper equipment layout to minimize exposures are also important factors in keeping occupational exposures to a minimum. It is often impossible to fully compensate for a poor design using administrative procedures. ALARA (and its predecessor ALAP) has been a cornerstone of radiation protection for many years and it has always been considered to apply to all types of exposure, occupational and public.

Subpart G - Quality Assurance

1. Broadened Applicability of Quality Assurance Program

Some commenters took objection to what they interpreted as a broadening of the QA program, e.g., coverage of operations and the physical security system.

It is the Commission's view that a licensee's QA program must cover not only design and construction, but all activities that are important to safety throughout the life of a facility.

Subpart I - Training and Certification of ISFSI Personnel

1. Certification versus Licensing of Operating Personnel

The safety of an ISFSI is achieved by static means, primarily its configuration. Its safety is not dependent on dynamic reactions to the manipulation of controls like a reactor. It is necessary that operating personnel be adequately trained, but not necessarily be licensed by the NRC. A certification by the licensee of an individual's proficiency to operate equipment is considered adequate.

CHAPTER II

DISCUSSION OF INDIVIDUAL COMMENTS

GENERAL COMMENTS

Need for a Rule at this time.

Comment No. 1

Twenty seven comment letters specifically expressed support for the proposed new rule, although not necessarily for all of its provisions. These letters are:

PDR No	Author
4	Connecticut Department of Environmental Protection
6	T. C. Buschbach, St. Louis University
7	Dames and Moore
10	M. Young (Allied-General Nuclear Services)
11	Ohio Power Siting Commission
14	Michigan Office of the Governor
15	Washington State Energy Office
23	R. Beaver (Oak Ridge National Laboratory)
34	American Society of Civil Engineers
36	Pennsylvania Bureau of Radiological Health
37	Middle South Services, Inc.
38	Bechtel National, Inc.
39	Mississippi Power and Light Company
40	Valore, McAllister, Aron and Westmoreland, representing Township of Lower Alloways Creek, N.J.
43	Connecticut Power Facility Evaluation Council
44	Gilbert/Commonwealth
45	Northeast Utilities
46	Nuclear Fuel Services, Inc.
47	General Electric Company
49	Louisiana Power and Light Company
55	Yankee Atomic Electric Company
57	New Jersey, Department of Environmental Protection
59	Arizona Nuclear Power Project
62	R. Neil (Individual)
63	Florida Power and Light Company
68	Edison Electric Institute
71	Allied Chemical Company (Idaho)

Twenty-three others considered to be generally supportive of the proposed rule are:

3	Nebraska Department of Environmental Control
9	C. F. Braun and Company
18	Public Utility Commission of Texas

19	Oklahoma State Department of Health
21	Kaiser Engineers
22	Exxon Nuclear Company, Inc.
27	Allied-General Nuclear Services
28	American Nuclear Society (ANS57.7)
41	American Nuclear Society (ANS2.19)
42	U.S. Department of Energy
48	Lowenstein, Newman, Reis, Axelrad and Toll, representing the Utility Waste Management Group
50	Shaw, Pittman, Potts and Trowbridge, representing the Radioactive Waste Management Group
51	U.S. Environmental Protection Agency
52	Ebasco Services, Inc.
53	Department of Water and Power, City of Los Angeles
54	Southern Company Services, Inc.
56	Commonwealth Edison Co.
60	Duke Power Company
65	U.S. Department of the Interior
67	Cleveland Electric Illuminating Company
69	Stone and Webster Engineering Corporation
70	Energy Office, State of New York
72	Tennessee Valley Authority

Comment No. 2

Ten comment letters expressed opposition to the proposed new rule, or in general, opposition to the practice of temporary storage of spent fuel until a national policy on its ultimate disposition is developed. These letters are:

PDR No.	Author
1	Women's International League for Peace and Freedom
2	D. Kell (individual)
12	Tennessee Valley Clean Energy Alliance
20	Sue Berg (individual)
30	M. & J. Neuhauser (individuals)
31	M. Chase (individual)
32	C. Hickerson (individual)
33	T. Clayton (individual)
35	North Shore Coalition for Safe Energy
66	Natural Resources Defense Council, Inc.

Discussion: On April 7, 1977, President Carter announced that the United States would indefinitely defer reprocessing of spent fuel while the United States and other countries evaluate alternative fuel cycles and processes that may reduce risks of nuclear weapons proliferation. In October 1977, a presidential policy on the interim management of spent fuel was announced. Under this policy, the Federal Government offered to take title to and provide interim storage for spent fuel from U.S. nuclear power reactors. In addition, under this policy, the Federal government offered to take title to and accept a limited amount of spent fuel from foreign sources, when such action would contribute to meeting U.S. nonproliferation goals. Thus, pending the development of national policy as to its ultimate disposition, the spent fuel discharged from U.S. power reactors must be stored, protected, and safeguarded.

A significant fraction of the United States electrical energy is produced from nuclear reactors. A lack of spent fuel storage capacity could result in the shutdown of reactors which could have severe adverse impact on the health and welfare of the public, particularly in certain regions of the United States that obtain a relatively large fraction of their electrical energy from nuclear power reactors.

By law, it is the Federal government that has the primary responsibility for providing for the permanent disposal of radioactive waste. Three Federal agencies are now involved in the planning and development of permanent waste disposal. The Environmental Protection Agency (EPA) is developing general criteria for the permanent disposal of radioactive wastes, the Nuclear Regulatory Commission (NRC) is developing regulations and guidance that will define the licensing requirements which implement the general criteria, and the Department of Energy (DOE) is developing the technology and system for disposal of radioactive wastes. The DOE is considering alternative sites and is developing methods for the permanent disposal of radioactive wastes in a Federal repository. However, the final plan and selection of sites await public acceptance. The U.S. Congress acts for the public on this matter and public acceptance is assumed when Congress authorizes and appropriates the funds for DOE to construct a Federal radioactive waste repository. Meanwhile, the spent fuel has to be stored until a decision is made as to its ultimate disposal. Therefore, it is in the nation's interest to develop licensing requirements for spent fuel storage now without waiting for the establishment of a national nuclear waste policy.

As shown by the Generic Environmental Impact Statement (GEIS) on Spent Fuel Storage,* an ISFSI has a low potential for creating environmental hazards and would not add significantly to the inventory of nuclear wastes. Because most spent fuel will continue to be stored in reactor pools, the construction of a few ISFSI's would not add significantly to the number of sites at which spent fuel is stored nor to the possibility of accidents involving spent fuel. It is expected that some of these will be built at existing reactor sites, but the addition of an ISFSI would not significantly add to the environmental impact of such operations. However, with respect to away-from-reactor storage, spent fuel has been shipped safely over long distances by truck and rail in the United States for more than 30 years. Such shipments are closely regulated by the NRC and the Department of Transportation to protect the public.

The storage of spent fuels under water has been practiced since the beginning of the nuclear age; the technology is not complex. "The potential for grave environmental and public health hazards, including the possibility of criticality" from spent fuel storage is very remote (see GEIS on spent fuel storage).

The radioactive wastes generated at an ISFSI, for the most part, will come from surface deposits on the spent fuel. The volume of radioactive waste from decontamination and water treatment operations will be a small fraction of the low-level wastes produced by the nuclear industry.

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* NUREG-0575, "Final Generic Environmental Statement on Handling and Storage of Spent Light Water Power Reactor Fuel."

The new regulation is intended to define the requirements for the design and construction of an ISFSI commensurate with the hazards and risks associated with the interim storage of aged spent fuel. In general, it is intended that such installations not be built in areas that are subject to extremes of natural phenomena such as floods and earthquakes.

This new regulation provides for the protection of the public health and safety associated with the temporary storage of spent fuel in an ISFSI. This regulation does not justify the construction of an ISFSI, but defines the licensing requirements for spent fuel storage in an ISFSI to ensure the protection of the public, regardless of whether such installations are built by industry or the government. The regulation is not a proposal to build ISFSIs; any proposed ISFSI would have to be justified on its own merits.

Comment No. 3. Exxon Nuclear Company, Inc. (22)

"Although the fuel is aged one year and the short half-lived radionuclides have decayed, we believe that the fuel does need protection from weather extremes since the more hazardous radionuclides still remain. The words "need not have a high degree of protection from weather extremes, tornadoes, or tornado generated missiles" should be better defined with this idea in mind.

On page FR 46310, the first full paragraph, in the last sentence, we suggest that the words 'containment' be replaced with 'confinement'."

Discussion: More care has been given to the choice, and precise meaning, of words in drafting the final regulation. Protection from natural phenomena is more accurately defined in (new) § 72.72.

Comment No. 4. Allied-General Nuclear Services. (27)

"One new definition which is required for a new 10 CFR 72 is that of an 'ISFSI.' As set forth in Section 72.3(j), the definition is both clear and precise. However, even this required new definition is placed in some jeopardy of misunderstanding by the possibly conflicting language used in the second paragraph of the Supplementary Information section (Federal Register page 46309, column 2) which refers to 'installations built specifically for this purpose that are not coupled to either a nuclear power plant or a fuel reprocessing plant.' If an installation meets the definition of Section 72.3(j) through capability of 'independent operation with all necessary supporting services,' then the implied restriction in the Supplementary Information section appears both unnecessary and unwarranted. That such implied restriction was not intended seems evident from not only Sections 72.71(4) and (5) but also from the transcript of the Commission's July 19, 1974 discussion concerning the establishment of off-site dose guidelines which permit operation of an ISFSI sited with reactors. Consequently, it is recommended that this conflicting language in the Supplemental Information section be deleted."

Discussion: The problem appears to be with the use of the word "coupled." Section 72.3(m) has been reworded. The restriction is intended to apply to physical connections which increase the probability or consequences of an accident or malfunction of components, structures, or systems important to safety, or reduce the margin of safety as defined in the technical specifications of either facility. If the physical connection does meet one of the above restrictions, the connected facilities would be licensed under Part 50.

Comment No. 5: Bechtel National, Inc. (38)

"This introduction to the proposed rule sets forth a very reasonable approach to the licensing of an ISFSI. However, the specific language in certain sections of actual proposed rules do not carry out the intent expressed in 'Supplementary Information.'"

Discussion: The wording of the rule has been revised to improve clarity and better carry out the intent expressed in the Supplementary Information. Note particularly Subparts E and F.

Comment No. 6: Valore, McAllister, Aron and Westmoreland, representing Township of Lower Alloways Creek, New Jersey. (40)

"No rules should be promulgated until docketing of the final generic environmental impact statement on handling and storage of spent light water reactor fuel."

"A total failure to clearly differentiate between temporary storage of spent fuel as part of the nuclear fuel cycle and the permanent storage or disposal of spent fuel as hazardous waste."

"The rules should not be adopted until the Interagency Nuclear Waste Management Task Force established by the President on March 15, 1978, has made its recommendations on a comprehensive Federal Program for the long term management of nuclear waste."

Discussion: Publication and adoption of this rule has been coordinated with the final generic environmental impact statement on handling and storage of spent light water reactor fuel, NUREG-0575, which was published in August 1979. A definition of temporary storage has been added, § 72.3(x), to differentiate between interim storage and permanent storage or disposal of spent fuel.

This proposed rule is independent of the Interagency Nuclear Waste Management Task Force recommendations. Spent fuel must be stored for an interim period pending a decision as to its ultimate disposal, whether that decision be to reprocess the spent fuel, or to transfer the spent fuel to a Federal radioactive waste repository for permanent disposal.

Comment No. 7: Nuclear Fuel Services, Inc. (46)

"FR 46310--'Storage conditions must provide an environment which will insure the long-term integrity of (sic) the fuel cladding . . .' The experiences of NFS and others[a,b] indicate that normal deterioration/degradation of the fuel assembly cladding during long-term storage is not deleterious to radiological health and safety. The Supplementary Information overstates the importance of fuel cladding integrity during the storage of aged fuel. It is our understanding that tests conducted at Battelle's Pacific Northwest Laboratories have shown that the leachability of irradiated oxide fuel is very low and approaches that of solidified waste forms."

Discussion: The data and experience on leach rates of exposed oxide fuel in water shows that cladding failures on aged fuel does not pose a serious problem. However, providing a storage environment which preserves the long-term integrity of the fuel cladding is considered prudent.

Comment No. 8: Ebasco Services, Inc. (52)

"Page 46310, Second Column, Fourth Paragraph--Some references should be provided to demonstrate that the level of radioactive materials in the ambient air in the spent fuel storage area of an ISFSI is normally about five percent of 10 CFR 20 limits for occupied areas."

Discussion: The referenced statement was based on early experience at the NFS West Valley plant. More recent experience at the GE-Morris Operation shows that the figure is orders of magnitude lower than 10 CFR Part 20 limits. This data is presented in a report, NUREG/CR-0956, which has been prepared to document GE's experience to date with its operation of the Morris facility.

Comment No. 9: Natural Resources Defense Council, Inc. (66)

"The proposed regulations are seriously flawed because they are premised on an unproved and unprovable assumption--i.e., the assumption that storage of commercially generated spent fuel at an away-from-reactor (AFR) storage facility is a preferred solution to the problem created by continued generation of nuclear wastes without an implemented and acceptable method for nuclear waste disposal.

". . . Despite this uncertain status of AFRs, the promulgation of the regulations at this time is clearly premised on the assumption that the use of AFRs will be acceptable government policy and regulations designed to facilitate that policy. If such a premise does not underly these regulations, then, at a minimum, the NRC should be simultaneously promulgating regulations for expansion of at-reactor storage of spent fuel for those cases where the utility seeks to build an additional pool and should be requiring for all plants proposed for construction and under contruction that spent fuel storage capacity for the lifetime needs of the reactor be provided.

"Because there is no policy now favoring the unlimited use of AFRs and because it is becoming increasingly clear that even if some AFR use is required it will be substantially restricted, we believe the development of AFR licensing regulations is premature. Were the subsequent evolution of an AFR policy irrelevant to the licensing requirements, an early development of such regulations, while wasteful of limited Commission resources, might not be totally objectionable. However, the shape of the AFR policy would sharply influence the shape of the regulations. For instance, if the AFR policy prohibited the use of an AFR unless it could be shown that expansion of at-reactor storage would be unsafe, then the licensing requirements would not only have to incorporate this pre-condition but would also have to assure that AFR storage would be safer than the at-reactor storage option. Transportation and handling would necessarily be a part of this analysis and they would be affected by which reactor's fuel was proposed to be shipped to an AFR. To license the AFR without knowing the source of the fuel is to license blindly.

"Throughout the proposed regulations is the theme that the AFRs are good and should be encouraged. One classic example in the statement is the preamble (43 Fed. Reg. 46310, column 3) which indicates that accident limits for siting were set with the principle that they could be met, not that they were what was required. This attitude is unacceptable for a regulatory agency and reflects a continuation of the promotional bias. These proposed regulations should be withdrawn and should be rewritten by persons who are not predisposed to believe that AFRs are safe and should be encouraged."

Discussion: The NRC has made no assumption such as is implied in the first paragraph of the above comment. This new regulation will govern the licensing requirements of ISFSIs at reactor sites that propose to build additional spent fuel storage capacity at the site, as well as for ISFSIs that are proposed to be built at other sites. The additional storage capacity can be provided as needed. The NRC sees no reason to require a utility company to provide onsite spent fuel storage capacity for the lifetime needs of the reactor.

The new regulation establishes the requirements for a license to possess spent fuel while stored in the ISFSI. The license will contain certain conditions governing the receipt, handling and storage of the spent fuel. These conditions can be established without knowing the specific source of the fuel.

The accident exposure limits, which might result from a catastrophic accident that caused the pool to drain, were proposed as a criterion for setting the controlled area boundary distance to protect the public from gamma radiation exposure. The final rule establishes a minimum distance of 100 m to the controlled area boundary.

Comment No. 10: Yankee Atomic Electric Company. (55)

"Included among the potential locations for an ISFSI are individual reactor sites. These reactor sites are licensed under 10 CFR Part 50. Presumably construction of an ISFSI on a licensed site could be accomplished through the mechanism of amending an existing Part 50 license instead of through the new Part 72 licensing scheme. We would like to see this Part 50 option left available to holders of Part 50 licenses and note that no mention is made of this alternative in the proposed rule. Clarification of this point in the final rule would be useful."

Discussion: 10 CFR Part 50 specifically addresses the licensing of production and utilization facilities as defined by the Atomic Energy Act. An ISFSI is not a production or utilization facility. The storage of spent fuel in an ISFSI is covered by a "material" type of license. Because spent fuel contains special nuclear material, its possession is licensed under a Part 70 series regulation.

If connected to a reactor and not "independent," an add-on spent fuel storage installation would be covered by an amendment to the reactor's Part 50 license. If independent, it would be covered under Part 72.

Comment No. 11: Valore, McAllister, Aron and Westmoreland, representing Township of Lower Alloways Creek, New Jersey. (40)

"Tables S-3 and S-4 in 10 CFR, part 51 may require amendments to indicate the addition of a new element and new transportation link in the nuclear fuel cycle--the addition of ISFSI and the transportation of spent fuel from nuclear power reactors to an ISFSI."

Discussion: The addition of temporary storage of spent fuel in ISFSIs to the nuclear fuel cycle is not anticipated to result in significant changes in either of these tables.

The next six comments, reflect concern about interpretations of some of the requirements of this new regulation.

Comment No. 12: Wisconsin Electric Power Company. (26)

"We would, therefore, urge that the requirements for 10 CFR Part 72 be consistent with, and not exceed, those requirements for spent fuel storage installations at nuclear power facilities. In any event, to the extent the requirements will be more rigorous than such installations at nuclear power facilities, specific reasons therefor should be set out."

Comment No. 13: Allied-General Nuclear Services. (27)

"Based on the foregoing understanding of the Commission's reasoning, it would appear clear that a new 10 CFR 72, if adopted, should not create confusion relative to other NRC regulations and should not needlessly be more restrictive than the present 10 CFR 50. The following comments are offered for the Commission's consideration in achieving these objectives."

Comment No. 14: Shaw, Pittman, Potts and Trowbridge. (50)

"We appreciate the significant effort which has been made in developing the proposed regulations. Our major comment is that the proposed regulations do not fully reflect the somewhat relaxed view of regulatory constraints promised by the Statement of Considerations. In some cases, the proposed regulations establish obligations beyond those required in reactor licensing."

Comment No. 15: Westinghouse Electric Corporation. (61)

"The existing rules and regulations for LWR power plants set forth in other parts of Title 10 of the Code of Federal Regulations have evolved from years of development and careful deliberation. ISFSI facilities should have less potential for risk to the health and safety of the public than a LWR facility. Therefore, most of the existing requirements and criteria for LWRs should be more than adequate for the ISFSI facilities.

"Thus, it is not expected the requirements for ISFSI should be more stringent than those for LWR plant spent fuel facilities. Further, it is considered that any departures from existing LWR rules and regulations should be in the direction of relaxation of requirements, rather than being more stringent, as are certain parts of the proposed new rule. Where such relaxation is not appropriate,..."

Comment No. 16: Edison Electric Institute. (68)

"Each nuclear power facility licensed under 10 CFR Part 50 includes a spent fuel storage area as a component of the facility. Part 50 specifically addresses the nuclear power facility and entails more stringent requirements than is typically necessary for an ISFSI. The proposed rule 10 CFR Part 72 should entail less stringent requirements than Part 50 and no element of Part 72 should impose requirements beyond those of Part 50."

Discussion: It is not intended that this new regulation contain more stringent requirements than 10 CFR Part 50, but that Part 72 contain requirements that are specific to spent fuel storage in an ISFSI. The differences reflect the different roles of an ISFSI compared to Part 50 facilities and the applicability of EPA regulation 40 CFR Part 190 to an ISFSI.

The next five comments indicate a need for more precise language in the final version of this new rule.

Comment No. 17: Bechtel National, Inc. (38)

"Our specific comments on the proposed licensing rule, Attachment 1 to this letter, identify certain statements within the document which, in our opinion, are somewhat ambiguous and require additional clarification. As in the case of precedent NRC regulations, we understand there will be Regulatory Guides specific to 10 CFR Part 72. In our review and preparation of comments on the proposed licensing rule, we have assumed that the forthcoming Regulatory Guides will include the additional specificity required as part of the interpretation of the licensing requirements."

Comment No. 18: Mississippi Power and Light Company. (39)

"However, to provide utilities with the certainty needed for them to undertake construction and financing of such a facility, the regulations need to be more specific in certain areas . . ."

Comment No. 19: Nuclear Fuel Services, Inc. (46)

"At present, it is difficult to provide substantive suggestions on many portions of the proposed 10 CFR 72 because the NRC guidance documents explaining the desired implementation have not yet been published, and the proposed regulations are by themselves vague and ambiguous. The lack of specificity in the proposed 10 CFR 72 is: (1) contrary to the NRC intention, as identified in the Supplementary Information, of providing a '. . . more definitive regulatory basis . . . ,' (2) inappropriate in light of the hundreds of thousands of tonneyear of spent fuel storage experience[a,b] in the United States, Canada and Europe, and (3) potentially misleading to the public understanding of the minor safety implications involved in the storage of long-cooled spent fuel."

Comment No. 20: General Electric Company. (47)

"We are, however, concerned about certain areas in which it appears that more specific or additional guidance is needed to assure satisfactory regulation. These are:

- The proposed regulation contains several non-quantitative requirements that could be subject to various interpretations. Quantitative or at least more definitive statements against which performance or design can be measured should be developed.

- It is apparent from statements made in the SUPPLEMENTARY INFORMATION section of the Proposed Rule that the NRC, like General Electric, is aware of the relatively low risk from storage of spent fuel. The risk is composed of nearly immeasurable consequences that are likely to occur at extremely low probabilities. What is not apparent is how allowance has been made in the Regulation for this acknowledged low risk. Rather, it appears that many of the same criteria for siting and safety that are employed in reactor licensing are reiterated here for the ISFSI. We would suggest that more appropriate consideration be given to fitting the siting and design criteria to the extant risk."

Comment No. 21: New Jersey Department of Environmental Protection. (57)

"The regulations appear to be consistent with other regulations written by the Nuclear Regulatory Commission for other types of facilities, for example, utilization and production facilities. Except for administrative procedures, which must be established early, the regulations are very brief and are stated in general terms. No doubt, as design and construction of Away-from-Reactor (AFR) facilities begin, more details will appear in the regulations."

Discussion: NRC regulations state general requirements. Regulatory Guides and other NRC documents are published to identify acceptable methods that will meet specific regulatory requirements. To make requirements more definitive, closer attention has been given to the language in the final version of this regulation.

Comment No. 22: Allied-General Nuclear Services. (27)

"We urge that a thorough comparison of all terminology in the proposed 10 CFR 72 be made with that in 10 CFR 20, 10 CFR 50, 10 CFR 70, and 10 CFR 100 with the objective of restricting new terminology to a minimum."

Discussion: A comparison of all terminology has been made. The new terminology in Part 72 has been restricted to a minimum consistent with the objectives of this rule.

Comment No. 23: Tennessee Valley Clean Energy Alliance. (12)

"Away from reactor storage necessitates the transportation of wastes from the reactor site to the storage site. Again, I found no mention of whose responsibility transportation is. If an owner gains control of the spent fuel at the reactor site, then those spent fuel rods are the owner's responsibility and so are accidents which may occur. It is mandatory to clearly determine at the onset whose responsibility transportation of spent fuel assemblies is."

Discussion: Under DOT regulations, the shipper (owner) is responsible for the packaging and the carrier for the transportation of spent fuel shipments. Shipping casks must meet the requirements of NRC regulation 10 CFR Part 71. The

transportation of spent fuel is covered under DOT regulations 49 CFR Parts 171 through 177.

Comment No. 24: Tennessee Valley Clean Energy Alliance. (12)

"In light of the proceedings at the Calloway plant, it seems advisable to include within the licensing requirements protection of any possible 'whistle-blowers' who may discover violations of licensing agreements. This is especially important for the low level of monitoring the NRC intends to do for ISFSI's."

Discussion: This is covered generically in NRC regulations 10 CFR Parts 19 and 21.

Comment No. 25: Tennessee Valley Clean Energy Alliance. (12)

"Another question which I found unanswered was what if the legal entity operating the AFR goes bankrupt? Does the NRC take over responsibility? If so, the public is left with the possibility of multiple "West Valleys" across the country."

Discussion: The financial requirements in § 72.14(e) are intended to ensure that an applicant is financially qualified. However, §72.41(c) provides that the NRC may take possession of any spent fuel held by a licensee if such action is of importance to the national defense and security or to the public health and safety.

The reference to West Valley is not too pertinent as an ISFSI has little in common with that plant and the current situation at that site.

Comment No. 26: Environmental Policy Institute, Washington, D.C. (29)

"The proposed rule makes no such distinction nor does it address the problem of high-burnup fuel characteristics at one year. In fact there seems to be a major discrepancy between the 25,000 MWD/MTU burnup characteristics outlined in the NUREG-0404 and the nominal 33,000 MWD/MTU expected of current fuel performance. Spent fuel characteristics and not fuel "age" should be the controlling factors for both facility design and applicability. The proposed rule consistently downplays the necessity to control for specific spent fuel and fuel assembly characteristics."

Discussion: On the contrary, decay time is the predominant factor from both design and safety standpoints The use of figures for accident analysis in NUREG-0404 based on 25,000 MWD/MTU burnup versus some higher value is not a major discrepancy. We expect that the burnup of spent fuel will vary, and some will have burnups in excess of 33,000 MWD/MTU. That some fuel may have higher burnup is not a problem if the installation is designed to handle higher burnup fuel.

DRY STORAGE

Comment No. 27: Environmental Policy Institute, Washington, D.C. (29)

"The proposed rule notes that the applicability of the rule is to one year old fuel with an option for both wet and dry storage. NUREG-0404 states that dry storage has not been employed by the nuclear industry (section 3.1.4) and that preliminary conceptual studies indicate a feasibility only for five year old fuel or more.

"We wish to go on record of opposing the inclusion of the dry storage option given the lack of both industry and NRC experience with dry storage, especially without fuel characterization limitations."

Discussion: The rule is applicable to aged spent fuel, as differentiated from the freshly discharged fuel at a nuclear power plant. Aged fuel is defined as having a minimum of one year decay. Dry storage has not been used by the nuclear industry for commercial LWR fuels in the U.S., but dry storage has been used elsewhere. The DOE has three dry storage facilities at its Idaho Nuclear Engineering Laboratory for the storage of Peach Bottom I, EBR II blanket, and Fort St. Vrain fuels and is evaluating the dry storage of LWR fuels at the Nevada Test Site. The Canadians have a dry storage facility at their Whiteshell Nuclear Research Establishment for the storage of WRR-1 reactor fuels and are developing a comparable technique for the storage of spent CANDU reactor fuels. The British have a dry storage facility at the Wylfa (Wales) Nuclear Power Plant for the storage of MAGNOX reactor fuels.

A license to store spent fuel in a dry storage facility will be judged on its merits and no such license will be issued unless the proposed facility is technically adequate from a safety standpoint. A license issued under Part 72 will contain license conditions. One of these conditions will define the limiting characteristics of the spent fuel that can be stored in the proposed ISFSI. This may stipulate 5 years decay if necessary for a proposed design.

Comment No. 28: Bechtel National, Inc. (38)

"This regulation is intended to cover dry as well as pool storage of spent fuel. The body of the document, however, does not address any of the aspects of dry storage requirements. For instance, it is not stated whether or not the safety assessment must consider all degrees of interspersed moderation, including those known to be incredible. Clarification of this and other pertinent dry storage requirements are needed within the regulation. Such clarification would eliminate confusion and go far in promoting dry storage as an economically viable option in storing spent fuel."

Comment No. 29: Mississippi Power and Light Company. (39)

"The regulations should specifically address aspects of dry storage of spent fuel. Under some circumstances, dry storage would be an economically viable option in storing spent fuel, and this option should be specifically addressed in the regulation stating under what circumstances dry storage would be allowed and discussing general design criteria for a dry storage installation."

Comment No. 30: U.S. Department of Energy. (42)

"The regulation states that 'storage of aged spent fuel under dry storage conditions is also covered by this regulation.' Present draft regulatory guides for ISFSI's are based on water basin storage. We believe that NRC should prepare guides for dry storage as well."

Comment No. 31: Ebasco Services, Inc. (52)

"'Sufficient aging' for dry storage spent fuel should be defined, along with a minimum age or criteria for the determination of a minimum age."

Comment No. 32: New Jersey, Department of Environmental Protection. (57)

". . . the regulations reflect the presently favored underwater storage concept. If and when facilities are constructed for dry storage of spent fuel, it might be worth while to prepare specific regulations for the method. Alternatively, the regulations can be kept very general and supplemented with regulatory guides to aid in their interpretation. No doubt, a combination of these procedures will be used."

Discussion: The regulation covers the general requirements of both wet and dry storage, with those applicable to wet storage only so identified. The safety assessment requirements are design specific, i.e., must address the characteristics of the proposed facility. Specific guidance is published in Regulatory Guides rather than regulations. In response to perceived interests on the part of potential licensees, the major effort in the development of Regulatory Guides has been focused on water pools. It is planned to address dry storage options, of which there are a number of variations, as the need arises. In the meantime, any applications received which involve dry storage will be evaluated on a case-by-case basis.

The NRC has published a report on the subject of dry storage to provide a better understanding of the technical aspects of the various dry storage options available. This report is NUREG/CR-1223, "Dry Storage of Spent Nuclear Fuel."

Subpart A--General Provisions

Section 72.1, Purpose

Comment No. 33: Valore, McAllister, Aron and Westmoreland. (40)

"The failure to include a definition of temporary storage as differentiated from permanent storage is arbitrary, capricious and unreasonable and represents administrative neglect of responsibility for preparing specific regulations for the licensing of temporary storage of spent fuel. Normal cool down time should be considered as criterion for a temporary storage.

"1. The interagency confusion is manifested by the fact that the Environment Protection Agency in its criteria for radioactive waste issued November 15, 1978 states:

'The NRC is preparing specific regulations for licensing of storage and waste disposal facilities.' (emphasis supplied) Federal Register, Vol. 43 #221, at page 53262, November 15, 1978.

"2. The proposed NRC regulations state:

'No license under this part will be granted for the later permanent storage or disposal of spent fuel.' (emphasis supplied) Federal Register, Vol. 43, #195 at page 46311, October 6, 1978

* * *

"The Township of Lower Alloways Creek contends that the NRC has no judicial powers under the Atomic Energy Act to provide for the permanent storage or disposal of spent fuel as a hazardous radioactive waste product."

Discussion: This rule is specific to the licensing requirements for the temporary storage of spent fuel in an independent spent fuel storage installation, pending its eventual removal in accordance with a national policy decision as to whether to transfer the spent fuel to a Federal repository to be provided for disposal of spent fuel as a waste, or to transfer the spent fuel to a reprocessing plant for recovery of useable fissile materials. To clarify this point, a definition of temporary storage has been added to this rule. Under the Atomic Energy Act, as amended, the NRC is authorized, among other things, to issue licenses governing the possession of special nuclear material, source material, and byproduct material.

The NRC is preparing specific regulations (under 10 CFR Part 60 series numbers) for the licensing of radioactive waste disposal facilities. Spent fuel may be declared a waste if it is not reprocessed. The licensing of waste disposal activities is an NRC responsibility under the Energy Reorganization Act.

Comment No. 34: Edison Electric Institute. (68)

"The purpose should include a clear statement that the license will permit the receipt and storage of spent fuel whether or not title to the spent fuel is held by the licensee."

Discussion: NRC regulations differentiate between ownership and physical possession of nuclear materials. Part 72 does not require title to the spent fuel to be held by the licensee. This regulation would permit the licensee to possess spent fuel for storage in an ISFSI without taking title to, or owning, the spent fuel. (See §72.6).

Comment No. 35: Westinghouse Electric Corporation. (61)

"We recommend that a statement be included in the proposed rule in Section 72.1 or 72.2 to indicate that interpretations of these rules should not lead to more stringent requirements than those for the LWR plant spent fuel storage facilities."

Discussion: A statement such as recommended above is inappropriate. There are differences in the role of an ISFSI and that of a power reactor. See Discussion of Major Issues in Chapter I.

Comment No. 36: U.S. Department of Energy. (42)

"(p. 46311, center, 72.1) - If an ISFSI is to be a temporary storage facility, these sections are not currently worded in a way that would permit shipment out to a reprocessing, permanent storage, or other facility at an alternate location. The last sentence in 72.1 may even be interpreted to prevent shipment out by one definition of the word 'disposal.'"

Discussion: This regulation pertains to the license requirements for the temporary storage of spent fuel in an ISFSI. Other regulations under Title 10, Code of Federal Regulations, cover license requirements related to shipments and reprocessing. New regulations are being developed by NRC (10 CFR Part 60 series) to cover license requirements for permanent disposal of radioactive waste in a Federal repository that is to be provided for this purpose by DOE.

On the subject of a definition of "temporary storage":

Comment No. 37: Shaw, Pittman, Potts and Trowbridge. (50)

"ISFSI licenses are stated to be limited to 'temporary storage,' but no definition of that time period is provided."

Comment No. 38: Duke Power Company. (60)

"Also, further clarification is needed of the limitation of temporary storage which should include all or part of the time between reactor discharge of the spent fuel and the point when the spent fuel is either reprocessed or disposed of in a Federal repository."

Comment No. 39: Lowenstein, Newman, Reis, Axelrad and Toll. (48)

"The last sentence of §72.1 states that 'licenses are limited to the temporary storage only of spent fuel . . .' Particularly since the term "temporary storage" is not defined, this last sentence may create unnecessary controversy in the licensing process. For example, an opponent of the ISFSI might try to argue that, if there is no licensed repository for spent fuel available, there is no certainty that storage will be 'temporary.' Such spurious arguments should be avoided by deletion of the last sentence of §72.1. The purpose of the regulations is clear without it.

"We are not aware of any environmental, safety or technical reason to limit the period of storage in an ISFSI. Storage should be permitted for any period as long as the requirements set forth in the regulations are satisfied."

Comment No. 40: Connecticut-Power Facility Evaluation Council. (43)

"In the Proposed Rules: Section 72.3 should define 'temporary storage.' There is confusion as to the ultimate fate of ISFSI. Is this to be a part of the routine processing of spent fuels before they are emplaced in a geologic repository, or is this an interim arrangement to be discontinued once a more permanent disposition is in place? Data concerning the disintegration of spent fuel claddings may provide a time frame for use of an interim storage facility."

Comment No. 41: Westinghouse Electric Corporation. (61)

"The term: 'temporary storage' used in Section 72.1 (Purpose) is not defined. We believe that it is both appropriate and necessary to provide a clear definition for this term. This can be done by adding one additional definition in Paragraph 72.3: 'Definitions.'"

Discussion: As suggested by the above comments, a definition of "temporary storage" has been added to § 72.3.

Comment No. 42: American Nuclear Society (ANS57.7). (28)

"Last sentence - Delete. Even though an ISFSI is for temporary storage, they are being designed on a 40-year basis. The title of the Regulation does not say anything about the temporary nature of the facility."

Discussion: It is agreed that an ISFSI may be designed for a 40 year life. The temporary nature of spent fuel storage is covered in the regulation, under § 72.2(a), with a definition of "temporary" under § 72.3(x).

Comment No. 43: General Electric Company. (47)

"This Section and §72.2 Scope describe the licensing of several activities with respect to special nuclear material, byproduct material and source material in spent fuel. This emphasis overlooks the fact that some or all of these material categories, but especially byproduct material may be present at the facility, not in spent fuel. The regulation needs to make allowance for quantities of other radioactive materials encountered in the normal course of operating an ISFSI, such as that associated with the basin water, the water cleanup system, casks, cask related equipment, laboratory standards or test sources."

Discussion: Section 72.1 has been revised to include other radioactive materials associated with spent fuel storage.

Section 72.2, Scope

Comment No. 44: General Electric Company. (47)

"The references to spent fuel and material in the spent fuel should be broadened to include other radiactive material associated with the operation of an ISFSI (see the comment re: §72.1 Purpose, above)."

Discussion: Section 72.1 has been revised to include other radioactive materials associated with spent fuel storage.

On the subject of licensing existing facilities:

Comment No. 45: U.S. Department of Energy. (42)

"(p. 46311, §72.2) - It is stated that 'with respect to licenses covering the storage of spent fuel in an ISFSI issued prior to the effective date of this regulation, such licenses will not be renewed unless the operating requirements of this Part 72 are met.' DOE strongly believes that existing storage facilities currently play an essential role in meeting national spent fuel storage requirements and will continue to meet critical needs into the mid 1980's. They have provided safe storage and therefore this regulation should neither preclude their future use nor require substantial facility modifications. This point must be made clear to prevent litigation. In addition, explain what is meant by operating requirements. Does this include the earthquake and tornado requirements listed in sub parts E and F?"

"As noted in our comment A-1, we are seriously concerned about the proposed regulation on the utilization of existing spent fuel storage facilities (i.e., Barnwell, Morris, West Valley). DOE strongly believes that these existing facilities play an essential role in meeting national spent fuel storage requirements, and will continue to meet critical needs into the middle 1980's. Safe storage has been evidences at the two licensed and operating facilities (Morris and West valley). Licensing of the Barnwell fuel storage facility under 10 CFR 70 was completed except for the hearing phase. Therefore, this regulation should neither preclude future use of these facilities nor require substantial facility modifications. This point must be made clear to prevent litigation. Furthermore, we recommend that the presently licensed fuel storage facilities be relicensed under their original regulations when their current license expires."

Comment No. 46: General Electric Company. (47)

"§72.2 Scope, last paragraph, limits the relicensing of facilities licensed before the effective date of this regulation to those that meet the operating requirements of this Part 72. Operating requirements should be fully defined in the regulation to clarify the intent."

Comment No. 47: Shaw, Pittman, Potts and Trowbridge. (50)

"Renewal of existing licenses covering spent fuel storage in an ISFSI is made contingent on meeting the 'operating requirements' of Part 72. These should be specifically identified."

Comment No. 48: American Nuclear Society (ANS57.7). (28)

"72.2 Last sentence - Delete. A grandfather clause should be on a permanent basis rather than say a license of an existing facility will not be renewed unless it meets these new regulations. What happens to an ISFSI if it is full of spent fuel and their license comes up for renewal and their facility does not meet the new regulations? This sentence is too restrictive and should be deleted or modified."

Discussion: With respect to Comments Nos. 45, 46, 47, and 48, above, licenses covering spent fuel storage in an existing facility will be evaluated in accordance with the requirements of Part 72. If this evaluation should identify any deficiencies with respect to the requirements of Part 72, then depending upon the nature of such deficiencies, the Commission may consider granting exemptions under Section 72.7, Specific Exemptions, with an adequate justification for such exemptions.

The wording has been changed to state that existing spent fuel storage facilities must meet the requirements of Part 72 except the site selection factors in Subpart E. Obviously, an existing facility cannot be moved to a new site.

Comment No. 49: Exxon Nuclear Company, Inc. (22)

"The subject of wet storage appears to be more fully addressed than dry storage. It is suggested that a single statement be inserted that this regulation is designed to address primarily water pool storage, but the limits for design

and radiological effluents are applicable also to dry storage and that any specific questions related to dry storage will be handled on a case-by-case basis."

Discussion: The wording of Section 72.2 has been revised to state that the requirements of this regulation are applicable where appropriate to both wet and dry storage of spent fuel.

On the subject of the one year age limitation:

Comment No. 50: Northeast Utilities. (45)

"The proposed Part 72 deals only with fuel which is cooled more than one year. Although this is a reasonable assumption, there should be provisions contained in the new regulations to allow for storage of fuel cooled for less than one year on an emergency basis."

Comment No. 51: Ebasco Services, Inc. (52)

"The possibility of accepting, under special contingency conditions, a limited number of fuel assemblies with less that one year decay but more than a specified minimum age should be considered."

Discussion: Part 72 and supporting regulatory guides and national standards now being developed are all based on the temporary storage of aged fuel. Spent fuel aged less than one year would be stored in LWR spent fuel pools. We do not foresee any special contingency conditions that would warrent the transfer of less than one year aged spent fuel to an ISFSI. However, a request to transfer less than one year aged fuel could be approved under the provisions of Section 72.7, with adequate justification for making such an exception.

Section 72.3, Definitions

Eight commentators took issue with the introduction of new site-related terminology in Part 72.

Comment No. 52: Allied-General Nuclear Services. (27)

"A major source of possible future confusion would be eliminated if terminology and definitions used in proposed 10 CFR 72, were reviewed carefully, and revised as appropriate, for conformity with terms use in other NRC regulations. For example, 'controlled area 'and 'neighboring area' (Section 72.3(g) and (k) respectively) do not appear to differ sufficiently from 'exclusion area' and 'low population zone,' as defined in 10 CFR 100, to warrant the introduction of new terminology."

Comments No. 53 and 54: American Nuclear Society (ANS57.7). (28)
and M. Young (10)

"Section 72.3(g) and 72.3(k) defined 'controlled' and 'neighboring' areas respectively. 10 CFR 100, paragraph 100.3(a) defines an 'exclusion' area; the definition of which is similar to the Part 72 definition of a 'controlled' area. The definition of 'low population zone' in 10 CFR 100 is similar to the

definition of 'neighboring' area in Part 72. The definitions of the various 'areas' discussed in Part 72 should be consistent to the definition used in other parts including 10 CFR 20, 10 CFR 73 and 10 CFR 100 to avoid confusion and misuse of terminology."

Comment No. 55: Bechtel National, Inc. (38)

"(g) Controlled area - This regulation introduces the term 'controlled area' without a clear definition of its relationship with 'offsite' or the extent of the premissible activities within. It is inconsistent with 10 CFR Part 20, to which area dose limits must be referenced. We recommend that this definition be removed and replaced the the term 'restricted area' as used in 10 CFR Part 20. The text should also be changed to reflect the meanings implied by this new definition."

Comment No. 56: Gilbert/Commonwealth. (44)

"While we understand that certain new definitions may be required in these new regulations which may not exist in other parts, we feel that the incorporation of new terms such as 'controlled area,' 'neighboring area,' 'region. 'and 'site 'are not justified, and may be in conflict with other terms commonly utilized in 10 CFR 20, 10 CFR 50, and 10 CFR 100 which indicate similar concepts (e.g., 'controlled area' versus 'restricted area' or 'exclusion area;' 'neighboring area' versus 'low population zone'). Even the proposed regulations appear to confuse the issue in 10 CFR 72.33(d), 'Effluent Controls,' when it makes reference in two separate places to 'unrestricted areas.' We therefore recommend that the need for such new and possibly confusing terminology be reviewed to determine the efficacy of such new terms. The placement of an ISFSI on an existing power reactor site would make the use of new, overlapping, and possibly conflicting terminology particularly undesirable."

Comment No. 57: Lowenstein, Newman, Reis, Axelrad and Toll. (48)

"The proposed regulations include the following new geographical terms: 'controlled area' (§72.3(g)); 'neighboring area' (§72.3(k)); and 'region' (§72.3(n)). We believe that these new terms are imprecise, unhelpful and unnecessary. For example, they may be confused with the term 'restricted area,' which is elsewhere defined as 'any area access to which is controlled by the licensee for purposes of protection of individuals from exposure to radiation and radioactive materials' (§20.3(a)(14), and they may be interpreted inconsistently with terms such as 'exclusion area,' 'low population zone' and 'population center distance,' which are applied for similar purposes in 10 CFR Part 100. Particularly in view of the limited environmental and safety impact of ISFSI's, we believe that the principles (and terminology) established in these other Commission regulations can readily be applied and that there is no need to innovate in these respects."

Comment No. 58: Westinghouse Electric Corporation. (61)

"The proposed regulation presents two definitions in Paragraph 72.3 which represent a set of terms different from those in other parts of 10 CFR but whose meaning is essentially the same. These terms are: (g) 'Controlled area' and (k) 'Neighboring area.' The term controlled area has the same meaning as

restricted area defined in 10 CFR 20.3(a)(14) and exclusion area defined in 10 CFR 100.3(a). The term neighboring area has the same meaning as low population zone defined in 10 CFR 100.3(b). It appears unnecessary to create a new set of terms for this section of the regulation when terms with the same meaning exist elsewhere in the regulations.

Discussion: The definitions of 10 CFR Part 100, "exclusion area," "low population zone," etc., pertain only to proposed sites for stationary power and test reactors. To clarify the siting requirements of Part 72, definitions of areas are used to indicate the region to be considered with respect to environmental considerations, the neighboring area, now changed to ISFSI-emergency planning zone (ISFSI-EPZ) for consistency with Appendix E to 10 CFR Part 50, to be considered with respect to emergency planning, and the controlled area beyond whose boundary the dose limits for normal operation and accidents apply with respect to exposure of the public. Subpart E has been revised to clarify these siting considerations and the criteria to be applied as well as the definitions for these new siting terms. See discussion of major issues in Chapter I for further information on this subject.

Comment No. 59: Valore, McAllister, Aron and Westmoreland. (40)

"The following definitions should also be included within the regulations:

"1. Acute (radiation exposure) - A term used in reference to a single large dose of ionizing radiation or to a series of substantial doses in a short interval of time, as differentiated from chronic exposure;

"2. Barrier - Any medium which stops or significantly retards the movement of emplaced radioactive materials, such as a natural geologic medium or a container or solidified waste matrix engineered by humans;

"3. Chronic (radiation exposure) - Continuous or intermittent exposure to small amounts of ionizing radiation over a long period of time, as differentiated from acute exposure;

"4. Difuse (waste containing naturally occuring radioactivity) - Waste material containing naturally occurring radioactivity in concentrations similar to that of many natural ore bodies;

"5. Discrete (waste containing naturally occurring radioactivity) - Waste material containing naturally occurring radioactivity which is substantially concentrated relative to that of the virgin natural material;

"6. Disposal - The placement of radioactive waste with no intent of recovery;

"7. General environment - The total terrestrial, atmosphere, and aquatic environments outside sites in which any radioactive waste management activities are conducted;

"8. Institutional control - Activities, devices, and combinations thereof which involve the performance of functions by human beings to limit contact between the waste and humans or the environment;

"9. Isolation - The placement of radioactivie waste so that contact between the waste and humans or the environment will be highly unlikely for a chosen period of time;

"10. Monitoring - Measuring the quantity and type of discharge or migration or radioactive wastes from a waste management facility, or measuring changes in physical, chemical, or biological characteristics of the site and the surrounding site area;

"11. Retrievability - A designed capability to recover waste from an emplaced location within a specified time;

"12. Risk - A general concept encompassing both the probability and the severity of adverse effects;

"13. Site - Any location which institutional control which has a boundary inside which radioactive wastes are handles, stores, and disposed of;

"14. Storage - Retention of radioactive waste at facilities with designed provisions for recovery within a defined time;

"15. Waste Management - The range of activities for dealing with radioactive waste, including preparation, storage, and disposal."

Discussion: A definition of the term "site" has been added to the revised regulation. The other proposed definitions are not needed in this regulation.

On the definition of ALARA:

Comment No. 60: Lowenstein, Newman, Reis, Axelrad and Toll. (48)

"Similarly we see no reason why the definition of the term 'as low as is reasonably achieveable' (§72.3(b)) should differ from that contained in §50.34a(a) Thus at the end of the proposed definition in §72.3(b) we would add the words: 'and other societal and socioeconomic considerations, and in relation to the utilization of atomic energy in the public interest.'"

Comment No. 61: Shaw, Pittman, Potts and Trowbridge. (50)

"The definition of 'as low as is reasonably achievable' does not fully track the definition of the same term in 10 CFR §20.1(c), in that it omits the phrase 'and other societal and socioeconomic considerations, and in relation to the utilization of atomic energy in the public interest.' The Part 20 definition should be followed."

Comment No. 62: Arizona Nuclear Power Project. (59)

"Section 72.3(b) - We suggest that the definition of 'As low as is reasonably achievable' reference 10 CFR 50 Appendix I as more specific requirements are contained therein."

Comment No. 63: Allied Chemical Company. (71)

"The definition of ALARA would be significantly improved if a dollar value would be set."

Discussion: The definition of ALARA has been revised to conform to 10 CFR Parts 20.1(c) and 50.3a(a). 10 CFR 50 Appendix I is specific to light-water cooled nuclear power plants. Developing a comparable dollar value for ALARA for an ISFSI, which represents such a low potential risk to the public health and safety, does not appear to be useful.

Comment No. 64: Natural Resources Defense Council, Inc. (66)

"As the decision in the Seabrook case makes clear, the expenditure of money by an applicant prior to approval of a construction permit can and does directly affect the outcome of the Commission consideration of the wisdom of the issuance of the construction permit as compared to alternatives. The Commission thus has the authority to protect the integrity of its decision-making process by prohibiting such expenditures except to the extent they are essential to the application process. Thus, proposed §72.3(e) should be amended to exclude item (3) and to embody the principles enunciated."

Discussion: We believe that procurement of long lead time items, at the owner's risk, can proceed without affecting the decision-making process as to the suitability of the site of a proposed installation. The expenditures involved, such as for a cask handling crane, are a small fraction of the total costs of an ISFSI and are small compared to long lead time items for a nuclear power plant.

Comment No. 65: Tennessee Valley Authority. (72)

"We believe construction of suitable access facilities to the site should be excluded from the definition of 'commencement of construction' and should be so stated. We suggest adding the following:

"(4) Construction of suitable access facilities to the site."

Discussion: The definition of "Commencement of Construction" has been modified to include construction of access facilities to the site.

Comment No. 66: F. Anderson. (17)

Suggested rewording of definition of "Controlled Area"

"'Controlled area' is that area immediately surrounding the ISFSI complex, the use of which is controlled by the licensee for the duration of the license and within which the ISFSI operations are performed."

Discussion: The definition of "Controlled Area" has been revised.

Comment No. 67: Northeast Utilities. (45)

"Paragraph 72.3(h) - The NRC staff must draw upon their experience in developing Standard Review Plans for nuclear power plants and specify what 'combination of events' must be addressed in the design of ISFSI since these parameters may well control the design of (or the decision to build) an ISFSI.

"Terminology such as 'These values may be (1) restraints derived from generally accepted 'state-of-the-art' practices for achieving functional goals' is not satisfactory for clear and concise regulations.

Discussion: The definition of "Design bases" has been expanded for additional clarity.

Comment No. 68: Exxon Nuclear Company, Inc. (22)

"Does 'human history' mean 'recorded history'?"

Discussion: By definition, recorded is equivalent to history. The word human was deleted.

On the definition of an ISFSI:

Comment No. 69: Valore, McAllister, Aron and Westmoreland. (40)

"The definition of Independent Spent Fuel Storage Installation should have added to it the full sentence - 'an ISFSI shall be only for the temporary storage of spent fuel and under no circumstances for the permanent storage and disposal of spent fuel.'"

Comment No. 70: Northeast Utilities. (45)

"The term 'self-contained 'appears to be either superfluous for implying a significant but unspecified characteristic of the ISFSI. We recommend deletion of the term."

Comment No. 71: Arizona Nuclear Power Project. (59)

"In order to avoid any confusion between an 'Independent Spent Fuel Storage Installation (ISFSI)' and fuel storage facilities normally associated with an operating reactor we suggest that a phrase be added which states that an ISFSI is also not covered by 10 CFR 50."

Comment No. 72: Edison Electric Institute. (68)

"'Independent spent fuel storage installation (ISFSI).' The definition of an ISFSI should include all independent spent fuel storage installations whether located at a separate site or located at a site that includes other facilities licensed under 10 CFR."

Comment No. 73: Tennessee Valley Authority. (72)

"We suggest the definition of ISFSI be changed to permit or allow the supporting services to not necessarily be dedicated totally to the ISFSI."

"While it appears that an ISFSI license would not be required for a utility to transship fuel from one nuclear plant's spent fuel pool to another plant's pool, the regulation is not explicit. The NRC could avoid potential future disputes by clarifying the definition of an ISFSI contained in Section 72.3(j) to ensure that it does not encompass a spent fuel pool which is an integral part of a nuclear plant."

Discussion: These comments were considered in revising the definition of an ISFSI, see paragraph 72.3(m).

On the definition of "neighboring area":

Comment No. 74: Bechtel National, Inc. (38)

"Neighboring area - The extent of this area should be more specifically defined. We suggest a definition similar to that given for 'low population zone' in 10 CFR Part 100."

Comment No. 75: Florida Power and Light Company. (63)

"If this definition is to determine the zone of emergency planning, it is important to clearly establish a maximum size for this area. Failure to do so will lead to unnecessary difficulties in determining the intent of the regulation. This type of ambiguity increases the present uncertainty associated with regulatory compliance."

Discussion: These comments were considered in revising the definition of the term "neighboring area" which has been changed to ISFSI-EPZ. The zone to be covered by an emergency plan depends upon the characteristics of the area in the vicinity of the proposed ISFSI, which should be defined in the license application.

Comment No. 76: Bechtel National, Inc. (38)

"Offsite (not defined) - A definition explicitly defining 'offsite' should be included. We suggest the wording ''offsite' in all areas outside of the ISFSI restricted area.'"

Discussion: We do not believe there is a need for the proposed definition of "offsite."

Comment No. 77: F. Anderson. (17)

The author of comment letter No. 17 suggested adding the following definitions of population, as used in Sec. 72.65(e).

"'Population' is all the important organisms living in a given area. The important organisms are those ecological systems, including people, that may be adversely affected by the change in conditions due to the construction, operation or decommissioning of ISFSI."

Discussion: A definition of "Population" has been added to Section 72.3(q).

On the definition of "region":

Comment No. 78: American Nuclear Society ANS2.19. (41)

"In several sections - 72.62, 72.63, 72.64, 72.65 - review of the 'region' is required for several different reasons. The size of the region is not defined. The area to be examined should vary with the feature of facility of concern. This seems to me to have been handled in ANS-2.19."

Comment No. 79: Northeast Utilities. (45)

"Paragraph 72.3(n) - The term 'Region' appears to be too broadly defined, especially in light of the geographical area that could conceivably be affected by an accident at ISFSI. We recommend that the traditional 80 kilometer radius be used to bound a 'Region.'"

Comment No. 80: Shaw, Pittman, Potts and Trowbridge. (50)

"The indeterminate size of a 'region' is inappropriate. Since radiological consequences for the 'region' must be evaluated under §72.61(e) and §72.65(e), better guidance must be provided."

Comment No. 81: F. Anderson. (17)

The author of Comment Letter No. 17 suggested the following wording.

"'Region' is a geographical area surrounding and including the site sufficiently large to contain (1) all features related to a phenomenon or to the effects from a particular event, and (2) all measurable effects of environmental impact, both radiological and non-radiological due to the ISFSI complex."

Discussion: These comments were considered in revising the definition of the term "region." The size of the region effected by the construction and operation of an ISFSI, and the effects, if any, are to be defined by the license application and environmental impact assessment.

Comment No. 82: Bechtel National, Inc. (38)

"Replacement of 'controlled area' with the term 'restricted area' would require the second sentence to be changed to 'The site includes the restricted area.'"

Discussion: The term "controlled area" was retained. See discussion of new site related terms in Chapter I.

Comment No. 83: F. Anderson. (17)

"'Site' is the real property (area) on which the ISFSI is located. The site may extend beyond the controlled area."

Discussion: The definition of the term "site" has been revised.

On the definition of the term "spent fuel":

Comment No. 84: U.S. Department of Energy. (42)

"The definition of spent fuel precludes storage of heavy water reactor (e.g., CANDU) fuel. This type of fuel may have to be stored in ISFSI's if the Foreign Spent Fuel Policy is implemented."

Comment No. 85: Northeast Utilitites. (45)

"We accept the minimum of one year decay as a practical and general satisfactory limitation but believe that sufficient evaluations have been performed to bound

the radiologically significant zone by fuel exposure, specific power and decay time, thus providing a more defensive selection of this basic parameter."

Comment No. 86: General Electric Company. (47)

"§72.3(r) defines 'Spent Fuel' suitable for storage in an ISFSI as light water reactor fuel which has undergone at least one year's decay since reactor shutdown. If the phrase since reactor shutdown is augmented with or removal from the reactor, then the possible future case of on-line fueling can be accommodated."

Comment No. 87: Lowenstein, Newman, Reis, Axelrad and Toll. (48)

"The definition of 'spent fuel' (§72.3(r)) should not be linked to reactor shutdown, since the reactor is likely to have started up again after the fuel was replaced. We suggest instead that §72.3(r) read as follows: '(r) 'Spent fuel' suitable for storage in an ISFSI means irradiated light water reactor nuclear plant fuel which has not been used in an operating reactor for at least one year.'"

Discussion: These comments were considered in the revision of the definition of the term "spent fuel." It now states "... at least one year's decay since being used as a source of energy in a power reactor."

Comment No. 88: Arizona Nuclear Power Project. (59)

"We think that the flexibility for a ISFSI to receive nuclear fuel other than from light water reactors is valuable (unless this falls under the scope of another regulation). A requirement could be added to commit in the SAR to the types of fuels to be stored."

Discussion: The revised definition of spent fuel is not limited to LWR spent fuel. The SAR must cover the types of fuel for which a proposed ISFSI is designed. Limitations will be covered as a license condition.

Comment No. 89: Westinghouse Electric Corporation. (61)

"We recommend that the following note be added to Subparagraph 72.3(r), 'Spent Fuel':

"Note: In addition to spent fuel, control rods and other irradiated core components discharged with the fuel may also be stored in ISFSI."

Discussion: This point has been covered in the revised definition of spent fuel. An ISFSI is not expected to store irradiated core components other than those associated with spent fuel assemblies. If such a need should arise, it could be handled by a specific application which would be evaluated on its merits as an exception under Section 72.7.

On the term "important to safety":

Comment No. 90: Kaiser Engineers. (21)

"The inclusion of '. . . those items whose function is to (3) protect plant personnel from exposure to radiation in excess of design objectives' as structures, systems and components important to safety, seems inappropriate as in

many instances radiation exposure limitations are a function of administrative actions, such as a limitation of the time personnel spend in defined areas. It is suggested that this definition be deleted from the final regulations pertaining to ISFSI."

Comment No. 91: Allied-General Nuclear Services. (27)

"At least one such new definition in the proposed 10 CFR 72 could result in unfortunate and unintended results quite apart from the general confusion arising from inconsistent terminology. Section 72.3(s) provides a definition of 'Structures, systems and components important to safety' which not only needlessly differs from that of 10 CFR 50 but which might be construed as requiring an unwarranted expansion of the number of items subject to the quality assurance requirements of 10 CFR 50, Appendix B, as required by Section 72.75. Therefore, we suggest that 'Structures, systems and components important to safety' be defined, as in 10 CFR 50, to be 'those safety related items that prevent or mitigate the consequences of postulated accidents that could cause undue risk to the health and safety of the public.'"

Comments No. 92 and 93: American Nuclear Society (ANS57.7). (28) and M. Young (10)

"Section 72.3 (S) 'Structures, systems, components important to safety' as defined in 10 CFR Part 50, 'are those safety related items that prevent or mitigate the consequences of postulated accidents that could cause undue risk to the health and safety of the public.' It seems appropriate that definitions in Part 72 should be consistent with these used in other Federal Regulations to avoid confusion. It is recommended that the change be made."

Comment No. 94: Bechtel National, Inc. (38)

"(s) Structures, system and components important to safety - The definition for this term is too broad and as stated encompasses functions which are not included in the traditional definition set forth in other NRC regulations. We recommend that the definition be worded, ''Structures, systems and components important to safety' means those items that provide reasonable assurance that the spent fuel can be received, handled and stored without undue risk to the health and safety of the public.' (draft language is proposed NRC regulation 10 CFR Part 60"

Comment No. 95: U.S. Department of Energy. (42)

"(p. 46312, left, 72.3 (s)) - This definition is in conflict with the well-established principles as espoused in 10 CFR 50, Appendix B, where 'structure, systems, and components important to safety' are those 'that prevent or mitigate the consequences of postulated accidents that could cause undue risk to the health and safety of the public.' Thus, 72.3(s) needs to be redefined, especially to delete the words following '(3).'"

Comment No. 96: Northeast Utilities. (45)

"Paragraph 72.3(s) - This Part 72 definition of 'important to safety' extends, without any accompanying justification, the scope of protection beyond that

provided by the Part 50 definition of 'important to safety' to include plant personnel. It is clear that the development of the corresponding 10 CFR 50 regulations were directed at 'structures, systems and components required to provide reasonable assurance the facility can be operated without undue risk to the health and safety of the public" (emphasis added). Considering both the traditional use of the term 'important to safety' and the use of the term for an ISFSI, we recommend deletion of the reference to plant personnel."

Comment No. 97: Shaw, Pittman, Potts and Trowbridge. (50)

"The definition of 'structures systems and components important to safety' appears to include the cooling system and water supply, whereas the Statement of Considerations in column 2 page 46310, third paragraph, would appear to exempt these systems from the full implication of this classification. This discrepancy should be clarified."

Comment No. 98: Ebasco Services, Inc. (52)

"The definition of structures, systems and components important to safety is extremely broad and is not consistent with the philosophy used elsewhere in the Commission's regulations for defining such items. As used in 10 CFR 50 and 100 Appendix A, the term 'important to safety' has heretofore been applied only to those structures, systems or components which are necessary to prevent dose to the public and to essential plant operating personnel from exceeding regulatory limits for accident conditions and anticipated operational occurrences. The definition given in paragraph 72.3(s) makes no distinction between normal operating conditions and abnormal or accident conditions. We recommend revising the definition to explicitly eliminate items required solely for normal operating conditions from consideration in identifying structures, systems and components 'important to safety.'"

Comment No. 99: Southern Company Services, Inc. (54)

"'Protect plant personnel from exposure to radiation in excess of design objectives.' Structural items in this category are not considered safety related or important to safety in power plant design and should be deleted for an ISFSI as the proposed inclusion would require that shielding comply with safety quality standards and be designed for severe natural phenomena loadings."

Comment No. 100: Westinghouse Electric Corporation. (61)

"The definition, as written, for 'structures, systems and components important to safety' (Subparagraph 72.3(S)) is unnecessarily overinclusive. We recommend that this definition be rewritten to be consistent with 10CFR50 as follows:

"'Structures, systems and components important to safety' means those plant features which are required to reasonably assure that operation of the facility will not result in undue risk to the health and safety of the public.'"

Comment No. 101: Florida Power and Light Company. (63)

"As set forth in Section 72.3(s) this definition includes components whose function is to maintain 'required conditions.' Without clarification this could

include components that are not required to 'prevent or mitigate the consequences of postulated accidents that could cause undue risk to the health and safety of the public.' (Appendix B 10 CFR 50); therefore, Section 72.3(s) should be revised to reflect the same functional level as Appendix B."

Comment No. 102: Edison Electric Institute. (68)

"(s) 'Structures, systems and components important to safety.' The definition provided in the proposed rule appears to extend beyond the requirements of 10 CFR Part 50 Appendix B and it should be rephrased. These items should be limited to include only those 'structures, systems and components that prevent or mitigate the consequences of postulated accidents that could cause undue risk to the health and safety of the public.'"

Comment No. 103: Stone and Webster Engineering Corporation. (69)

"Paragraph 72.3(s) defines structures, systems and components important to safety. This definition is inconsistent with 10 CFR 50 Appendix A which defines these as '. . . structures, systems and components that provide reasonable assurance that the facility can be operated without undue risk to the health and safety of the public.'

"Accordingly 72.3(s) should be revised to read 'Structures, systems and components important to safety' means those items whose function is to (1) maintain the required spent fuel storage conditions, and (2) prevent damage to the spent fuel during transfer and storage."

Comment No. 104: Tennessee Valley Authority. (72)

"We believe in (1) the phrase, 'required spent fuel storage conditions' is vague and should be defined if used here. Also, it would seem to encompass prevention of damage to spent fuel during storage in (2). We suggest the definition of this term should be based upon those items whose failure to function under design basis events would cause allowable offsite dose limits to be exceeded (e.g., damage to spent fuel during transfer generally will not result in releases which will exceed offsite dose limits). Plant personnel exposures should not be included in this definition except to ensure maintenance of the fuel to prevent exceeding allowable offsite dose limits. Design occupational dose limits are tied to ALARA considerations and operating limits or technical specifications."

Discussion: Collectively, these comments object to the broadening of the term "important to safety" to cover, in addition to accidents:

1. protection of plant personnel,
2. operations, and
3. implications on the quality assurance program.

The protection of personnel involved in ISFSI operation is considered to be equally important as the protection of the general public. Although occupational exposure can be limited by administrative actions, it is also a factor to be considered in the design of an ISFSI.

Not only is the design, fabrication, installation, etc. of some of the equipment involved in ISFSI operations important to safety, but the operation of this equipment can also be important to safety. Many of the postulated accident scenarios for an ISFSI address events that could occur during the receipt and transfer of spent fuel to its storage position and facility support operations. Once in place, the storage of spent fuel in an ISFSI is a static operation. However, the operating function of maintaining the required storage conditions is considered to be important to safety.

It is the responsiblity of the applicant to identify those structures, systems, and components (including their operating requirements) which are important to safety as these are design-specific. The licensee's quality assurance program must cover items and activities so identified to an extent which is consistent with their importance to safety. Such a program for an ISFSI is expected to be selective in its application and may be quite different from a program covering the design and construction of a nuclear power plant.

Section 72.6, License Required

Comment No. 105: D. Wilt. (24)

"I believe the proposed rule in Subpart A is deficient in two material respects. Initially, I do not believe an applicant for a license to operate an Independent Spent Fuel Storage Installation (hereinafter referred to ISFSI) ought be an individual. The length of time such a facility will be in existence is such that it would be unwise to permit an individual to own the license. The frailties of human existence require a more stable form of ownership of such a facility. While an individual may be perfectly capable of operating such a facility, his heirs may not. To require the Commission to relicense facilities because of the death of the owner seems to be to be improper. Thus, I think the Commission must limit ownership of such facilities to entities which have unlimited life. For all practical purposes, much of the spent fuel will have an unlimited life."

Discussion: The definition of "person" in the Atomic Energy Act of 1954, as amended, (42 U.S.C. Sec. 2014(s)) includes an "individual." The definition of person in § 72.3 of the rule is consistant with the statuatory definition.

Comment No. 106: Edison Electric Institute. (68)

"This section refers to two types of licenses, 1) general and 2) specific. A subsequent paragraph 72.7 provides a discussion of the general license and a similar subsequent paragraph is recommended to provide the elements and applicability of a specific license."

Discussion: Section 72.6 has been rewritten in response to this comment. The general license, covered under Section 72.6(b) is a license to own spent fuel. But a general license to own spent fuel does not cover its physical possession. A specific license to possess spent fuel, independent of ownership, is covered by Part 72.

Comment No. 107: General Electric Company. (47)

"§72.6 License Required and §72.7 General License to Own Spent Fuel Other radioactive material, not in spent fuel should be included (see comments on §72.1 Purpose)."

Discussion: The definition of "spent fuel" has been revised to include other radioactive materials associated with spent fuel storage.

Section 72.7, General License to Own Spent Fuel

Comment No. 108: Wisconsin Electric Power Company. (26)

"It is not clear whether the owner/operator of the facility must take title to the fuel stored therein or whether he can store fuel owned by someone else."

Discussion: The owner/operator is not required to own or take title to the spent fuel stored in an ISFSI.

Comment No. 109: Natural Resources Defense Council, Inc. (66)

"There is no basis provided for the approval at this time of a general license as proposed in §72.7."

Discussion: The Atomic Energy Act of 1954, as amended, specifically provides for the private ownership of source, byproduct, and special nuclear materials.

Comment No. 110: D. Kell. (2)

"'To accommodate some light water. . . plant fuel which has at least one year's decay' is patently transparent. The clause, the 'Commission consents. . . to the creation of any. . . pledge or. . . lien upon. . . nuclear material. . . not owned by the US. . .' would provide industry with a means of circumventing President Carter's nuclear nonproliferation policy which prevents the sale or lease of fuel, technology, and hardware abroad to non-nuclear nations. By reason of this clause, nuclear wastes could be received at the proposed U.S.-ISFSI from proliferating sources worldwide, in anticipation of the resumption of spent fuel reprocessing and creation of mixed oxide fuels for resale or lease again abroad."

Discussion: The at least one year's decay is a safety criterion. The proposed Part 72 is applicable only to the temporary storage of "aged" spent fuel in which short-lived radionuclides are no longer present. The wording ". . . not owned by the U.S." refers to privately owned nuclear materials as differentiated from government owned materials which were leased for commercial purposes. This does not provide industry with a means of circumventing President Carter's nuclear non-proliferation policy. The receipt of spent fuel from foreign sources is a national policy matter. This NRC regulation does not cover such policy issues, but, if such action is taken, prescribes the safety requirements pertinent to the temporary storage of such spent fuel in the U.S.

Section 72.8 Specific Exemptions

Comment No. 111: Valore, McAllister, Aron and Westmoreland. (40)

"The specific exemption provision (Section 72.8) fails to provide any reasonable administrative guidelines for procedures."

Discussion: The guidelines are defined:"...as it determines are authorized by law and will not endanger life or property or the common defense and security and are otherwise in the public interest."

Subpart B--License Applications, Form, Contents

Section 72.11, Filing of Applications for Licenses: Oath or Affirmation

Comment No. 112: Exxon Nuclear Company, Inc. (22)

"Table I would be better put into Section 72.11."

Discussion: Table I has been moved to the end of Subpart B.

Comment No. 113: General Electric Company. (47)

"It is not clear why a requirement of filing with Oath or Affirmation is made a requirement of Part 72 when it has not previously been required in licensing transactions in Parts 30, 40, or 70. It is suggested that the Oath or Affirmation requirement be deleted."

Discussion: Although a similar requirement is not included in Parts 30, 40 and 70, the ramifications involved in an application to store spent fuel in an ISFSI are considered to be sufficiently important to require applications to contain the signature of an officer of the organizations submitting the applications. This requirement has been retained.

Comment No. 114: Valore, McAllister, Aron and Westmoreland. (40)

"The applicant should provide a sum of money to the local unit of government in which the 'site' is located that equals the cost of preparing environmental reports to be submitted to the regulatory agencies as certified by the applicant. This sum of money should be in addition to the fees provided in Section 72.11(d) and should be paid to the NRC. The funds so collected by the NRC should be disbursed exclusively and only to the local unit of government for the following purposes:

"1. To further implement the national environmental program as outlined in NEPA;

"2. To provide full and complete information and disclosure concerning the environmental effects of major federal actions so that the federal agency responsible for issuing an EIS can make informed decisions in doing so;

"3. To eliminate the applicant oriented and unilateral method of supplying information to federal agencies for the purpose of evaluating the environmental effects of a major federal action that exists at the present time;

"4. To provide for the proper consideration of the public interest;

"5. To provide for and utilize effective participation by effected local and regional units of government as representative of the public interest;

"6. To localize and organize informational input while maintaining sole central federal decision making authority;

"7. To place the financial burden of the increased study upon those who seek to benefit from the infringement upon our natural environment."

Discussion: The NRC fee structure is designed to recover direct costs incurred by NRC in processing an application for a licensee. This comment addresses a possible aspect of licensee application fees which is beyond the scope of a specific NRC regulation such as the proposed Part 72.

Section 72.12, Elimination of Repetition

Comment No. 115: Mississippi Power and Light Company. (39)

"This Section should be expanded to specifically state that in situations where an applicant is a utility licensed to operate a nuclear power plant and is proposing to build an AFR storage installation near or at an operating reactor site, the NRC will take into consideration the Environmental Report, the Safety Analysis Report, and other information contained in previous NRC applications, including information as to environmental site conditions, financial qualification of the applicant, technical qualifications of the applicant, security, and site safety analysis, and will require only such additional information as is necessary to protect the health and safety of the public in evaluating the application to construct an AFR storage installation."

Discussion: The wording of this section is believed adequate to cover the intent of this comment.

Section 72.13, Public Inspection of Applications

Comment No. 116: Shaw, Pittman, Potts and Trowbridge. (50)

"This section on public availability of documents pursuant to Parts 2 and 9 is unnecessary and should be deleted."

Discussion: The inclusion of this section in Part 72 is deemed helpful although admittedly it is redundant.

Section 72.14, Contents of Application: General and Financial Information

Comment No. 117: D. Wilt. (24)

"The second deficiency deals with the financial information required of an applicant. The rule does not specify what form or type of financial information is required nor does the rule set forth any specific requirements concerning the financial stability of an applicant. This facility by its very nature will be in existence for more than one (1) human generation. In order to insure that such a facility will be properly operated, it is mandatory that the most conservative form of financial stability be required. Thus, an application should be required to post a bond in favor of the government in an amount not to exceed double that of the amount needed to maintain decommission procedures and decontaminate the facility. It is true, of course, that bonding companies will not issue such a bond unless there is sufficient assets to protect the bonding company. The people of this country are entitled to the same protection. In my judgment, not to require such financial stability is wrong and no license should be granted without the strongest financial protection available."

Discussion: The Commission is aware of the need for financial stability of the owner/operator of an ISFSI. However, because of the range of possibilities of such ownership, e.g., a government agency such as DOE, a regulated utility or a commercial firm such as G.E., it is considered best to determine financial qualifications on a case-by-case basis.

Comment No. 118: Nuclear Fuel Services, Inc. (46)

"Paragraph 72.14(e) - While it is appropriate for the NRC to require a prospective licensee to show financial (and/or contractual) ability to remove the spent fuel from storage and decommission the facility, it is inappropriate to require the submission of the highly competitive information that would be required under the proposed Section 72.14(e)(1) and (2). The 'estimated construction costs' are irrelevant since the ISFSI is not licensed to receive fuel until after the NRC has found the facility to have been adequately constructed. The actual costs for constructing the ISFSI can vary from totally irrelevant to the NRC to only slightly relevant, depending upon the financing mode. The 'estimated operating costs over the planned life of the installation' are irrelevant without corresponding estimates of both revenues and the earliest potential data for decommissioning. We recommend that items (e)(1) and (e)(2) be deleted.

"Most of the 'estimated shutdown and decommissioning costs' for an ISFSI will be easy to develop, however, the Government charge for disposition of the waste generated will probably control the aggregate cost. We recommend that the NRC (1) publish guideline unit costs for the disposal of low level radioactive wastes, and (2) amend the proposed regulations to require only that the licensee show an arrangement to guarantee the early accumulation of funds to satisfy shutdown, decontamination and the NRC estimated costs of disposal."

Comment No. 119: Shaw, Pittman, Potts and Trowbridge. (50)

"There is no reason why the financial qualifications requirements for ISFSI's should be more rigorous than those for reactors as set forth in 10 CFR §50.33(f) and Appendix C to Part 50. The proposed section could be read to require financial arrangements for decommissioning prior to licensing. Such a requirement would be unreasonable, particularly where the licensee is a government agency (such as DOE) or one or more utilities. For utilities, such a requirement might conflict with state regulatory requirements."

Discussion: Construction, operating and decommissioning costs and revenues are input for a finding of financial responsibility. Competitive information can be withheld from public disclosure under the provisions of 10 CFR 2.790(b)(1).

The regulation requires that the applicant show an arrangement to cover the costs of decommissioning, including waste disposal costs based on the best information available at the time of application. Depending upon the type of organization involved, e.g., a government agency or regulated utility, it may not be necessary to show an actual accumulation of funds for such purposes.

Comment No. 120: Lowenstein, Newman, Reis, Axelrad and Toll. (48)

"In view of the limited activities involved at an ISFSI we question the need for requiring detailed financial information pursuant to §72.14(e) and the need

for a finding of financial qualification under §72.31(a)(5). To the extent the Commission believes financial qualifications should be considered, the regulations should provide that any regulated utility (or company with specified assets) would automatically satisfy the regulatory requirements; that no additional findings would be needed, and that the only supporting financial information to be filed would be the company's latest annual report or certified balance sheet and income statement. If the Commission does not decide to include in the regulations a generic determination of financial qualifications covering all regulated utilities (or companies with specific assets), at the very least it should specify that no finding of financial qualification would be required as to any applicant who holds a valid construction permit or operating license for a production or utilization facility under Part 50. Any applicant who has satisfied the financial qualification requirements of Part 50 should not have to undergo an unnecessary duplicative review for the limited additional activities at an ISFSI."

Discussion: From a practical standpoint, a finding of financial responsibility will have to be made on a case-by-case basis until more experience is gained with licensing under Part 72. Although it is agreed that Part 50 licensees should have little trouble meeting the requirements for financial responsibility, it is not considered prudent to make a blanket exception for such licensees at this time. The provisions of §72.12 should greatly ease the burden on both the applicant and staff in this matter.

Comment No. 121: Natural Resources Defense Council, Inc. (66)

"The changes needed in the regulations would require substantial tightening of the provisions of proposed §72.14(e)(3). In particular, the necessary funds should be guaranteed prior to issuance of a license and not merely be based on 'reasonable assurance.' The continuing financial trauma of the Seabrook facility, although the reasonable assurance finding has been made, supports the need for a more explicit finding."

Discussion: The final rule requires that a finding be made that the--"decommissioning plan and its financing provide reasonable assurance that the decontamination and decommissioning of the ISFSI at the end of its useful life will provide adequate protection to the health and safety of the public." The NRC is studying the subject of decommissioning, including its costs and financing. The results of these studies will be used in making this finding of acceptability.

Table I - Required Licensing Documents.

Comment No. 122: U.S. Department of Energy. (42)

"Change title of table to delete the impression that the full list is required when applying for license; table actually indicates only one thing, specifically the number of copies needed for compliance with various sections of Part 72.

"The license application requirements are given in section 72.14, not 72.11.

"It would appear that footnote 3 should apply to Safeguards Contingency Plan 72.81(c) as well as to 72.81(a).

"From the guidance given in draft Regulatory Guide 3.24.1 it appears that several sections (e.g., 72.15, 72.19, 72.75, and 72.94) are not really individual documents but merely chapters in a document submitted according to 72.14 and called a 'License Application.' It might be worthwhile considering a change to the table to indicate this. Thus, a full application would contain four documents:

"License Application
Environmental Report
Physical Security Plan
Safeguards Contingency Plan"

Comment No. 123: Northeast Utilities. (45)

"Table I, Footnote 3 - The withholding of information under 10 CFR 2.790(d) is a responsibility of the NRC, not the licensee. If the NRC desires such material withheld, the NRC should specify that it must be withheld."

Comment No. 124: Shaw, Pittman, Potts and Trowbridge. (50)

"Footnote 3, which provides that physical protection plans 'should be' exempt from public disclosure, should make such exemption mandatory."

Discussion: These comments were taken into consideration in the revision of Table I, which has been relocated to the end of Subpart B.

Section 72.15, Contents of Application: Technical Information

Section 72.15(a)(1)

Comment No. 125: Tennessee Valley Authority. (72)

"The use of the term 'ultimate capacity' as used in Section 72.15(a)(1) is ambiguous. It should clarified that the site is to be assessed assuming that the installation will be operated at the capacity which the applicant requests in its application. If the applicant wishes to expand the capacity at a later time, it should have the option of licensing the present contemplated capacity or a larger capacity possibly needed in the future."

Discussion: The wording has been changed to reflect the design capacity as stated in the application, and the term "design capacity" has been defined in Section 72.3.

Section 72.15(a)(4)

Comment No. 126: Bechtel National, Inc. (38)

"The applicant is required to assess the risk to public health resulting from operation of the facility. The use of the word 'risk' implies that some sort of probability-consequence analysis is required. This paragraph should be reworded to read '. . . with the objective of assessing the impact on public health and safety . . .'"

Discussion: Comment accepted and the wording changed accordingly.

Section 72.15(a)(5)

Comment No. 127: Westinghouse Electric Corporation. (61)

"We recommend that the words 'and the limits shown in' be modified to 'in accordance with.'"

Discussion: Section 72.15(a)(5) has been revised to reflect the intent of this comment.

Comment No. 128: Tennessee Valley Authority. (72)

"The NRC should clarify whether the $1,000 per Man-rem test in Part 50, Appendix I, will apply to the as-low-as-reasonably-achievable requirement in Sections 72.15(a)(5) and 72.33(d)."

Discussion: 10 CFR Part 50, Appendix I, is specific to a light-water cooled nuclear power plant; it does not apply to an ISFSI.

Section 72.15(a)(6)

On the subject of Waste volumes:

Comment No. 129: Nuclear Fuel Services, Inc. (46)

"Here and in several other sections of the proposed Part 72 are references to 'minimize waste volumes.' The Staff has not presented a rationale for this objective which has not been incorporated in other Parts of Title 10 and which may be counter productive to the ALARA philosophy. Minimizing waste volume does not reduce public exposure and will probably increase plant personnel exposure. NFS' experience indicates that contaminated waste generation should average only about 1,000 cubic feet per year per million gallons of pool water. We recommend elimination of this 'principal design criteria.'"

Comment No. 130: General Electric Company. (47)

"Among other information to be supplied in the SAR, this Section identifies the 'features . . . and operating modes to minimize waste volumes generated by the facility.' A term other than minimize should be used in this location. Minimize is a limitless concept and should more realistically be replaced by '. . . and operating modes to maintain the low waste volumes established for the facility.'"

Comment No. 131: Lowenstein, Newman, Reis, Axelrad and Toll. (48)

"§72.15(a)(6) requires the application to describe 'the features of ISFSI design and operating modes to minimize waste volumes generated by the facility;' while §72.15(a)(2)(v) refers to 'the measures taken to control the quantities of radioactive wastes for offsite disposal to as low as reasonably achieveable levels.' The latter requirement seems more precise. §72.15(a)(6) should be deleted unless it has an additional purpose which is not apparent from the presently proposed regulations."

Comment No. 132: Southern Company Services. (54)

"This requirement is redundent to (5) and should be deleted. Minimize is a somewhat ambiguous term and we could not determine how to explain this satisfactorily in a license application."

Discussion: The staff believes that attention must be paid to the volumes of radioactive wastes requiring offsite disposal. The wording of this section has been revised as suggested by Comment No. 130.

Comment No. 133: Exxon Nuclear Company, Inc. (22)

"72.16 and 72.33 The depth and type of information required by these three Sections is not indicated and 72.15(a)(7) and 72.16 appear to conflict. Is it correct to assume that 72.15 applies to the initial SAR submittal and 72.16 applies to the final SAR update which is to be submitted prior to initiating operation of the facility? This should be made clear, if true. Does the Staff plan to issue a regulatory guide for SAR preparation?"

Discussion: These sections address the subject of proposed license conditions to be included in the Safety Analysis Report. The technical specifications will be specific to the design and operation of the proposed facilities. Sections 72.15 and 72.16 do not differentiate between the initial SAR and final SAR update. It is anticipated that the initial SAR will be essentially complete and any subsequent updating will cover only minor modifications which will not have any substantial effect on the design or safety aspects of the proposed installation.

A draft of Regulatory Guide 3.44, "Standard Format and Content for the Safety Analysis Report to be Included in the License Application for the Storage of Spent Fuel in an ISFSI (Water Basin Type)" was issued for comment on December 22, 1978. Shortly after Part 72 is published as an effective rule, it is planned to revise this Regulatory Guide responding to comments received on both the rule and this guide, for issuance in final form.

Section 72.15(a)(9)

Comment No. 134: American Nuclear Society (ANS57.7). (28)

"Requiring research and development to confirm the design is too restrictive. The paragraph does not say who makes the decision requiring R&D. This could be a very expensive item for the licensee. The paragraph should either be deleted or modified."

Comment No. 135: Shaw, Pittman, Potts and Trowbridge. (50)

"Section 72.15(a)(0) requires identification of structures, systems or components requiring research and development to confirm the adequacy of their design and a description of the R&D program which will be conducted to resolve any associated safety questions. Although this requirement is qualified by the phrase 'if any' in respect to structures, systems or components requiring R&D, we suggest that the generalized wording of this statement may lead to unnecessary dialog over adequacy of the design. We suggest that this paragraph be revised by substituting the following for the first five lines of paragraph (i.e., down to the first semicolon):

"'If the proposed facility incorporates any safety related structures, systems, or components whose functional adequacy or reliability have not been demonstrated by prior use for the same purpose, or cannot be demonstrated by reference to performance data in related applications or to widely accepted engineering principles, such structures, systems, or components shall be identified.'"

Discussion: The wording has been revised to reflect the intent of the above comments, to the effect that it must be shown how any outstanding safety questions will be resolved prior to the receipt of spent fuel.

Section 72.15(a)(12)

Comment No. 136: F. Anderson. (17)

"'The description . . . in effluents to the environs as low as is reasonably achievable and within the dose limits stated in the EPA regulations of 40 CFR Part 190.'"

Discussion: This section has been revised to reflect the intent of this comment.

Comment No. 137: American Nuclear Society (ANS57.7). (28)

"72.15(12)(1)(a&b) Why not combine the two paragraphs by inserting 'and gaseous' following 'liquid' in paragraph A. In the first paragraph in (12), gaseous and liquid effluents are included together rather than separate."

Discussion: The wording has been revised as suggested.

Comment No. 138: Southern Company Services, Inc. (54)

"72.15(12)(iii) - The requirement for procedures should be deleted as they are included in other regulations."

Discussion: This subsection has been revised.

Section 72.15(a)(12)(v)

Comment No. 139: Kaiser Engineers. (21)

"Suggest this paragraph be deleted as it is not consistent with the 'as low as is reasonably achievable' philosophy related to radioactivity released from the site to unrestricted areas. There have been no guidelines promulgated for radioactive wastes sent offsite for disposal (e.g., burial grounds, deep geologic storage, etc.) with respect to ALARA."

Comment No. 140: Middle South Services, Inc. (37)

"This section specifies that the Safety Analysis Report should contain 'A description of the measures taken to control the quantities of radioactive wastes for offsite disposal to as low as reasonably achievable levels.' This could be speciously construed to apply to the HLW contained in the spent fuel elements themselves. To avoid this possibility, we suggest inserting 'other than spent fuel' after the word 'wastes.'"

Comment No. 141: General Electric Company. (47)

"This Section requires measures to control the quantities of radioactive waste for disposal offsite to ALARA levels. This is not a current regulatory requirement and is not necessary for this Part."

Comment No. 142: Westinghouse Electric Corporation. (61)

". . . requires the description of the equipment installed to control radioactive material in gaseous and liquid effluents and means for keeping levels of radioactive effluents to unrestricted areas as low as reasonably achievable. However, items (ii) and (v) introduce solid radioactive waste as an expansion of this requirement. This represents a new application of the ALARA concept not previously used in the LWR licensing. This concept requires a new cost-effectiveness evaluation not just amongst alternative solid radwaste systems but taking into account liquid and gaseous radwaste systems from whence the solid waste comes.

"Since the present application of the ALARA concept was the result from extensive rule-making proceedings, we recommend that the extension to solid radwaste be deleted. If the intent is to extend it to solid waste, we believe it is more appropriate that it should be a subject of a separate proceeding."

Discussion: This section has been deleted as the subject is adequately covered in the preceeding sections.

Section 72.15(a)(13)

On the subject of accident analyses:

Comment No.143: Bechtel National, Inc. (38)

"This paragraph requires that doses be analyzed out to 24 hours following the event, whereas the dose limit for accidental exposure specified in Section 72.67 paragraph (b) is based on a two-hour limit. The time interval for the analysis and the dose limit should be consistent and justifiable."

Comment No. 144: Cleveland Electric Illuminating Company. (67)

"Paragraph 72.15(a)(13) states that doses due to direct exposure, inhalation, and ingestion should be analyzed for a 24-hr period, while paragraph 72.67 gives a single 2-hr dose criterion of 5 rem. Clarification is needed with respect to whether or not the criterion applies to total dose with an equivalent dose applied to other organs (as in GDC 19) and what limits apply beyond 2 hr."

Discussion: Paragraph 72.15(13) has been revised to relate the analysis to the event involved. The 5 rem in 2 hours stated in Section 72.67 was a proposed siting criteria based on the skyshine from a dry pool rather than the more conventional evaluation of inhalation/ingestion dose commitments associated with other types of potential fuel cycle accidents. Section 72.67 has been extensively revised in response to this and other comments.

Comment No. 145: Environmental Policy Institute, Washington, D.C. (29)

"The provision that the technical information to be submitted by the licensee concerning potential doses to individuals offsite from accidents and natural phenomenon under section 72.15(13) calls for exposures to be calculated only for the first 24 hours following the event. If a release of radioactive material does occur, the exposure of individuals will extend beyond a 24 hour period in all probability especially given the radionuclides involved. Exposure to offsite individuals should be calculated over the expected hazardous period not merely for a twenty-four hour period. Furthermore, the calculation is to be made only for direct exposure and not environment and pathway doses over time. The Commission's position on accident exposures will improperly underestimate the potential consequences of postulated event by restricting the period of time persons may be directly exposed and neglecting exposure via environmental pathways over time.

Comment No. 146: Valore, McAllister, Aron and Westmoreland. (40)

"The regulations do not contain any guidance concerning the type or magnitude of postulated accidents to be considered in evaluating sites and designs.

"The proposed regulations do not indicate the relevance of accident probabilities.

"A recent ALAB decision requires an applicant for a manufacturing license for a floating nuclear power plant to study Class 9 accidents. For the same reasons expressed in that opinion, Class 9 accidents should be studied at ISFSI sites, if those sites are in close proximity to nuclear power generating facilities."

Discussion: This section of the rule has been rewritten to better state the general requirements for accident analyses. The subject of accident analyses will be covered in Regulatory Guide 3.44 for water basin type installations and in other regulatory guides for other types of installations when the need arises.

Comment No. 147: Arizona Nuclear Power Project. (59)

"Recognizing that aged fuel has a significantly lower release hazard some consideration should be given to minimizing the need for extensive meteorological testing for site approval. A 'standard' meteorological criteria should be quite adequate for the safety analysis."

Discussion: This comment will be considered in developing the final issue of Regulatory Guide 3.44.

On the use of Regulatory Guide 1.25 for accident analyses:

Comment No. 148: Middle South Services, Inc. (37)

"This section calls for conservative analyses of the potential dose to an individual offsite from accidents or natural phenomenon which result in criticality and the loss of water for water pool type installations. We believe that these analyses are unnecessary and inappropriate and will lead to great difficulties in the design of such a facility. We suggest that the regulatory position

adopted in Regulatory Guide 1.25 is sufficient for the establishment of the design basis event for an ISFSI."

Comment No. 149: Louisiana Power and Light Company. (49)

"Section 72.15(13) - This section calls for a conservative analysis of the potential dose to an individual offsite from accidents and natural phenomena which result in criticality, release of radioactive materials to the site and surrounding areas, and the loss of water for water pool type installations. These analyses are both inappropriate and unnecessary and could lead to difficulty in the design of such a facility. Regulatory Guide 1.25 would be a suitable alternative for the establishment of the design basis event for an ISFSI. The requirements for analyses of ISFSI's should be no more restrictive than those presently required for spent fuel pools at reactor sites."

Discussion: The section on accident analyses has been revised. The purpose of this section is to establish that the site and the boundary of the controlled area are acceptable in the unlikely event of a design basis accident. Regulatory Guide 1.25 pertains to a potential fuel handling accident involving freshly discharged spent fuel at a power plant. It is only partially applicable to the storage of aged spent fuel at an ISFSI.

On the subject of an accidental criticality:

Comment No. 150: Shaw, Pittman, Potts and Trowbridge. (50)

"This provision would appear to require an ISFSI design to assume criticality as a design basis accident. No basis is shown for the reasonableness of such an assumption."

Comment No. 151: Ebasco Services, Inc. (52)

"If criticality is to be considered an accident, the means of causing such a criticality accident should be described."

Comment No. 152: Yankee Atomic Electric Company. (55)

"In Section 72.15 the minimum required technical information for Safety Analysis Report is listed. Item 13 on this list deals with analysis of potential doses to offsite individuals from postulated accidents and natural phenomena. Among the accidents to be considered is criticality. This is a significant departure from common practice in reactor licensing for storage pools and one which we believe is inappropriate. Spent fuel storage racks are designed in such a way that a criticality accident is impossible even with fresh reactor fuel. Under these circumstances there is no reason to consider criticality as a design basis accident, and therefore we recommend that it be excluded from those accidents requiring offiste dose calculations."

Comment No. 153: Westinghouse Electric Corporation. (61)

"The proposed regulations require in paragraph 72.15(13) an analysis of the offsite dose consequences of accidents which result in criticality. We believe that this requirement could result in evaluations of accidents which are beyond

the 'design basis.' We believe that this paragraph or an additional paragraph in the regulations should require a definition of the design basis risk. The offsite dose analysis should then be performed for accidents up to and including the design basis event. If accident scenarios resulting in criticality are beyond this design basis, then the consequences of such scenarios should not be required to be analyzed."

Discussion: The probability of a criticality accident in a water basin type of ISFSI that would have significant offsite consequences is very remote. However, we do believe that this should be analyzed for each specific application for the purpose of establishing that the site and the controlled area boundary are acceptable. Specific accident types to be analyzed have been deleted from Part 72. The accidents to be analyzed will be design specific.

On the subject of a loss of water accident:

Comment No. 154: C. F. Braun and Company. (9)

"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."

Comment No. 155: Exxon Nuclear Company, Inc. (22)

"The type of analysis and its purpose is not entirely clear. If the gamma exposure to an offsite individual due to the loss of pool water is being used to determine the site boundary distance, it should be so stated. (See the transcript of the Commissioners' meeting of 19 July 1978, Page 20. Presentation made by Mr. R. M. Bernero.) In our opinion, loss of pool water is a Class 9 type accident and is usually not considered in safety analyses for these types of facilities."

Comment No. 156: American Nuclear Society (ANS2.19). (41)

"On page 46314(13), dose calculations must be made for loss of water from a pool, but on page 46319, column 3(B) and in ANS-57.7, loss of water is not acceptable and will be prevented by facility design."

Comment No. 157: U.S. Department of Energy. (42)

"Accidents and natural phenomena will not result in a potential dose to an individual offsite because of loss of water for a water pool type installation because this is not considered a credible event. ISFSI's will be designed against a catastrophic, abrupt loss of water. It would be acceptable to show that small losses through a liner, not captured by the liner leak collection system, might migrate through the concrete to the soil. An analysis could then be made of dose as in 72.15(a)(13)(ii)."

Comment No. 158: Tennessee Valley Authority. (72)

"We suggest it should be clearly stated whether 'the loss of water' analysis is for a nonmechanistic total water loss or a maximum credible water loss."

Discussion: The potential complete loss of water from a water basin ISFSI is considered incredible but was used as a basis for establishing a limiting accident case. Further guidance on the specific accidents to be analyzed will be provided in Regulatory Guide 3.44.

Section 72.15(b), updating of the SAR:

Comment No. 159: Wisconsin Electric Power Company. (26)

"The requirement for an annual update of the safety analysis report (SAR) after the facility has been licensed is excessive. Likewise, submittal of these changes to the NRC for other than information purposes is not necessary. Per the provision of Section 72.34, a licensee may make certain changes to the facility without prior NRC approval. There should be no reason to submit these same changes to the NRC in the form of an SAR amendment for approval after the changes have been made. This secion should specify a periodic update of the SAR when significant changes have occurred."

Comment No. 160: American Nuclear Society (ANS57.7). (28)

"I believe the (b) should be an (a). In this paragraph, the requirement to update the SAR annually is unduly restrictive. It appears that the last part of that paragraph should be changed to read '. . . the SAR will be updated and submitted to the Commission for approval when significant changes are proposed to the ISFSI.' If there have been no changes to the facility or components or systems since the SAR, there is no reason to continuously make reports that are the same as previously submitted."

Comment No. 161: Environmental Policy Institute, Washington, D.C. (29)

"The requirement that the licensee supply technical information under section 72.15 concerning the safety analysis report (SAR) through a period up to 90 days prior to receipt of spent fuel is questionable. While a case can be made for a single construction/operating type license and for updating the SAR, we have serious reservations about the 'trickle-in' approach outlined in this requirement. Given the Commission's experience with reactor licenses, we believe that minimum requirements should be established for the SAR prior to licensing. Supplemental information may be added after the license is issued but it must not be information substantially affecting the approved design. One stop licensing requires that the issues be resolved to the fullest possible extent before the facility is licensed and is acceptable only on such a basis. We support the Commission's need for full information prior to the receipt of spent fuel, but we object to the concept that the design and safety analysis can be substantially changed after licensing. In the same vein, we support the ability of the Commission to backfit the facility as outlined in section 72.42, but we do not believe that the combination of SAR updating and backfitting should substitute for a full licensing review. The Commission must establish clear criteria for the scope of this review and the scope of the SAR, Environmental report and other reports required under section 72.31 prior to the issuance of a license."

Comment No. 162: Mississippi Power and Light Company. (39)

"Therefore, MP&L strongly urges the NRC to change the proposed regulations to avoid duplication of information contained in previous license applications of a utility, to remove uncertainties relating to the updating of the license and Safety Analysis Report prior to the receipt of fuel at a facility, and to impose protection requirements on applicants no more stringent than can be reasonably justified in light of the recognized minimal risk associated with the storage of aged spent nuclear fuel."

Comment No. 163: U.S. Department of Energy. (42)

"Annual undating of the SAR is an unwarranted burden, especially for such a low-risk facility as an ISFSI. Safety might be served by requiring revision of the SAR 'upon significant change.'"

Comment No. 164: Gilbert/Commonwealth. (44)

"Part 72.15(b) requires an annual update to the applicant's safety analysis report (SAR), and includes a number of items including a final analysis and evaluation of the design and updated quality assurance, security, pre-operational testing, and decommissioning plans. While we believe the update including these items to be appropriate for the final design review (90 days before receipt of spent fuel), we do not believe that an annual update including the detailed amount of information listed to be appropriate or warranted. We recommend that the phrase "and annually thereafter" be deleted from Part 72.15(b)."

Comment No. 165: Nuclear Fuel Services, Inc. (46)

"The terminology '. . . for approval' is somewhat disconcerting and probably superfluous. We recommend deletion of the term."

Comment No. 166: General Electric Company. (47)

"General Electric is also concerned about the efficacy of the requirement (72.15b) for the annual updating of the SAR and subsequent approval by the Commission. Changes in the facility which are important to safety are handled by the normal license amendment application, review, and issuance of the amendment by the Commission. Other changes can be handled by the procedure discussed in 72.34(b). We fail to see that the annual updating and approval of the SAR is either necessary or practical.

and

"This Section requires an annual updating of the SAR and submittal for Commission approval. It is not clear why an annual requirement is included in this Section. This is an unnecessary and unusual requirement that will result in duplicating review effort and double approvals on licensees' activities. Any change in the facility that requires a license amendment will necessarily have received Commission approval prior to the implementation of that change. Revision of the SAR should be implicit to each approved amendment. Any change in the facility that does not require an amendment, does not require Commission approval. Whether changes of this type are reported to the NRC in sixty days or annually, there is no basis or necessity for Commission approval."

Comment No. 167: Lowenstein, Newman, Reis, Axelrad and Toll. (48)

"The requirements for updating the SAR set forth in §72.15(b) are worded awkwardly and appear to be internally inconsistent. Moreover, a requirement that a completed SAR be submitted to the Commission 'for approval' at least 90 days before receipt of materials may give rise to unnecessary procedural delays at a time immediately before operation of an ISFSI is to begin. As discussed in our comments above under 'Licensing Approach,' we do not believe that there are any complexities associated with an ISFSI that would warrant a second 'reevaluation' or 'approval' by the Commission once the 'single' license has been issued. Moreover, there should certainly be no need for Commission 'approval' of an updated SAR annually thereafter. Thus although we have no objection to a requirement that the licensee maintain his SAR current and file up-dating information with the Commission 90 days prior to operation and annually thereafter, such filings should not require any Commission 'approval.'"

Comment No. 168: Ebasco Services, Inc. (52)

"As a final comment we feel some guidance is needed on the expected lead times for NRC review of ISFSI license applications (especially with respect to final SAR updates submitted 90 days prior to the receipt of spent fuel)."

Comment No. 169: Shaw, Pittman, Potts and Trowbridge. (50)

"No basis is shown for requiring the annual updating of safety analysis reports over the life of the facility. Even if such updating is required, the possible implication in sub-paragraph (b)(1) that site evaluation analyses must continue through plant life, should be removed."

Comment No. 170: Edison Electric Institute. (68)

"The requirement for annual updating of the SAR appears to be unjustified. Updating should be required periodically when significant changes or modifications are contemplated and filed with the Commission. Commission approval on SAR updated information should be limited to major changes that result in significant plant modifications or operations."

Discussion: The wording of Sections 72.13(b) and (c) and 72.31 have been changed in response to these comments and to more explicitly state the requirements of the SAR to be submitted with the license application. For the granting of a single license under Part 72 prior to the commencement of construction, the SAR submitted must be in sufficient detail to provide a basis for an independent evaluation of all safety aspects of the proposed installation. It is recognized that changes may be necessary during final design and even after the start of construction. The revised wording, now in § 72.50 reads "...the Safety Analysis Report shall be updated by the licensee and submitted to the Commission at least once every six months after issuance of the license during final design and construction, until preoccupational testing is completed, . . . Changes affecting safety margins will require Commission approval prior to the receipt of spent fuel.

The annual updating is for information purposes. Any substantitive changes in the ISFSI or its operation may have to be covered by an amendment to the license.

Changes requiring prior approval in the form of a license amendment would be any change in the physical facilities or method of operation which involved an unreviewed safety question.

Comment No. 171: Commonwealth Edison Company. (56)

"Commonwealth Edison believes that in most instances a license for an ISFSI will be requested prior to the commencement of construction. For such situations, clarification of propcsed section 72.15(b) is necessary to assure that last minute requests for a second hearing do not delay the operation of the facility.

With respect to reactors, some changes in design first receive review in connection with the issuance of an operating license. While the more limited nature of an ISFSI suggests that few design changes which would require amendments will occur after the issuance of a license, the rules ought to provide for prompt consideration of such changes. As a result, we suggest that the following language be added at the end of section 72.15(b).

"If the Applicant's review pursuant to section 72.34 indicates that any portions of an updated SAR require amendment of its license, a request for such an amendment shall be submitted with the updated SAR. The Commission will review such requests as promptly as possible and any construction activities conducted in accordance with the proposed amendment pending approval shall be at the Applicant's risk."

Discussion: This comment was considered in the revision of Section 72.15(b). However, if changes in the SAR are such as to require an amendment to the license a second hearing may be held.

Section 72.15(c)

Comment No. 172: American Nuclear Society (ANS57.7). (28)

"Delete the last sentence because it is covered by paragraph 72.75. It does not add anything that has not been said."

Discussion: Section 72.15(c) (now (14)) pertains to the description of the Quality Assurance Program in the SAR required in Section 72.80.

Comment No. 173: Tennessee Valley Authority. (72)

"It appears that the term 'safety-related' used here and elsewhere in Part 72 is the same as defined in 72.3(s) 'structures, system, and components important to safety.' If this is so, we suggest the equivalence should be stated, and, if this is so, the term should be defined."

Discussion: The term "safety-related" has been changed to "important to safety" throughout the rule.

Section 72.15(d)

Comment No. 174: U.S. Department of Energy. (42)

"This section seems to imply that one plan - the physical security plan - is all that is needed. To some extent this is correct as 72.81 is entitled Physical

Security Plan. However, Table I and subsection (a) and (c) in 72.81 indicate that apparently two separate plans are needed - Physical Security and Safeguards Contingency."

Comment No. 175: Shaw, Pittman, Potts and Trowbridge. (50)

"These paragraphs require the development of detailed security measures for physical protection of the fuel storage facility, and invoke 'the applicable requirements of part 73 of this chapter' as the basis for the required physical protection program. It would appear that the physical security plan for a spent fuel storage facility need not go beyond providing protection against overt or covert acts of sabotage; on this basis, it would appear that the requirements set forth in 10 CFR §73.55 would provide an adequate basis for a physical protection system. Some clarification of the intended coverage of the physical security plan should be set forth clearly in the regulation."

Discussion: Table I now lists both plans. Details of physical security plans are covered in 10 CFR Part 73. Section 73.50 now applies specifically to an ISFSI.

Section 72.17, Contents of Applications: Technical Qualifications

Comment No. 176: U.S. Department of Energy. (42)

"72.17(a) - Does this section require that specific individuals of, for example, the operating staff be named (and their resumes included) at the time of the license application? This is not usually done that far in advance of start of operations (about 4 years).

Discussion: The requirement is that the applicant have a staff which is competent to carry out proposed operations. There is no requirement to name individuals of the operating staff at the time of submitting the license application. But a commitment must be made that the operating organization will be in place prior to the receipt of spent fuel. A description of the planned organizations, position descriptions and the authority and responsibility assigned to each position for the operation of the installation is adequate for submittal with the license application.

Comment No. 177: American Nuclear Society (ANS57.7). (28)

"72.17(c) 'Certified' should be deleted. There are only certifications for reactor and reprocessing operations. Trained plant personnel should be adequate for this operation."

Discussion: Subpart I, Training and Certification of ISFSI Personnel, states the certification of the training and proficiency of personnel must be carried out under an NRC approved program. ISFSI operating personnel will not require licensing by the NRC.

Section 72.18, Decommissioning Plan, Including its Financing

The following eight comments were identified as general comments on this section.

Comment No. 178: Lowenstein, Newman, Reis, Axelrad and Toll. (48)

"We believe that it is both undesirable and unnecessary to require in §72.18(a) the inclusion of a "decommissioning plan" in an application. With respect to the ISFSI itself the specific components of a 'decommissioning plan' would best be determined at the end of the useful life of the ISFSI, taking into account prospective future use of the ISFSI or the site, then-available decontamination and decommissioning technology, etc. In addition, although the regulation is unclear, if the term 'disposal of radioactive material' is intended to refer to the ultimate destination of spent fuel, requiring precise such information in an application for an ISFSI is unrealistic in light of unresolved Federal policy issues."

Comment No. 179: Louisiana Power and Light Company. (49)

"Section 72.18 - This section requires 'a decommissioning plan which shall contain information on proposed procedures' for the 'dismantling and disposal of the ISFSI at the end of its useful life.' The useful life of an ISFSI is likely to be at least equal to that of a nuclear power plant (40 years). Due to the potential for advances in the state of the art for decommissioning nuclear facilities, it is inefficient to require more than a very general document on decommissioning the ISFSI at this stage. The decommissioning requirements for an ISFSI should not be more restrictive than those presently required of reactor sites. The decommissioning document should contain the selection of a general approach to decommissioning, an estimate of the cost for this approach, and evaluation of the ISFSI design features which facilitate decontamination and decommissioning. The decommissioning document should not address the ultimate disposal of the spent fuel as this is the responsibility of the Federal Government."

Comment No. 180: Shaw, Pittman, Potts and Trowbridge. (50)

"The requirements for a decommissioning plan seem to require an unnecessarily large amount of information at the pre-construction stage. Similar information is not required for reactor licensing and should not be required here. The provision, if retained, should also explicitly exclude the ultimate disposition of the spent fuel itself from the scope of the plan."

Comment No. 181: Yankee Atomic Electic Company. (55)

"The sections on decommissioning are unduly restrictive. In section 72.18 and 72.38 reference is made to dismantling as part of the decommissioning process. Since dismantling is not the only form of decommissioning, we do not believe it is appropriate in 10 CFR Part 72 to imply that dismantling must be done. While we agree that decommissioning should be considered in the licensing procedures, we do not believe that it is appropriate to demand detailed plans and financial arrangements for a procedure that will not take place for several decades."

Comment No. 182: Arizona Nuclear Power Project. (59)

"Section 72.18 - We do not think that the nuclear industry's technological base, as well as federal regulatory guidance, is sufficient at this time to require

the submittal of decommissioning plans. Further, industry experience may undergo significant changes during the plant lifetime, thus rendering initial plans obsolete."

Comment No. 183: Duke Power Company. (60)

"It is Duke's position that decommissioning plans should be developed in a time frame current with the decommissioning in order to utilize the latest in decontamination techniques and to be assured of a much more realistic cost analysis of decommissioning alternatives. The sections referring to decommissioning should require a decommissioning plan only of a conceptual nature."

Comment No. 184: Edison Electric Institute. (68)

"Information on the disposal of radioactive material as requested could be interpreted to include a plan for disposition of the spent fuel. Since the Federal Government has indefinitely deferred reprocessing and Federal policy is required to define the disposition of spent fuels, the decommissioning plan should specifically exclude the disposition of spent fuel. Decommissioning information should be be similar to that required under Part 50 and the proposed requirement for the disposal and decontamination procedures that will be employed many decades hence should be removed."

Comment No. 185: Tennessee Valley Authority. (72)

"Sections 72.18, 72.38, and 72.71(20) in referring to a decommissioning plan for the ISFSI require decontamination of the site and dismantling and disposal of the facility. This rules out alternate methods of decommissioning such as mothballing. We suggest that the NRC reword these sections to clearly state that alternative decommissioning methods may be permissible."

Discussion: This section has been revised to allow the applicant to propose a general plan for decontamination and decommissioning, it does not impose a requirement for dismantling and disposal. The plan, however, must identify those design features that will facilitate the decontamination and decommissioning of the ISFSI at the end of its useful life. This is to ensure that decommissioning has been considered in connection with the design of the ISFSI. The plan must also be in sufficient detail to provide the basis for and include a cost estimate for decontamination and decommissioning. Further, the plan must include the financial arrangements which provide reasonable assurance that adequate resources will be available to carry out the decontamination and decommissioning of the ISFSI and the site at the end of its useful life to enable its release for unrestricted use.

Prior to decommissioning the spent fuel inventory will have to be transferred to either a Federal repository for permanent disposal, or to a reprocessing plant. The decontamination and decommissioning plan pertains to the ISFSI and the site, not to the stored fuel.

Section 72.18(a)

Comment No. 186: Tennessee Valley Authority. (72)

"We believe the requirement for proposed procedures for decommissioning is too definitive for this time. It would have a tendency to commit to a certain procedure and not take into account any future advancements in technology. We suggest instead use of the words 'proposed practices,' using 'preliminary alternative methods.' This would permit updating the decommissioning plan as the actual decommissioning time approaches taking into account the regulatory requirements in effect at time."

Discussion: Section 72.18 has been revised to better clarify the requirements of the decommissioning plan. The wording does not preclude taking advantage of future advancements in technology.

Five comments addressed the phrase "dismantling and disposal":

Comment No. 187: M. Young (Allied-General Nuclear Services). (10)

"This section addresses 'dismantling and disposal of an ISFSI'; it is our understanding that once the installation is decontaminated, the final disposition of the remaining structures are the purview of the owners and state and local zoning regulations. If this is the case, this info should be incorporated into this section."

Comment No. 188: Exxon Nuclear Company, Inc. (22)

"The decommissioning mode to be used should be the prerogative of the owner. The word 'decommissioning' should be substituted for the words 'dismantling and disposal' in the first sentence."

Comment No. 189: Allied-General Nuclear Services. (27)

"Section 72.18 provides a new regulatory requirement relative to decommissioning. The decommissioning plan is therein described as requiring inclusion of assurance related to 'the dismantling and disposal of the ISFSI at the end of its useful life.' This Section should be clarified to provide that, after an ISFSI has been decontaminated at the end of its useful life (if complete decontamination is the selected mode in the decommissioning program), any question as to dismantling and disposal of the 'cold' structures, systems and components would be a matter for determination by the owners within the scope of state and local regulations and should not be of regulatory concern to the Commission."

Comment No. 190: U.S. Department of Energy. (42)

"In decommissioning an ISFSI, the owner should not be required to 'dismantle and dispose' of the facility but should have the option of mothballing or entombing of the radioactive parts of the facility (see Regulatory Guide 1.86). It should be acceptable to remove the fuel and the radioactive material and to decontaminate the structure and site. The design of an ISFSI would favor this approach (e.g., stainless steel lined pool). To dismantle completely represents an unwarranted expense and also, perhaps, an unacceptable commitment of resources to that action. Thus, 'dismantle' and 'disposal' should be struck from 72.18(a) and 72.38(a)."

Comment No. 191: Tennessee Valley Authority. (72)

"We also believe the definition of 'dismantling and disposal' should be more specific. Dismantling and disposal might not be the best method. It appears reasonable to allow the concrete structure of the pool and embedded piping to remain in place and be filled with earth or sand."

Discussion: Section 72.18 has been revised to read decontamination and decommissioning, rather than dismantling and disposal.

On the subject of minimizing the wastes generated during decommissioning:

Comment No. 192: Nuclear Fuel Services, Inc. (46)

"'This plan shall include provisions for minimizing the amount of solid, airborne and liquid wastes generated during decommissioning.' We regard this amount of detail as (1) inappropriate in light of the lack of specific NRC guidance on what constitutes acceptable decommissioning, and (2) premature considering that such decommissioning might be done several decades from the date of licensing review under procedures approved just prior to decommissioning. We recommend the deletion of the last sentence of this paragraph."

Comment No. 193: General Electric Company. (47)

"This Section partially defines the requirements for a Decommissioning Plan. The wording used differs sufficiently from the discussion in NUREG-0436, 'Plan for Reevaluation of NRC Policy on Decommissioning of Nuclear Facilities,' and the Commission's Advance Notice of Proposed Rulemaking in the Federal Register (43 FRO 10370, March 13, 1978) to raise questions about the NRC's actual intent. Reference should be made to a source for the Decommissioning Plan requirements.

"The sentences that read:

"'This plan shall include an evaluation of the ISFSI design features which have been selected to facilitate the maximum degree reasonable its decontamination and decommissioning at the end of its useful life. This plan shall include provisions for minimizing the amounts of solid, airborne and liquid wastes generated during decommissioning.'

"should be modified by replacing 'maximum degree' and 'minimizing' with words or phrases that do not imply such unlimited conditions."

Comment No. 194: Southern Company Services, Inc. (54)

"The last sentence should be deleted as the knowhow to accomplish this is not available at this time."

Discussion: Section 72.18(a) has been rewritten to stress "...those design features of the ISFSI that facilitate its decontamination and decommissioning...".

Section 72.18(b)

Comment No. 195: Southern Company Services, Inc. (54)

"Financial arrangements for decommissioning of nuclear facilities is an open question before the Commission and should not be included in this document at this time."

Discussion: The methods of financing of decommissioning costs are now being investigated by the Commission; this is not a question of whether these will be covered, but how.

Comment No. 196: American Nuclear Society (ANS57.7). (28)

"Delete sentence. This is too restrictive. No one else in the nuclear field has had to comply with financial arrangements for decommissioning. You could make the ISFSI too costly to operate with the burden for decommissioning some 40 years down the road."

Discussion: In the future, it is anticipated that all nuclear facilities will have to make provisions for decommissioning. Because of its timing, Part 72 is the first regulation to reflect this requirement. It is expected that other regulations will be revised to incorporate similar requirements.

The decommissioning of an ISFSI is not expected to be a costly operation as it should involve only decontamination--there should be no induced activity in its components.

On the subject of financial arrangements for decommissioning:

Comment No. 197: Shaw, Pittman, Potts and Trowbridge. (50)

"This sub-paragraph requires that the decommissioning plan 'include the financial arrangements for its execution'; it is not clear whether this provision is intended to mandate the establishment of a sinking fund or other specific financial arrangement to accumulate funds required for decommissioning during the lifetime of the facility or whether it is intended to require merely a description of how the licensee would propose to finance the decommissioning at the time the decommissioning is to be undertaken. Under either interpretation, NRC runs the risk of conflict with state regulatory agencies where utilities are the licensees. It would seem unreasonable to require such information for an ISFSI when it is not required for reactor licensing. Imposing preconstruction financial arrangements for future decommissioning on government agencies, utilities, and similar large and well-established entities is unreasonable."

Comment No. 198: Arizona Nuclear Power Project. (59)

"Similarly, the costs associated with decommissioing are not well identified. It should be the responsibility of the applicant to recover these costs by appropriately adjusting storage charges. Thus, the financial qualifications of the applicant are not affected with regard to licensing for construction. Local regulatory bodies may require a provision for decommissioning financing on the part of utilities so that costs may be included in rate bases. The balance of ownership should be by private corporations."

Comment No. 199: Lowenstein, Newman, Reis, Axelrad and Toll (48)

"It is also unnecessary to require in §72.18(b) that a decommissioning plan include 'the financial arrangements for its execution.' It should be sufficient for the applicant to describe how he intends to provide funds for future decommissioning and to provide reasonable assurance that he will be able to provide such funds."

Comment No. 200: Valore, McAllister, Aron and Westmoreland. (40)

"1. The Township does not believe that the provisions of paragraph 72.18(b) are sufficiently specific to guarantee that the owner of an ISFSI will indeed decommission the facility in a proper manner. To ensure proper decommissioning, it must be established on a continuing basis that the application has the financial capacity to decommission his facility throughout the life of the facility, not merely at the time of his application for a license.

"To this end, the applicant should also be required to establish a Decommissioning Capital Reserve Fund, segregated and subject to audit, which will accumulate by annual installments over the expected life of the facility to an amount sufficient to carry out the decommissioning based upon cost estimates made and revised at no more than five year intervals over the life of the facility."

Discussion: The requirement is for the establishment of some type of appropriate funding. The possibilities being considered are:

(1) Establishing funds to cover decommissioning at the time of construction,
(2) Development of a sinking fund to cover decommissioning costs during the period of operations,
(3) Establishment of a non-revokable surety bond, and
(4) Some form of insurance coverage.

Comment No. 201: Natural Resources Defense Council, Inc. (66)

"One need only look at the West Valley fiasco to appreciate the importance of adequate financial arrangements with respect to storage of spent fuel. The proposed regulations address this issue far too casually. Specific criteria should be developed in advance for the financial arrangements for decommissioning which include a substantial bond or creation of an escrow fund and establish some basis for determining in advance what could be the maximum cost. Past cost estimates have been so ridiculously low (e.g., West Valley set up a $4 million fund for a problem whose cost may run as high as $500 million to $1 billion[4]) that great care should be used in setting the cost."

Discussion: The work involved and the costs of decommissioning an ISFSI are not comparable to the removal of high-level wastes and decontaminating the Western New York Nuclear Service Center which was set aside for nuclear activities under a perpetual care concept by the State of New York.

The proposed regulation specifically requires that financial provisions be made to cover the costs of decommissioning of an ISFSI. Because decontamination and decommissioning of an ISFSI should involve only the removal of surface contamination, it is believed possible to develop a reasonably accurate estimate of the costs involved, based on present technology. Future developments in decontamination techniques can be expected to reduce such costs. Therefore, a cost estimate based on current state-of-the-art methods should be adequate.

Comment No. 202: Environmental Policy Institute, Wash., D.C. (29)

"We commend the Commission for its requirements concerning the decommissioning of the facility provided in section 72.18. We are concerned about the financial requirement, however, and note that the Commission is exploring the various options for financial assurance for decommissioning for a variety of facilities under its regulatory authority. We caution the Commission with regard to this type of facility over user-fees because of the uncertainty of demand and fuel discharge requirements. In addition, higher burn-up rates and waste disposal plans may also substantially affect the long-term economic viability of such a facility. Reliance upon user-fees to be assessed over the life of the facility is not a realistic financial assurance mechanism."

Discussion: Comment noted. The staff is aware of the factors that may affect the economic viability of an ISFSI.

Comment No. 203: Westinghouse Electric Corporation. (61)

"We recommend that Paragraph 72.18(b) be revised to read: 'The decommissioning plan will include plans for periodic review of the cost for decommissioning and a discussion of how the licensee will assure the Commission of its ability to pay these costs when they occur."

Discussion: It is the current staff position that more than a periodic review and discussion is necessary. The financial arrangements involved must be firm and made in advance.

Comment No. 204: A. Abriss. (5)

"Proposed Section 72.18 of 10 CFR requests information to be included in the Decommissioning Plan for an ISFSI. However, there is no requirement for providing cost estimates for the various decommissioning operations. Estimated costs are necessary to properly select a funding mechanism to pay for decommissioning. I would therefore, suggest the following changes:

"(a) Insert the following statement after the first sentence, 'The plan shall include cost estimates for implementing the decommissioning procedures, for decontaminating the site and for disposing of radioactive materials, including transportation and burial changes.'

"(b) Add after 'execution' based upon the cost estimates of part (a) above.

Discussion: The required financial arrangements will have to include projected costs to be meaningful.

Section 72.19, Emergency Plan

Comment No. 205: Exxon Nuclear Company, Inc. (22)

"References to appendices of other Parts of Title 10 creates a risk that those references will be amended in the future in a manner inappropriate to an ISFSI. Therefore, it is recommended that such material be incorporated directly into Part 72 as appropriate."

Discussion: A licensee must comply with appropriate parts of referenced regulations. It is recognized that these regulations may be revised in the future and that this may require a conforming amendment of Part 72.

Comment No. 206: Natural Resources Defense Council, Inc. (66)

"Because the regulations propose only one hearing, the emergency planning requirements must include approval of the final plan. This final approval should include a finding that there is reasonable assurance that the state and local government emergency plan, which must be submitted in detail, will be implemented and what steps will be taken by NRC to assure its implementation."

Discussion: Paragraph 72.31(a)(11) requires a finding that the applicants' emergency plan is acceptable. What may be entailed in making such a finding is considered to be design and site specific.

The emergency plan defines the elements of the plan sufficient to provide reasonable assurance that appropriate measures can and will be taken in the event of an emergency to protect public health and safety and prevent damage to property. Among other things, the emergency plan will include procedures for notifying, and agreements reached with local, State, and Federal officials and agencies, relevant to implementing the emergency plan.

Comment No. 207: Tennessee Valley Authority. (72)

"Section 72.19 requires a final (FSAR stage) radiological emergency plan (REP) when the application is submitted. We suggest a preliminary version of the REP be acceptable for submittal with the initial application."

Discussion: Considering the nature of ISFSI operations, and the potentially low risks to public health and safety related to ISFSI operations, we believe that an applicant can develop an acceptable emergency plan for submittal with the initial application. It is expected, however, that the emergency plan will be updated prior to the initial receipt of spent fuel, and periodically thereafter if there are any significant changes.

Section 72.20, Environmental Report

Comment No. 208: Lowenstein, Newman, Reis, Axelrad and Toll. (48)

"NEPA Process

"Although the Supplementary Information acknowledges that the Commission has evaluated the environmental impacts of the accumulation of spent fuel in its

draft GEIS (NUREG-0404), we do not detect in the proposed regulations any attempt to reach generic decisions based on the GEIS to avoid repetitive consideration of similar issues in individual licensing proceedings.

"As the Commission has recognized in its subsequent Interim Policy Statement on Generic Rulemaking to Improve Nuclear Power Plant Licensing (43 F.R., 58377, December 14, 1978) there are significant advantages to deciding a generic issue by rulemaking, including arriving 'at a dispositive finding regarding the generic issue so that the issue would not be addressed at all or in a simplified way in subsequent individual licensing cases . . .' We believe that this principle can be and should be employed to good advantage in the current rulemaking on ISFSI's. For example, on the basis of its final GEIS the Commission should be able to determine that there are no significant differences in the environmental impacts of storage in ISFSI's, at reactor pools or any other available alternative. Thus, the Commission should be able to rule generically that alternatives need not be considered in the environmental analyses performed in the licensing of an ISFSI. Similarly the Commission should be able to determine generically that the incremental environmental impact of installing an ISFSI at the site of an existing licensed reactor or of substantial Federal nuclear activities is sufficently small that no other site would be 'obviously superior.' Thus a generic rule should provide that no analysis of alternative sites would be needed for an ISFSI located at such an existing site. Another example of potential generic rulemaking would be a determination that spent fuel storage capacity is needed and that the individual licensing proceeding should not consider 'need' for the ISFSI (at least within specified capacities in given regions).

"The proposed regulations also ignore that the DOE has published a Draft Environmental Impact Statement (DOC/EIS-0015-e) and Supplement on Storage of U.S. Spent Power Reactor Fuel. If an ISFSI built by DOE is to be subject to licensing by the Commission, the proposed regulations should make clear that programmatic decisions reached by DOE on the basis of its generic impact statement will not be reevaluated by the Commission in the licensing of a specific ISFSI. United States Research and Development Administration (Clinch River Breeder Reactor Plant), CLI-76-13, 4 NRC 67, 79-87 (1976). Moreover, the regulations should contain a generic determination that as to matters covered in DOE's programmatic EIS which may be subject to Commission regulatory review, such review should not be de novo but should consider only whether DOE's determinations are 'reasonable.' Id. at 91.

"We must emphasize that appropriate consideration of the foregoing principles would lead to a radically different approach to decision-making on environmental issues in individual ISFSI licensing proceedings than is currently reflected in §72.31(10) of the proposed regulations. That section presently contains a paraphrase of the type of overall cost-benefit analysis and de novo consideration of all potentially relevant environmental issues that the Commission would make under NEPA for any license application filed with it under a framework (e.g., Part 50) where (1) the Commission had issued no generic environmental impact statement and had correspondingly reached no generic decisions in policy statements or rulemaking, and (2) no other Federal agency had made programmatic decisions on the basis of its own generic statements which were entitled to dispositive weight in the Commission's proceedings.

"Instead, for the reasons we describe above, Part 72 when adopted should reflect rulemaking in which the Commission generically determines and thus disposes of (i.e., eliminates as an issue in individual proceedings) basic issues pertaining to 'need' for (i.e., 'benefits' of) ISFSI's and to consideration of alternative methods and sites. In essence, under the NEPA process we suggest the Commission would not need to do a cost-benefit analysis in individual licensing proceedings de novo, since major elements of such analysis would have been disposed of generically in the rule itself. Rather, the specific EIS is an individual proceeding and the Commission's required environmental decision-making in that proceeding would be limited to any site-specific and project-specific effects that were not determined in the generic rule and to environmental effects, if any, arising from any deviation by the specific ISFSI from the envelope of characteristics assumed in the generic rule (e.g., conventional pool storage technology; use of an existing licensed site or the site of Federal nuclear activities).

"The NEPA process we suggest would take full advantage of the reasons why a generic (or programmatic) impact statement is undertaken in the first place. As recognized by the courts and cited for support by the Commission in Clinch River (4 NRC at 80):

"'The program statement has a number of advantages. It provides an occasion for a more exhaustive consideration of effects and alternatives than would be practicable in a statement of an individual action. It ensures consideration of cumulative impacts that might be slighted in a case by case analysis. And it avoids duplicative reconsideration of base policy questions.' (Emphasis added) Scientists' Institute for Public Information Inc. v. AEC, 481 F.2d 1079, 1087-88 (D.C. Cir. 1973).

"The principles of disposing of generic issues appropriately in the context of broad, programmatic decision-making and of focusing in subsequent actions only on any specific limited issues arising from such actions are also expressly encouraged by the CEQ in the 'tiering' process incorporated in §1502.20* and §1508.28 of the recently published regulations on NEPA implementation (43 F.R. 55978-56006, November 29, 1978).

"We urge implementation of such principles by the Commission as the most effective and efficient manner of implementing its NEPA responsibilities in Part 72.

"*§1502.20 states:

"Agencies are encouraged to tier these environmental impact statements to eliminate repetitive discussions of the same issues and to focus on the actual issues ripe for decision at each level of environmental review (§1508.28). Whenever

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If our suggestions are not adopted and Part 72 neither determines environmental issues generically nor provides any guidance as to how basic environmental issues (e.g., 'need' for ISFSI; consideration of alternative methods and sites) are to be considered in specific proceedings, it can readily be predicted that the Licensing Board in the first ISFSI licensing proceeding will be confronted with the same type of mixed questions of law and policy as arose in Clinch River. The Commission, rather than a Licensing Board, is best suited to decide such questions; and the rulemaking proceeding, rather than the licensing proceedings, is the best forum for such decision.

a broad environmental impact statement has been prepared (such as a program or policy statement) and a subsequent statement or environmental assessment is then prepared on an action included within the entire program or policy (such as a site specific action) the subsequent statement or environmental assessment need only summarize the issues discussed in the broader statement and incorporate discussions from the broader statement by reference and shall concentrate on the issues specific to the subsequent action. The subsequent document shall state where the earlier document is available. Tiering may also be appropriate for different stages of actions. (Sec. 1508.28)."

Comment No. 209: Shaw, Pittman, Potts and Trowbridge. (50)

"The regulation should explicitly provide that environment reports and environmental impact statement for ISFSI's need not cover those requirements of Part 51 which will already have been considered by generic NEPA reviews (i.e., need for ISFSI's, non-site related alternatives) other plant specific NEPA studies (i.e., uranium fuel cycle impacts covered in each reactor FES), or NRC regulations (i.e., Tables S-3 and S-4 of Part 51."

Comment No. 210: Commonwealth Edison Company. (56)

"Edison is a member of the Utility Waste Management Group (UWMG) and has reviewed the comments which that group is submitting to the Commission with respect to 10 CFR Part 72. Edison concurs with the UWMG comments. We particularly urge the Commission and its staff to give careful and serious consideration to the UWMG comments concerning the importance of relying upon generic environmental impact statements in licensing particular ISFSIs."

Comment No. 211: Edison Electric Institute. (68)

"A specific statement should be included that calls for the recognition by reference to all environmental issues of spent fuel storage that are previously resolved in programmatic and generic environmental reviews and other site specific environmental reviews. Such a position will minimize the redundant and duplicate review of previously settled issues."

"Generic environmental impact statements have been drafted and are being reviewed on spent fuel storage including NUREG 0404, Handling and Storage of Light Water Reactor Fuel, DOC/EIS-0041-D, Charge For Spent Fuel Storage, and DOE/EIS-0015-D, Storage of US Spent Power Reactor Fuel. Many environmental elements of spent fuel storage will be resolved with these reviews. Environmental elements that are resolved during generic evaluations of programmatic spent fuel storage activities should be accepted by reference for any site-specific license and not subject to redundant and duplicate environmental evaluation. Also, the environmental evaluations for activities on the same site that have preceded the ISFSI applications should be accepted by reference and not duplicated. Any additional environmental evaluations to satisfy NEPA requirements should be specifically limited to the incremental impact of the ISFSI during the site-specific licensing consideration."

Comment No. 212: Tennessee Valley Authority. (72)

"The applicant for a license under Part 72 may be a Federal agency. In that case, a lead agency agreement in accordance with the Council on Environmental

Quality regulations should obviate the need for an environmental report. Part 72 should allow for this possible exception in Section 72.20.

"The Council of Environment Quality regulations clearly favor lead agency arrangements when more than one Federal agency is involved in a project (40 CFR 1501.5 as noticed in 43 FR 55992-55993). By referencing 10 CFR Part 51, Part 72 implicitly incorporates footnote 1 of 10 CFR 51.20, permitting lead agency agreements the Federal agencies involved in the implementation of the provisions of the National Environmental Policy Act (NEPA) in lieu of an environmental report. Such lead agency agreements minimize the duplication of efforts by the Federal agencies involved in the preparation of environmental impact statements (EIS), while still ensuring that the EIS for each project will satisfy the NEPA requirements of each agency involved. Because Part 72 does not explicitly discuss lead agency agreement, a specific provision should clarify the Nuclear Regulatory Commission's (NRC) intent.

"We recommend that Part 72 be revised to permit explicitly the development of lead agency agreements by adding the following footnote to Sections 72.20 and 72.31(10):

"'Where the 'applicant,' as used in this part, is a Federal agency, different arrangements for implementing NEPA may be made, pursuant to the Guidelines established by the Council on Environmental Quality.'"

Discussion: The Commission's views respecting the lead agency concept are set out in the statement of considerations accompanying the proposed revision of 10 CFR Part 51. (See 45 FR 13740, March 3, 1980.) (See also the discussion of comments 208-218.)

Comment No. 213: Exxon Nuclear Company, Inc. (22)

"It is assumed that the reference should be Subpart C to Part 51 (Materials Licensing and Other Action)."

Comment No. 214: Northeast Utilities. (45)

"Part 72.20, 'Environmental Report,' requires that an Environment Report meeting the requirements of 10 CFR 51 accompany the ISFSI application. As 10 CFR 51 requires both a construction permit and operating license stage environmental report, there appears to be some conflict between the single license requirements of the proposed 10 CFR 72, and the existing 10 CFR 51. Clarification of the requirements for environmental report preparation is believed to be needed."

Comment No. 215: Ebasco Services, Inc. (52)

"This requirement will probably be the critical path item for the licensing of an ISFSI. We believe that revisions to 10 CFR 51 are required to delineate the specific requirements for contents of an Environmental Report for an ISFSI and to identify the extent to which the GEIS can serve as a basis for findings required by NEPA."

Comment No. 216: Natural Resources Defense Council, Inc. (66)

"There should be a clear statement that the proposal to issue approval for any AFR is a major federal action significantly affecting the environment for which

an impact statement is required. The incorporation by reference of the filing requirements of Part 51 contained in proposed §72.20 is not sufficient, nor is the provision specifying findings under Part 51 contained in proposed §72.31(10)."

Comment No. 217: Tennessee Valley Authority. (72)

"Section 72.20 requires an environmental report which meets the requirements of 10 CFR Part 51. Part 51 requires two environmental reports, one at the construction permit stage and one at the operating license stage. Since Part 72 requires only a single license, only one environmental report should be required. This could be implied, it would eliminate the possibility of future dispute if Section 72.20 were to specify the requirements."

Comment No. 218: Edison Electric Institute. (68)

"A reference should be included for the recognition of previously resolved environmental elements to preclude redundant and duplicate reviews. Environmental reviews should be limited to site specific and project-specific effects related to the facility being considered."

Discussion: Comments Nos. 208-218 address various environmental matters in the context of the Commission's present NEPA regulations which are set out in 10 CFR Part 51. On March 3, 1980, the Commission initiated a rulemaking proceeding to revise Part 51 to implement section 102(2) of the National Environmental Policy Act of 1969, as amended, in a manner which is consistent with the NRC's domestic licensing and related regulatory authority and reflects the Commission's policy to take account voluntarily, subject to certain conditions, of the regulations of the Council on Environmental Quality implementing the procedural provisions of NEPA. (The text of the proposed revision of Part 51 appears at 45 FR 13739-13766, March 3, 1980.) To the extent that Comments Nos. 208-218 address substantive matters such as the content of generic environmental findings, they are beyond the scope of Part 72. To the extent that they address procedural matters, including the appropriate relationship between Parts 72 and 51, they will be considered more fully in connection with the Commission's pending rulemaking proceeding to revise 10 CFR Part 51.

Subpart C--Issuance and Conditions of Licenses

Section 72.31, Issuance of Licenses

Comment No. 219: Office of the Governor, Michigan. (14)

"It is also the view of the State of Michigan that no Independent Spent Fuel Storage Site should be licensed without early consultation with and concurrence of the State in which the repository is proposed. Michigan recommends that proposed 10 CFR 72 be revised to incorporate this requirement."

Comment No. 220: Public Utility Commission of Texas. (18)

"From the State's standpoint, the only comment we have on the proposed regulations is that sufficient provision for notice to affected parties be included. Specifically, it should be a requirement that when an application for an independent spent fuel storage facility is filed with the NRC, a copy should also be sent to the appropriate State agencies such as the State Health Department and/or Public Utility Commission. Notice should also be required to be printed in newspapers with general circulation in the area of the proposed site."

Comment No. 221: Oklahoma State Department of Health. (19)

"Following review, my only comment is that I see nothing in the proposed regulations which would require the notification of the affected state(s) at an early date of the proposed construction of an ISFSI. It may be that such notification would be handled through internal NRC policies and procedures or by a requirement in some other Part of the CFR. However, if not, I would suggest the inclusion of a requirement of notification of the Governor and the radiation control office of the affected state(s) of the potential licensee's intentions to construct and operate an ISFSI at a time coincidental with the filing of the license application."

Comment No. 222: D. Wilt. (24)

"I believe this subpart (referring to Subpart E) of the proposed rule is deficient. Provision is made for examination of the proposed site for a large number of variables but no provision is made for a review of the sociological implications of such a facility. It is an elementary proposition that the citizens of this country have free choice. Free choice implies the right to say no. There is nothing in this regulation which permits the public to be involved in the application process. There is no requirement that a representative of the public review each and every part of the application to determine for the benefit of the public that all of the requirements are met. A provision for public hearing after the application has been filed is not sufficient. An ombudsman ought to be appointed to participate in the initial stages of the application process.

"Furthermore, there ought to be a requirement that a proposed applicant obtain the approval of the population who live around the facility. The sociological and emotional health of the population is every bit as important as acceptable seismic characteristics. Since the facility is going to be in the area for an incredible period of time, the consent of those who will be its neighbors must be solicited. Since the proposed rule is completely deficient in this respect, it should not be adopted."

Comment No. 223: Valore, McAllister, Aron and Westmoreland. (40)

"Under Section 72.31, a license should not be issued if a properly conducted voter's referendum in the locality of the 'site' where the ISFSI is located rejects location of the facility at the site. Regulations for establishing the question on the ballot should be prepared by the NRC. This would enhance the nature and extent of public participation in the entire process."

Discussion: 10 CFR Part 2 requires notification of local and State officials, for:

(1) receipt of waste radioactive materials,
(2) a production or utilization facility,
(3) any activity requiring an environmental report pursuant to 10 CFR Part 51.

The NRC now has a state liaison officer with each State government. Through these agents, procedures are being developed to involve the States in NRC licensing activities in addition to the provisions in NRC regulations for public hearings.

Comment No. 224: Wisconsin Electric Power Company. (26)

"There appears to be no mention in the regulations that a license granted in accordance with this part would permit shipment of spent fuel assemblies."

Discussion: Regulations governing the shipment of spent fuel assemblies are in 10 CFR Part 71 and (DOT) 40 CFR 171-177. Part 72 covers only the possession of spent fuel for storage in an ISFSI.

On the subject of the need for ISFSIs:

Comment No. 225: American Society of Civil Engineers. (34)

"Spent fuel storage capacity at reactor and at existing used or unused reprocessing plants should be increased as much as possible by modification of racks with closer spacing of fuel assemblies and utilizing previously unused floor area but keeping a full core reserve capacity in spent fuel pool for a reactor core unloading.

"A consideration to above, should be given during licensing of an ISFSI so that unnecessary ISFSI need not be licensed as acknowledged purpose of ISFSI is temporary storage of spent fuel for a period during which, a decision to reprocess or permanently dispose the spent fuel is made, such facilities are constructed and put in operation."

Comment No. 226: Natural Resources Defense Council, Inc. (66)

"The use of an AFR has been discussed exclusively as a stop-gap measure to assist utilities which do not have adequate storage space for spent fuel. Use of AFRs is not independently desirable, if desirable at all, and its use ought to be severely restricted to instances in which a clear need exists. These concepts should be embodied as preconditions to processing an application for construction of an AFR.

"As the Commission is aware, the major (not the only) controversy about AFRs is whether to use them and not only whether in fact they are safe. It would be beneficial to resolve the issue of need before commencing the formal licensing process. By establishing an adjudicatory mechanism for resolution of that issue in advance of formal hearings on the specific project, the Commission could save time and make for a more orderly process. This determination of need could be in the nature of a generic proceeding without the necessity for site identification or detailed design information. Inasmuch as the hearing will be adjudicatory the findings on need would be binding in subsequent site-specific proceedings absent a prima facie showing of the necessity to reopen the record.

"The findings required to conclude that the need for an AFR exists should include the following:

"1. Further compaction of nuclear fuel at the reactor site is technologically impossible or involves unacceptable risks to the public and/or worker health and safety during the period of planned reactor operation, and

"2. Construction of an additional at-reactor storage facility is technologically impossible or involves unacceptable risks to the public and/or worker health and safety during the period of planned reactor operation.

"In addition, to deal with the possible problem created by the failure of utilities to anticipate spent fuel storage problems, the following principles should be applied:

"1. No spent fuel could be considered as a candidate for storage at an AFR unless the utility had implemented a concerted effort to resolve conditions 1 and 2 above.

"2. No spent fuel could be shipped to an AFR except during the period required to determine the answer to conditions 1 and 2 above and, if both conditions are not met, for the further period required to obtain a final answer from all cognizant agencies to a proposal to expand at-reactor storage.

"3. No spent fuel could be shipped to an AFR from any reactor which received its operating license on or after December 31, 1979.

"4. No spent fuel could be shipped to an AFR from any reactor which has been denied permission to expand spent fuel storage capacity unless the basis for denial was explicitly stated to be one of the two conditions listed previously.

"These standards for determining need assure that a genuine need for spent fuel storage exists and prevents utilities from using AFRs to bail out of the waste problem. It also assures that local and state governmental entities with the authority to approve or disapprove spent fuel storage expansion do so with the knowledge that their denial, except on certain very explicit bases, will force shutdown of the reactor and with the assurance that if they make that decision the AFR will not be used as a device to evade the consequences of that decision. In this way the AFR concept remains neutral to the question of the desirability

of continued use of nuclear power.[3] The economic and technical uncertainties which now surround nuclear waste management are legitimate uncertainties which flow directly from the anomaly created by beginning a nuclear power program without having any reasonably notion of how to solve the most serious and irreversible problem created by nuclear reactors--nuclear waste.

It is fair and essential that decisions on whether to build more nuclear plants and whether to continue to build and operate those to which commitments have already been made should be influenced by the real uncertainties created by this anomalous situation. For the government to step forward and to offer to take title to and store spent fuel in government-owned interim storage facilities in order to artificially establish for a utility a solution to the mounting volume of nuclear wastes for which in fact no disposal solution exists, is the worst kind of government subsidy. Nuclear power is rightly burdened by the waste problem and the absence of any solution to it. If its benefits are not sufficient to offset that burden, then it deserves to be halted."

Discussion: Spent fuel storage capacity within existing reactor pools, licensed under Part 50, is being increased at individual facilities to meet their individual needs. A full core reserve capacity at a nuclear power plant is not a safety requirement, however, a full core reserve capacity may be desirable from an operating standpoint.

The need for additional temporary spent fuel storage capacity, pending a decision on the ultimate disposition of spent fuel, is a generic issue which is addressed in both NRC and DOE generic environmental impact statements. This regulation establishes the licensing requirements in the event additional capacity for the storage of aged spent fuel is needed.

Part 72 provides for the siting of an ISFSI at a nuclear power plant site or elsewhere, based on a finding that the proposed site is acceptable and the best for this purpose among alternative sites available to an applicant. The staff is not aware of any compelling safety consideration which should be used to prejudge selection of an at-reactor site over an away-from-reactor site for an ISFSI. We believe that each application should be evaluated on its individual merits.

The following comments addressed the single license provisions of Part 72.

Comment No. 227: Washington State Energy Office (15)

"The plans for issuing a single license rather than the two which are customary for power plants is a good one. It will enable construction to start sooner but still provides for an adequate review process. Other features, as outlined in the supplementary information, are concurred in."

Comment No. 228: Exxon Nuclear Company, Inc. (22)

"The provision for issuance of a single license as early as possible in the licensing process is a practical forward step which should materially assist in solving the imminent spent fuel storage problem without sacrificing consideration of public health and safety or environmental protection."

[3]The Draft IRG Report Supports this neutrality.

Comment No. 229: American Society of Civil Engineers. (34)

"Stating it realistically, the desire to expedite the licensing procedure often conflicts with the demands of selected parties looking for the absolute assurance that the facility/system presents no level of risk. A second interpretation is that the technical considerations must prevail; however, they must be responsive and fit into our political society."

Comment No. 230: Mississippi Power and Light Company. (39)

"Accordingly, MP&L supports the NRC in its recognition of the need for a single license and a single safety analysis report as early as practical in the licensing process of an AFR storage installation."

Comment No. 231: Lowenstein, Newman, Reis, Axelrad and Toll. (48)

"The proposed regulations recognize that the storage of spent fuel at an ISFSI is licenseable under the Atomic Energy Act of 1954, as amended, as the ownership, receipt, possession, etc., of special nuclear, source and byproduct material, and not as the construction and operation of a utilization facility (such as a nuclear power plant). Thus the regulations do not explicitly require the two-step process associated with the licensing of a reactor i.e., the issuance of a construction permit followed by the issurance of an operating license. Instead the proposed regulations (§72.31) presumably call for the issuance of a 'single license,' as explained at 43 F.R. 46309.

"We fully agree that a 'single license' should be issued but we have several basic disagreements with the specifics of the proposed timing of license issuance and other important details.

"First, we believe it is inappropriate to require that the license be issued before the start of construction of any physical facilities, particularly if the ISFSI is to be located at a site where there are existing licensed nuclear facilities or governmental nuclear activities. An ISFSI will not be a massive construction project (such as a reactor) and will not entail potential significant environmental impacts during construction. Moreover, since, as described in the Commission's Draft GEIS on Handling and Storage of Spent Light Water Reactor Fuel (NUREG-0404), there has been extensive favorable operating, safety and technical experience in the pool storage of spent fuels, there is no need for a formal review prior to construction. We would urge instead that the license not be required until spent fuel is to be received at the ISFSI and that the regulations be redrafted to provide that:

"(1) An applicant be required to file preliminary information prior to construction, but only so that the NRC Staff can informally review the project and provide its informal views to the applicant during construction; and

"(2) An applicant have the option to seek formal Commission approval at any time he chooses (including prior to construction) as to either the entire ISFSI or any aspect thereof (such as a site approval; approval of a particular method of spent fuel handling or storage, etc.)."

Comment No. 232: Ebasco Services, Inc. (52)

"We concur with the concept of having a single license cover both construction and operation of the ISFSI. However the rules regarding conditions of issuance should further clarified, especially with regard to license re-evaluations."

Discussion: The wording in Section 72.31 has been revised to clarify the requirements and timing of the issuance of a license under Part 72. It is the staff's judgment that the license application can contain a definitive description of the proposed ISFSI and its operation adequate to support the necessary findings for the issuance of such a license prior to commencement of construction.

The following comments addressed the subject of public hearings:

Comment No. 233: Valore, McAllister, Aron and Westmoreland. (40)

"The regulations should make clear that interested parties are permitted to intervene and that hearings should be held on the licensing procedure."

Comment No. 234: Lowenstein, Newman, Reis, Axelrad and Toll. (48)

"Third, it is difficult to evaluation the proposed licensing approach since important provisions pertaining to public hearings are not included but will be issued for public review and comment later. Regardless of the approach selected, it will be essential that no more than one hearing be held. Thus any up-dating of license conditions or subsequent amendment of the license should not provide an additional opportunity for public hearings."

Comment No. 235: New York Energy Office. (70)

"We urge that the license procedure as stated in 10 CFR 72 (proposed) relating to public hearings and intervention by interested parties be defined with more specificity. The proposal is vague in presenting the procedural steps available to carry out this important part of the licensing procedure. We believe the licensing section of 10 CFR 72 (proposed) Subpart B, should parallel the requirements for production and utilization facilities as stated in 10 CFR 50, Class 103 licenses, thus allowing the opportunity for citizen and State input prior to issuance of an ISFSI license.

"The supplementary information section of 10 CFR 72 (proposed) mentions amendments to regulations establishing public hearing procedures. These amendments should be made available as expeditiously as possible to allow a complete review and comment by the public."

Comment No. 236: Natural Resources Defense Council, Inc. (66)

"In several proposed sections (§§72.8, 72.32, 72.34, 72.36, 72.38, 72.81(d)), major actions of relevance to the public are authorized without an opportunity for a public hearing. Pursuant to Section 189 of the Atomic Energy Act and relevant court decisions (Brooks v. AEC, 476 F.2d 924 (D.C. Cir. 1974)), any action which alters the terms of a previously issued license must be noticed prior to the action being taken and the public must be provided with an opportunity to argue that a hearing would be appropriate. For instance, a decision to exempt a party from the licensing requirements (§72.8), to extent the period

during which spent fuel can be stored at the AFR (§72.32), to change the owner and thus the person financially responsible for the spent fuel (§72.36(c)) and to allow a license to be terminated and the responsible person to be adjudged to have completed all requirements for disposal of the spent fuel and of the facility (§72.38) are matters in which the public would be expected to have a substantial interest. At a minimum, there should be an opportunity for a public hearing and a notice of such opportunity at the earliest date on which the Commission has reason to believe a propo ' take such action will be submitted.

"The proposed regulations are based upon the premise that the applicant and/or the Staff can be relied upon to draw the line between matters which do not require public involvement and those which do. Given the general attitude of the applicant and the Staff to the public and its value in the process, such reliance is unwarranted. Only the public can adequately protect its own interests."

Discussion: It is an NRC established practice to publicize major proposed licensing actions involving spent fuel storage under 10 CFR Part 72. It is also an established NRC practice to hold a public hearing on such proposed licensing actions in response to a petition by any interested party which sets forth a legitimate reason for holding such a hearing. A new Section 72.34, which references 10 CFR §§2.104 and 2.105, has been added to specifically cover the subject of public hearings.

Comment No. 237: Nebraska Department of Environmental Control. (3)

"The proposal to issue the license at a very early stage and then re-examine it and add conditions before the facility can receive waste could result in the construction of an ISFSI which would not be allowed to receive spent fuel. This could result in wasting millions of dollars either by reason of the facility standing as a white elephant or in spending large sums to rebuild selected parts. One license should be issued after receipt of sufficient data to indicate the facility will be able to receive spent fuel. In an effort to save time by the method proposed, delays could result which would defeat the purpose of the regulation."

Comment No. 238: C. Hickerson. (32)

"The statement is made that the license will be 'reevaluated' by NRC prior to receipt of spent fuel at an ISFSI. We assume that the reevaluation process will be limited to a 'review' of those licensing conditions directly related to the physical facility as constructed and will not require a complete 'reevaluation' of the license application. If this is the intent, we suggest that this point be clarified.

Comment No. 239: Mississippi Power and Light Company. (39)

"With regard to the Commission updating a license prior to receipt of spent fuel at an installation, the regulation should provide that the NRC review will be limited to license conditions directly related to the installation 'as constructed' and will not be a complete reevaluation of the entire license application and that material changes will be made to a license only in the event significant factors have come to light since a license was issued which

could endanger the health and safety of the public. Before financial institutions will finance the construction of an AFB storage installation and before utilities will undertake such a construction program, they must have assurance that barring significant changed conditions at a facility since the time a license was granted, a facility will not have to be significantly modified or reconstructed after its completion and that operations will not be unduly delayed."

Comment No. 240: Shaw, Pittman, Potts and Trowbridge. (50)

"The reference to updating of a license prior to receipt of spent fuel is unclear. No new licensing action should be involved, and in particular, no new opportunity for hearings should be provided."

Discussion: Prior to the receipt of spent fuel, the Safety Analysis Report must be updated to reflect the ISFSI as built. It is anticipated that at this time there may be a need to review the technical specifications applicable to the operation of the "as constructed" facility. We do not foresee a need to reevaluate the complete licence application as any changes which have a safety significance must be covered by a license amendment.

Comment No. 241: Arizona Nuclear Power Project. (59)

"The phrase 'appropriate or necessary' as used to describe NRC license conditions should be changed to 'appropriate and necessary,' consistent with the equivalent Part 50 provision (§50.50)."

Discussion: Section 72.31(a) has been revised to state the findings required as the basis for issuance of a license. The reference phrase was eliminated.

Comment No. 242: General Electric Company. (47)

"This Section defines the first issuance of a license but does not recognize that authorization to begin construction is required by the licensee. The first sentence should be changed to read:

"'(a) The Commission will issue a license under this part prior to start of construction. Such license will be updated prior to the receipt . . .'

"The terms 'qualified' and 'adequate,' used in (a)(2), (4) and (5) require additional definition or a corresponding reference to limit their meaning."

Discussion: Section 72.31(a) has been expanded to cover the required findings and has been reworded for improved clarity. The revised wording is believed to be responsive to this comment.

Section 72.31(a)(1)

Comment No. 243: H. Ashar. (16)

"The site suitability criteria from Seismic Design point of view are described in 72.66. It appears that a reference to 72.66 (Subpart E) will preclude any confusion, and will be consistent with the subsequent (72.31(a)(2), (3), (4) etc.) conditions of license."

Discussion: This section, now 72.31(a)(2), has been revised to require a finding that the proposed site complies with the criteria in Subpart E of this Part.

Section 72.31(a)(4)

Comment No. 244: U.S. Department of Energy. (42)

"How will the NRC determine that the 'operating procedures' are adequate? The SAR usually contains only the operating plan. The detailed operating procedures would not be developed until much later."

Discussion: The SAR must provide sufficient information about the operations to be performed and, where appropriate, to establish proposed technical specifications to support this required finding. In general, operating procedures must meet the requirements of NRC regulations, particularly those applicable to health and safety.

Section 72.31(a)(9)

Comment No. 245: Ebasco Services, Inc. (52)

"The criteria which would be used in determining the adequacy of the applicant's decommissioning plan and its financing should be identified."

Discussion: The requirement is that the decommissioning plan and the financial arrangements for carrying it out must provide reasonable assurance that decontamination and decommissioning at the end of the useful life of the ISFSI, will provide adequate protection for the health and safety of the public.

Section 72.31(a)(10)

Comment No. 246: Gilbert/Commonwealth. (44)

"Part 72.31(a)(10) is unclear as to who is responsible for making a finding that the issuance of a proposed license is called for based on the evidence submitted. The circumstances under which the Director of the Office of Nuclear Materials Safety and Safeguards may make such a finding, or when a public hearing followed by an Atomic Safety and Licensing Board determination is required to make such a finding should be clarified."

Discussion: If there is no public hearing in a specific licensing action under Part 72, the Director of the Office of Nuclear Material Safety and Safeguards (NMSS), or his designated representative, may make the required finding and issue the license after approval by the Commission. If there is a public hearing, the Atomic Safety and Licensing Board may make such findings, and order the issuance of the license.

Comment No. 247. Natural Resources Defense Council, Inc. (66)

"Nuclear reactor licensing has been marked by the inability of applicants to provide a final design for licensing approval at the construction permit stage. This has necessitated the two-hearing process (Power Reactor Co. v. Electrical Union, 367 U.S. 396 (196[illegible])) and much ratcheting. However, we are repeatedly assured by the industry and the Staff that spent fuel storage pools involve no similarly complex technological problems. This is apparently reflected in the proposed Part 72 which contemplates only one hearing, at construction, for the AFR. Such an approach is certainly desirable provided the construction permit proceeding resolves all possible issues related to the facility design.

"As drafted, Part 72 does not require that the construction permit approval be preceded by a final design approval. Such a requirement must be included or Part 72 makes a mockery of meaningful public or board participation. As the regulation is now written, the Staff will decide on its own, after construction is approved, what the AFR design should be. With all due deference to the Staff, past history exemplified that they are not capable of adequately handling that job without the timely intervention of hearing boards and the public.

"A requirement for final design approval prior to construction would avoid ratcheting, eliminate the need for hearings on proposed amendments to the preliminary design and avoid the illegality of an effort to turn a two-hearing process into a one-hearing process without eliminating the need for two hearings."

Discussion: The ISFSI is not a complex structure, nor does it have complex systems, nor complex operations. Accordingly, prior to the start of construction, the applicant should be able to develop a definitive design and description of the ISFSI and propose appropriate technical specifications governing its operation, in sufficient detail to enable the staff, based on an independent review of the application, to make the findings of Section 72.31.

Comment No. 248: Shaw, Pittman, Potts and Trowbridge. (50)

"The reference to NEPA determinations made by a licensing board at a public hearing is confusing in that it implies that a public hearing would only deal with NEPA issues."

Discussion: Section 72.31 gives the findings, including NEPA determinations, upon which the issuance of a license under Part 72 will be based. Any, or all, of these findings might be matters for consideration at a public hearing.

The following comments addressed the subject of issuance of a license prior to commencement of construction.

Comment No. 249: Exxon Nuclear Company, Inc. (22)

"The language dealing with environmental findings is common to that in Part 70, and we have found it acceptable in the past. However, it is clear that the scheduled need for an ISFSI in the United States is approaching a point where the regulatory process could interfere with timely completion of construction. To minimize this probability it is recommended that the following be inserted before the last sentence of this paragraph:

"The Director may, based on an initial review of information filed, issue a letter authorizing initiation of construction activities, provided that he explicitly finds that any potential adverse environmental impacts resulting from operations of the facility can be adequately abated by adjustments in the final design of the facility, and that the applicant agrees to conduct the construction activities so that such adjustments are not precluded."

Comments No. 250 and 251: Allied-General Nuclear Services. (27) and M. Young (10)

"Section 72.30(a)(10) introduces a proposed licensing concept which differs substantially from that of 10 CFR 70. Section 70.21(f) of 10 CFR 70 requires that an application must be filed 'at least 9 months prior to commencement of construction.' In view of the general uncertainties surrounding national nuclear policy, it is unlikely that any private investor would want to initiate construction on any basis substantially different from that proposed by Section 72.31(a)(1). However, the urgency of establishing an ISFSI, as expressed by the Interagency Review Group, suggests that the Commission might wish to consider the inclusion of an option in Section 72.31(a)(10) under which, in the absence of favorable licensing action by 9 months after date of application, the applicant, at its own risk, might be permitted to initiate construction without jeopardizing a favorable ruling on the application."

Comment No. 252: U.S. Department of Energy. (42)

"There is an apparent contradiction between the SUMMARY statement: 'The proposed new regulation specifies procedures and requirements for issuance of licenses to store spent fuel in an independent spent fuel storage installation' and the requirement that the license be issued prior to construction start. Since the SUMMARY implies that the license is for fuel storage, it appears that applicants (particularly DOE) should be able to construct a facility at their own risk if the NEPA process has been complied with, and obtain the license for fuel possession prior to receipt of spent fuel."

Comment No. 253: Nuclear Fuel Services, Inc. (46)

"Neither the proposed Part 72 nor its accompanying Supplementary Information sets forth a clear explanation of the intended step by step licensing procedures which will be utilized for licensing of ISFSI. The relationship to 10 CFR Part 2 procedures is not addressed, nor is the timing of the issuance of the license within the licensing framework. Applicants will require more certainty in these procedures so as to be able to plan licensing schedules. Specifically, Section 72.31(a)(10) requires that the specific license must be issued prior to commencing of construction; however, there appears to be a possibility of another licensing action after construction and prior to operation of the facility as a result of Sections 72.15(b)(1) and 72.31(a), requiring the submittal of an 'updated' SAR for 'approval.' It appears that Part 72 combines certain licensing concepts of a materials license (pursuant to Part 70) with other features of production and utilization facilities license (pursuant to Part 50). Thus, the one-stage licensing procedure of Part 72 may, in reality, constitute a two-stage procedure (construction approval and then an operating approval). When Part 72 is promulgated as an effective regulation, either the regulation or its Statement of Considerations must clarify procedural matters."

Comment No. 254: Duke Power Company. (60)

"Section 72.31 does not include a time table for filing of an application, processing by the NRC Staff, and issuance of the license. It is suggested that an application be submitted by the licensee at least twelve months prior to the proposed commencement of construction so the NRC could have twelve months to rule on the application. However, the applicant should be allowed to begin construction at his own risk prior to issuance of a Construction Permit by the NRC."

Comment No. 255: Westinghouse Electric Corporation. (61)

"Maximum use should be made of existing LWR rules and regulations, including terminology. For example, it would seem appropriate to make provision for some form of limited work authorization as is the case for LWRs."

Comment No. 256: Stone and Webster Engineering Corporation. (69)

"Part 72 precludes the issuance of an LWA-type permit. However, paragraph 72.31(a)(10) appears to allow a license to be issued upon a conclusion by the Director of the Office of Nuclear Material Safety & Safeguards or after public hearings and an ASLB finding with respect to environmental issues. Part 72 should contain specific provisions to allow certain construction activities to proceed prior to hearings and ASLB findings if hearings are to be held."

Discussion: The ISFSI is not complex, neither are its operations complex. Moreover, if properly designed and operated, its environmental affects, if any, are not expected to be significant. Thus, the NEPA determination would not necessarily be the cause of delays with respect to licensing the proposed ISFSI. The timely review and hearing proceedings, if any, will depend largely upon the completeness and quality of the application submitted.

Comment No. 257: Natural Resources Defense Council, Inc. (66)

"In proposed §72.31(a)(11) a new concept of public health and safety is added which substantially dilutes existing requirements. There is nothing to authorize the reduction of the protection to the public to the level of only preventing all 'unreasonable risks.' The proper standard is reasonable assurance of adequate protection for the public health and safety. That standard must be maintained for AFRs."

Discussion: Comment noted. Section 72.31(a)(11) in the proposed rule is now Section 72.31(a)(13) and (14) in the revised rule, which states, pursuant to the Atomic Energy Act, Section 69, "The issuance of the license will not be inimical to the common defense and security or to the health and safety of the public."

Comment No. 258: Valore, McAllister, Aron and Westmoreland. (40)

"The proposed regulations do not address the question of residual risks. There is a failure to comply with the safety standards in the Atomic Energy Act."

Discussion: The subject of residual risks is not addressed in NRC regulations. Absent some special showing, compliance with the safety standards in the Atomic

Energy Act follows necessarily from compliance with the Commission's safety regulations. In other words, the Commission's safety regulations leave no "gaps" that must be filled by some safety evaluation against the bare standards of the Act, and there is no room for parties to insist that additional safety requirements be imposed on facility construction or operation once the safety regulations are complied with. This approach has been followed in the drafting of the proposed 10 CFR Part 72 on the licensing requirements for the storage of spent fuel in an ISFSI.

Section 72.32, Duration of License, Renewal

Comment No. 259: Valore, McAllister, Aron and Westmoreland. (40)

"The provision for a 20 year license which may be renewed creates a de facto permanent spent fuel and disposal facility. A 20 year license renewable for an indefinite term is in every sense of the term a permanent spent fuel storage and disposal facility. The term of 20 years and indefinite renewal is repugnant to the purpose in Section 72.1.

"The NRC has no jurisdiction to license the storage of hazardous radioactive waste for an indefinite period of time. Section 72.32 would permit the NRC to assume this jurisdiction."

Discussion: Part 72 defines the licensing requirements for the temporary storage of aged spent fuel pending a decision as to its ultimate disposal. It is not related to the storage of hazardous radioactive waste for an indefinite period of time, nor does it apply to permanent spent fuel disposal facilities. The NRC does have jurisdiction over the licensing of spent fuel storage, including renewals of licenses, until a method of disposal is available.

A number of commenters confused a "material" license under Part 72, to store spent fuel in an approved ISFSI, with a "facility" license covering a nuclear power plant under Part 50. This misconception is shown in the following comments.

Comment No. 260: C. F. Braun and Company. (9)

"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?"

Comment No. 261: Wisconsin Electric Power Company. (26)

"The maximum duration of license permitted by the regulation should be 40 years. The equipment in such facilities will be designed to have a lifetime well in excess of the proposed 20 year limit. This relatively short license period may result in more frequent, and needless, licensing and legal delays."

Comment No. 262: American Nuclear Society (ANS57.7). (28)

"Since the facility is designed for a 40-year life, it seems that the license should be issued for 40 years rather than 20 unless there is some overriding reason for the 20. Another burden placed on the licensee is that upon renewal, he has to comply with the current regulations in force at that time. A license

should be issued for the duration of the facility unless a significant design change has been made to the pl[illegible]. Same comment for paragraph 72.2."

Comment No. 263: Middle South Services, Inc. (37)

"There is no basis for a 20 year limit. If a reactor pool is licensed for 40 years, an ISFSI should also be licensable for 40 years."

Comment No. 264: Mississippi Power and Light Company. (39)

"The maximum period of time for which a license may be issued should be 40 years instead of 20 years. A 40 year time period would more nearly reflect the estimated life of a AFR storage installation and would minimize unnecessary license renewals."

Comment No. 265: Lowenstein, Newman, Reis, Axelrad and Toll. (43)

"We see no reason why §72.32 should limit a license to a period not in excess of 20 years. Such a period may have significance in determining Congressional intent as to whether a DOE facility is subject to Commission licensing because it is intended for 'long-term storage of high-level waste generated by (DOE)' under Section 202(4) of the Energy Reorganization Act of 1974. It should not, however, be indiscriminately carried over into the licensing of facilities used for the storage of spent fuel. Instead, licenses for ISFSI's should be issued for such period as the applicant can show the activities can reasonably be carried out within the proposed facilities. In view of the similarity of ISFSI's to reactor pools, a 40-year licensing period would appear to be fully appropriate.

"A 20 year limit on initial licenses is unreasonably short. Since the NRC's practice is to start the license duration from the issuance of the initial license, the length of time during which an ISFSI could operate under its initial license would be significantly less than 20 years. Given the 40 year license term routinely issued for power reactor licenses (which include the licensing of the spent fuel pool), there is no reason why a 40 year duration should not also be specified for ISFSI licenses. There is little question that spent fuel can be safely stored for that period. See "Initial Decision Approving Amendment to Operating License to Authorize Enlargement of Spent Fuel Pool Storage." Vermont Yankee Nuclear Power Corp. (Vermont Yankee Nuclear Power Station), LBP-77-54, 6 NRC 637, 440 (1977), aff'd. ALAB-455, 7 NRC 41 (1978)."

Comment No. 266: Southern Company Services, Inc. (54)

"As the time period for power plants is 40 years, there is no apparent reason that this should be less for an ISFSI which is designed to similar requirements. (See 10 CFR 50.51)"

Comment No. 267: Yankee Atomic E[illegible]ic Company. (55)

"We see no reason why a license for an ISFSI should be limited to 20 years. A facility such as this should have an economic life well in excess of 20 years. Although the 40 year limit on licenses for power reactors is also arbitrary, we believe that 40 years would be a more appropriate license limit for ISFSI's than 20 years."

Comment No. 268: Florida Power and Light Company. (63)

"10 CFR 50.51 puts a 40 year limit on an unrenewed facility license. Since it is possible to shutdown and decommission a nuclear power plant but still require a spent fuel storage facility, the duration of the ISFSI license should be at least as long as the plant operating license."

Comment No. 269: Edison Electric Institute. (68)

"The 20 year maximum licensing period is unduly restrictive. A longer term, equivalent to the 40 year power reactor license period is recommended."

The renewal period for a Part 72 license was based on licensing practice for materials licenses under 10 CFR Part 70 rather than facility licenses under Part 50.

Discussion: The renewal period for a Part 72 license was based on licensing practices for materials licenses under 10 CFR Part 70 rather than facility licenses under 10 CFR Part 50. Material possession licenses, under 10 CFR Part 70, are normally issued with a renewal period of five years. Some material possession licenses involve processing operations in plants that require capital investments about the same order of magnitude as an ISFSI, and these plants have a useful lifetime well in excess of the five-year renewal period of the license. In most cases, these plants make improvements to their operations, add new equipment, and expand their capabilities. For such plants, the five-year license renewal period assures the timely updating and review of license applications and associated license conditions. On the other hand, the storage of aged spent fuel in an ISFSI is a static operation and few major changes are expected to be made. Thus, a renewal period of 20 years is considered reasonable, provided the SAR is updated whenever significant changes relating to the bases for the findings under Section 72.31 have been made.

It is reasonable to expect that some ISFSI's will operate for longer than 20 years. Consider for example if, as a matter of national policy, it is decided to dispose of spent fuel by its transfer to a Federal repository for permanent disposal as radioactive wastes. It is quite likely that the Federal repository would require that the spent fuel be aged 5 or 10 years to allow the heat generation rate to decay to some specified level before it would be accepted for disposal. Thus, some ISFSI's may remain in operation to provide for the necessary interim storage until the spent fuel could be transferred to a Federal repository. Or, as a matter of national policy it may be decided to reprocess the spent fuel to recover the useable fissile materials. However, it may be that the reprocessing could not begin for a number of years. Thus, some ISFSI's may remain in operation beyond 20 years to provide interim storage until the spent fuel backlog could be reprocessed.

Regardless of which decision is made as to the ultimate disposal of spent fuel, a situation has been created whereby it is necessary to provide for additional interim spent fuel storage capacity. It is not necessary, however, to issue licenses for the expected useful life of such installations.

Section 72.33, License Conditions

72.33(a)

Comment No. 270: Lowenstein, Newman, Reis, Axelrad and Toll. (48)

"Second, even if the single license is to be issued prior to construction we are concerned that the provisions for 're-evaluation' by the Commission and 'up-dating' of license conditions prior to the receipt of spent fuel, might lead to a second regulatory proceeding and attendant delays at the time when operation is about to begin. Particularly in view of the proven technology to be utilized in an ISFSI, there are no complexities that would warrant such a second review of a licensed ISFSI. Instead we would suggest that the license, whenever issued, simply provide that spent fuel could not be received until specified conditions are satisifed (e.g., that construction be completed in accordance with specified criteria; that sufficient trained operators be available, etc.). It would then be a matter of inspection by the NRC prior to receipt of fuel, rather than an additional licensing review which could trigger additional procedural delays (such as hearing requests)."

Discussion: Upon issuance of the license prior to construction, if there are no significant changes important to safety that require amendment of the license application and Commission approval, it would be a matter of inspection by the NRC to ensure that the conditions of the license have been met. Based on a finding that the ISFSI is ready to accept fuel, the licensee would be authorized to receive spent fuel for storage.

Comment No. 271: Exxon Nuclear Company, Inc. (22)

"In Sections 72.31 and 72.33 on license issuance and license conditions, it would be more helpful if the minimum conditions could be more clearly defined prior to construction as compared to the conditions required to begin operation. Hopefully, the requirements at the construction stage would be only those essential to determining the safety of the design. Detailed operating procedures, detailed limiting control settings and detailed operating information could be provided during the construction period as amendments to the original application. This timing feature of the application process should be clarified."

Comment No. 272: Florida Power and Light Company. (63)

"The license conditions are overly inclusive.

"The license conditions should include only those items that are required to protect public health and safety. Other items such as surveillance requirements are more properly established by procedures and administrative controls to which the licensee is committed."

Discussion: These comments were considered in the rewording of the final rule. The SAR should be quite complete as submitted and require only an elaboration of details in any updating during construction. The ISFSI and its operation are not complex. The establishment of technical specifications does not necessarily require detailed operating information, detailed procedures, nor details

of control settings. For example, technical specifications could cover functional and operating limits on the depth of water in the pool or the limits on the lifting of fuel assemblies to ensure adequate shielding, limiting conditions on the quality and temperature of the pool water and standard practices for certain type of operations, and the establishment and maintenance of emergency response teams. It is planned to cover those surveillance activities which are related to public health and safety.

Comment No. 273: American Nuclear Society (ANS57.7). (28)

"Section 72.33 License Conditions (1) Functional and operating limits and monitoring instruments and limiting control settings. It appears that 'Functional and operating limits' are equivalent to 'safety limits' in a part 50 license. It is suggested that the title be changed to Safety Limits to be consistent with part 50."

Comment No. 274: Allied-General Nuclear Services. (27)

"Similarly, in Section 72.33(b)(1), 'Functional and operating limits' are equivalent to the 'safety limits' of 10 CFR 50 and would benefit from being so designated."

Discussion: Although this section was patterned after pertinent parts of Sections 50.34, 50.36, and 70.32, the functional and operating limits in Part 72 are not directly comparable to the safety limits of a Part 50 license. The safety limits of a Part 50 license primarily address mechanical or process systems. The license conditions, including technical specifications, of a Part 72 license would largely cover the relatively static conditions of spent fuel storage. This section has been extensively revised to improve clarity.

Comment No. 275: D. Wilt. (24)

"Proposed rules sections 72.33 is deficient in that should any radionuclides be released to the atmosphere or to ground water or for any reason escape the confinement area a report must be made to the Commission immediately. In my judgment, prompt action must be required to prevent any potential danger to the public."

Discussion: Commission regulations, 10 CFR Part 20, §§20.403 and 20.405, cover the requirements for notification of incidents and reports of overexposures and excessive levels and concentrations of radionuclides released to the environs.

72.33(b)

Comment No. 276: Lowenstein, Newman, Reis, Axelrad and Toll. (48)

"Section 72.33(b) should be revised to state that 'license conditions may include items in the following categories.' The Commission ought to retain the opportunity to determine the matters which must be included in license conditions and those which are best covered in implementing procedures which can be reviewed by the Commission's inspectors have proven to be more flexible and appropriate than license conditions in assuring that proper actions are taken."

Discussion: The revised wording is responsive to this comment. Section 72.33 states that the Commission may also include such additional license conditions as the Commission finds appropriate.

Comment No. 277: Cleveland Electric Illuminating Company. (67)

"In relation to the statement 'Surveillance requirements are requirements relating to tests . . . to assure that the necessary integrity of . . . the fuel in storage is maintained,' we assume that the NRC does not mean 'tests' in the sense of testing the integrity of the spent fuel by experiment.' To clarify this ambiquity, we suggest that the section read 'Surveillance requirements are requirements relating to inspection of the fuel and inspection, calibrations and tests to assure that the necessary integrity of required systems and components is maintained, that operation, etc.'"

Discussion: The intent of this comment is reflected in the revised text of Section 72.33.

Comment No. 278: Environmental Policy Institute, Wash., D.C. (29)

"The license conditions proposed under section 72.33 have two flaws. No specific requirement is made for the cataloging of the spent fuel assembly characterisitcs by assembly either for criticality control, in-facility handling information, or additionally for disposal characteristics. The Administration requirements outlined in subsection (5) should specifically establish such procedures."

Discussion: Only those types of spent fuel for which an ISFSI is designed from the standpoint of in-facility handling and criticality control will be approved for storage in a specific ISFSI.

The records requirements pertinent to later disposal of stored fuel are covered in Section 72.51.

Section 72.33(c)

Comment No. 279: American Nuclear Society (ANS57.7). (28)

"72.33(c)(4) 'And certification' should be deleted. A training program should be efficient to meet the NRC requirements."

Comment No. 280: Nuclear Fuel Services, Inc. (46)

"Paragraph 72.33(c)(4) - The licensees should be required to have the training and certification program in effect both prior to receipt and during storage, not just 'prior to receipt.'"

Discussion: ISFSI operators will not be licensed under 10 CFR Part 55, but they must be trained under a program which has NRC approval. Their proficiency to perform assigned tasks will be certified by the license. See Subpart I, Training and Certification of ISFSI Personnel.

Comment No. 281: Nuclear Fuel Services, Inc. (46)

"Paragraph 72.33(c)(5) - This paragraph should be rewritten to allow the manipulation of the safety-related equipment and controls by non-certified personnel when such personnel are under the direct, visual supervision of certified personnel. This is necessary for an adequate training program."

Comment No. 282: Wisconsin Electric Power Company. (26)

"This paragraph would prohibit on-the-job training of non-certified personnel. A reasonable training program should allow an individual in training to operate equipment under the supervision of certified personnel."

Discussion: This section has been revised to permit an individual in training to operate equipment under the direct, visual supervision of certified personnel.

Section 72.33(d)

Comment No. 283: Shaw, Pittman, Potts and Trowbridge. (50)

"This paragraph appears to interpret the EPA standards in 40 CFR Part 190 as establishing or constituting specific release limits for the fuel storage facility. If so, how is the licensee to calculate the limits applicable to his facility? Specifically, 40 CFR 190.10(a) sets limits on radiation doses to an individual member of the public from the operations related to the nuclear fuel cycle, including both radioactive material releases and radiation. How will the total be allocated to any individual operation? 40 CFR 190.10(b) specifies the maximum 'quantity of radioactive materials entering the general environment from the entire uranium fuel cycle per gigawatt-year of electrical energy produced . . . ' (emphasis added); how is this to be allocated to any individual operation? (A 1000 ton spent fuel storage facility at full loading will contain a quantity of uranium fuel representing approximately 37 gigawatt years of electrical generation.) While we would not anticipate that releases from a spent fuel storage facility would normally be more than a very small fraction of these EPA limits, these questions are nevertheless considered pertinent, in the light of sub-paragraph 72.33(d)(1). If NRC is interpreting the EPA standards of 40 CFR 190 as being applicable to individual facilities, we recommend that this sub-paragraph 72.33(d) be clarified to indicate that fact and also to indicate how the requirement of 40 CFR 190.10(b) is to be applied to a specific fuel storage facility."

Discussion: The NRC has adopted the EPA standard for radiation protection as being applicable to the storage of spent fuel in an ISFSI. This standard is considered adequate to protect both the public and the environment. We do not expect that an ISFSI would release significant amounts of ^{85}Kr, ^{129}I, nor transuranic radionuclides to the environment. The EPA's endorsement of this position is stated in Comment Letter No. 51. Section 72.33(d) has been revised referencing §72.67.

Comment No. 284: Environmental Policy Institute, Wash., D.C. (29)

"The second flaw is the biannual reporting requirement for radioactive effluents under subsection(d). The subsection allows effluents 'significantly above design objectives' to unreported for long period of time and potentially in

excess of eight months. In addition, the reporting periods should be matched to the operating date of the facility rather than a calender period to assure consistence in reporting."

Comment No. 285: General Electric Company. (47)

"Effluent reporting requirements should be made consistent with existing regulations in Part 70, §70.59."

Discussion: Section 72.33(d)(3) has been revised to require an annual report of principal radionuclide releases which is believed adequate for an ISFSI. Part 20, Sections 20.403 and 20.405, covers the requirements for timely reporting of incidents resulting in overexposure and excessive levels and concentrations of radionuclides released to the environs.

Comment No. 286: General Electric Company. (47)

"(d) This Section describes effluent controls established as license conditions. Specific mention should be made regarding basin leak control and detection requirements."

Discussion: Part 72 contains requirements that are generally applicable to all types of ISFSIs. Basin leak control and detection for a specific type of ISFSI would be a license condition.

Comment No. 287: Yankee Atomic Electric Company. (55)

"Part (d) on Effluent Controls in section 72.33 is somewhat confusing. There are two references in this part to 'design objectives' but there is no definition of this term or information on how such objectives will be established. We believe that this part should be clarified."

Discussion: The design objectives on effluent controls are ALARA. The ALARA objectives for a specific ISFSI will be defined in the SAR. These specific ALARA objectives, which establish expected levels for the routine release of principal radionuclides and exposure to radiation, would be appropriate subjects for technical specifications. The requirements have been revised to reflect this principle.

Comment No. 288: Nuclear Fuel Services, Inc. (46)

"Paragraph 72.33(d) - Remove the redundant term 'as an upper limit' from the first sentence."

Discussion: Section 72.33(d) has been revised. Effluent controls must be designed to meet the requirement of "as low as is reasonably achievable."

Comment No. 289: Valore, McAllister, Aron and Westmoreland. (40)

"An environmental (as well as effluent) monitoring program should be instituted. This should include preoperational characterization of all necessary monitoring stations for at least one (preferable two) years prior to acceptance of spent fuel at the ISFSI."

Discussion: The revision to Section 72.33(d)(2) requires an environmental monitoring program. The details of this program will necessarily be both design and site specific.

Section 72.34, Changes, Tests, and Experiments

Comment No. 290: Environmental Policy Institute, Washington, D.C. (29)

"The provisions outlined in section 72.34 which allows the licensee to change procedures, conduct tests, and modify the installation without prior Commission approval allows the licensee to make the detemination as to the significance of these alternations. At a minimum, the licensee should be required to consult with the Commission staff and file a notice of such a change prior to implementation rather than after the fact on an annual basis as proposed in the section."

Comment No. 291: Valore, McAllister, Aron and Westmoreland. (40)

"Unreviewed safety questions should be determined by the Commission before an experiment or test not by the licensee after completion of an experiment or test."

"Any change in systems or procedures as specified to the Commission in writing, should be submitted to the Commission for review before the change is undertaken." It is the licensee's responsibility to determine whether there is an unrevised safety question.

Discussion: It is the licensee's responsibility to determine whether any changes involve an unreviewed safety question. In practice, if there are any questions as to whether a proposed change, test or experiment involves an unreviewed safety question, licensees consult with the NRC staff.

The NRC's concerns are limited to safety and environmental impacts of a licensee's actions, not to any changes in systems or procedures. The regulations permit a licensee to conduct his operations including changes, tests and experiments, without prior concurrence by the NRC where such actions do not significantly affect the safety of operations or involve an unreviewed safety question. Section 72.35 now contains the requirements previously in Section 72.34. Section 72.35(a)(2) provides guidance as to what may be deemed unreviewed safety questions by the Commission.

Section 72.36, Transfer of Licenses

Comment No. 292: American Nuclear Society (ANS57.7). (28)

"72.36(b)(1) I do not think that paragraph 72.15 or 72.16 apply in this case. As a matter of fact, not even the limited case stated in this section."

"72.36(b)(2) The first sentence should be deleted. That information is part of the SAR furnished by the original owner and should be current. The second sentence in this paragraph is the information the Commission needs. As a matter of fact, the two sentences in this paragraph are not compatible."

Discussion: Comment noted. This paragraph has been revised to reference §§72.14 and 72.17.

Section 72.37, Creditor Regulations

Comment No. 293: Lowenstein, Newman, Reis, Alexrad and Toll. (48)

"Since Part 72 requires a license only for the ownership, acquisition, possession, etc., of materials in spent fuel, §72.37 properly provides for the rights of creditors in such materials. To avoid any questions in the future, however, it may be useful to state in the regulations that no license is needed for ownership, acquisition, possession, etc., of the ISFSI itself and that there are thus no limitation of any mortgages, pledges, liens, etc., upon the ISFSI."

Discussion: We do not believe that this clarification is needed or necessary. Moreover, the licensee has obligations with respect to his financial qualifications for carrying out the licensed activity and the decommissioning of the ISFSI at the end of its useful life. This imposes some limitations on mortgages, pledges, liens, etc., upon the ISFSI.

Section 72.38, Applications for Termination of Licenses

Comment No. 294: Allied Chemical Company (Idaho). (71)

"Paragraph 72.38, Section (a)

"This information is redundant to that requested in paragraph 72.18."

Comment No. 295: General Electric Company. (47)

"This section should be consistent with all other discussion of the Decommissioning Plan. Therefore, the comments on §72.18 (above) also apply to this Section."

Discussion: Section 72.18 requires the applicant to develop a decommissioning plan and factor decommissioning considerations into the design of the ISFSI. Section 72.38 requires that the ISFSI be decommissioned before the Commission will terminate the license.

Comment No. 296: Nuclear Fuel Services, Inc. (46)

"Paragraph 72.38(b) - A licensee cannot provide the "demonstration" that would be required by this proposed regulation because the NRC has not promulgated the decommissioning or disposal regulations referenced; however, it should be credible that decontamination and decommissioning of an ISFSI constructed for twenty years or more of safe operation can be readily accomplished."

Discussion: This section requires the applicant to provide sufficient information about the planned decommissioning of the ISFSI in connection with the termination of the license to provide reasonable assurance that decommissioning operations will be performed in accordance with NRC regulations. Because only the removal of surface contamination and the disposal of contaminated equipment would be involved, the decontamination and decommissioning of an ISFSI and its site should be relatively straightforward.

Section 72.41, Modification, Revocation, and Suspension of Licenses

Comment No. 297: Yankee Atomic Electric Company. (55)

"In section 72.41, it is stated in part that the NRC may under certain circumstances 'cause the retaking of possession of all special nuclear material contained in spent fuel held by the licensee.' It is not clear who will actually 'retake' possession and whether retaking implies an actual physical transfer of spent fuel."

Comment No. 298: Natural Resources Defense Council, Inc. (66)

"Pursuant to §72.41(c), the Commission can retake title to spent fuel. This section should include a provision requiring that financial responsibility for the spent fuel and its disposal continues to rest with the licensee to avoid shifting the costs to the taxpayers."

Discussion: Taking possession of spent fuel in storage does not necessarily imply an actual physical transfer of the spent fuel. It may, however, involve a takeover of the ISFSI in which the spent fuel is stored, to assure continued safe storage of the spent fuel.

Regarding financial responsibility for the spent fuel and its disposal, the act of taking possession does not necessarily involve a transfer of ownership or relieve the licensee of the responsibilities associated with the license and termination of the license.

Comment No. 299: Bechtel National, Inc. (38)

"Paragraph (b) - There are many NRC regulations having no relationship to the licensing of an ISFSI; therefore, the last sentence of this paragraph should be changed to '. . . or any applicable regulation, license or order of the Commission.'"

Discussion: This sentence has been modified as suggested.

Section 72.42, Backfitting

Comment No. 300: American Nuclear Society (ANS57.7). (28)

"72.42 Delete entire paragraph. Any question of backfitting should be included as a design condition. It is recommended that the storage pool be at ground level. Backfitting should not be spelled out as a separate entry."

Discussion: The Commission may require backfitting of an existing facility if such backfitting will provide substantial additional protection of the public, employees and the environment. Although the storage of spent fuel in water pools has been practiced for many years and the technology involved is well developed, there remains a possibility that design or materials deficiencies related to the construction of new facilities may be uncovered which may require backfitting.

The following comments addressed the subject of the need for a cost/benefit analysis to justify any backfitting required by the NRC.

Comment No. 301: American Nuclear Society (ANS57.7). (28)

"Section 72.42(a) states that the Commission may require backfitting if such action will provide substantial additional protection. This paragraph should be modified to include a provision that backfitting can be required only after a suitable cost-benefit analysis has shown that backfitting is justified."

Comment No. 302: Wisconsin Electric Power Company. (26)

"This backfitting requirement is very one sided. There is no cost/benefit criteria imposed on the NRC to justify backfitting requirements. There also is no apparent redress available to the licensee to question such backfit decisions."

Comment No. 303: Allied-General Nuclear Services. (27)

"Section 72.42(a) provides that the Commission may require backfitting 'if it finds that such action will provide substantial, additional protection . . .' As written, the licensee has no assurance that such required backfitting would be cost effective. This subsection should be modified to provide that backfitting could be required only after the Commission has demonstrated, by suitable cost-benefit analysis, that such backfitting is justified."

Comment No. 304: U.S. Department of Energy. (42)

"(p. 46317, center, 72.42) - It is acknowledged that backfitting may be a desirable action under some circumstances, but is should be required by the commission only after proposed backfits are negotiated with the licensee on a cost-benefit or other rational basis."

Comment No. 305: General Electric Company. (47)

"(a) This Section establishes the requirements for backfitting. It states in part 'the Commission may require . . . backfitting if . . . such action will provide substantial, additional protection . . .'

"There should be an additional definition of the phrase 'substantial additional protection' to clarify the applicability of backfitting. Backfitting should only be ordered following an independent case review and each such order should be substantiated by a cost benefit analysis by the NRC related to the 'substantial additional protection.'"

Comment No. 306: Lowenstein, Newman, Reis, Alexrad and Toll. (48)

"There should be added to §72.42(a) the requirement that prior to imposing any backfitting the Commission will conduct a cost-benefit analysis to determine whether the additional protection that would be provided by the backfitting action is cost effective."

Comment No. 307: Shaw, Pittman, Potts and Trowbridge. (50)

"The backfitting provision is unreasonable. First, it should include some recognition that backfitting can entail substantial costs which may outweigh any benefits. Thus, the finding which the Commission must make to require backfitting should balance the added cost to the backfit against the added protection."

Comment No. 308: Yankee Atomic Electric Company. (55)

"Section 72.42 deals with backfitting. It states that '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.' We believe that justification for backfitting should also include a cost/benefit evaluation to assure that arbitrary and expensive backfitting requirements are not imposed which may not have commensurate benefits."

Comment No. 309: R. Neil. (62)

"Section 72.42 on backfitting should require a cost/benefit analysis to determine if the additional protection is worth the cost."

Comment No. 310: Edison Electric Institute. (68)

"The requirement as stated appears to be overly restrictive. Backfitting should be required only after a determination has been made that the benefits of backfitting are significantly greater than the cost of providing the backfitting. New regulations and changes in regulations should not be automatically imposed upon a licensed facility unless it can be demonstrated as necessary for the protection the health and safety of the public."

Comment No. 311: Allied Chemical Company (Idaho). (71)

"A definition of 'substantial addition' should be provided. This leaves a licensee open to significant political risk."

Comment No. 312: Tennessee Valley Authority (72)

"The Commission should prepare a benefit/cost evaluation before requiring any changes in an ISFSI after the license has been issued.

Discussion: If the need for backfitting is questionable, the applicant could request a hearing.

The following comments addressed the subject of including occupational health and safety in addition to public health and safety as a possible justification for backfitting.

Comment No. 313: Nuclear Fuel Services, Inc. (46)

"Paragraph 72.42 - This proposed paragraph would extend, without NRC provided justification, the 10 CFR 50.109 concept of modifying a facility for a substantial improvement in public health and safety to also include occupational health

and safety. We believe that it is extremely unlikely that a relatively simple and static facility such as an iSFSI would have to be 'backfitted'; however, we also believe that such broad, vague regulations introduce further uncertainties that tend to dissuade commercial firms from pursuing the development of an ISFSI. We recommend modifying the proposed paragraph to match 10 CFR 50.109."

Comment No. 314: Shaw, Pittman, Potts and Trowbridge. (50)

"Second, the provision differs from the equivalent Part 50 provision, §50.109, by substituting 'occupational . . . health and safety' for 'common defense and security' as a justification. The provision should be made consistent with Part 50 in this respect."

Comment No. 315: Southern Company Services, Inc. (54)

"The requirement for backfitting for 'occupational health and safety' should be deleted as being inconsistent with the requirements for power plants. (See 10CFR50.109)"

Discussion: Experience to date with ISFSI operations have shown that occupational exposure is as significant as public health and safety. Achieving a substantial reduction in occupational exposure could justify an order for backfitting at an ISFSI.

Comment No. 316: Natural Resources Defense Council, Inc. (66)

"The backfitting authority should explicitly include the authority to backfit where warranted by substantial additional protection for the environment. The extension of all Atomic Energy Act protections to environmental protection is required by NEPA and the courts. Calvert Cliffs' Coordinating Committee v. U.S. Atomic Energy Commission, 449 F.2d 1109 (D.C. Cir. 1971)."

Discussion: The intent of this comment is reflected in the revision to Section 72.42(a).

Subpart D--Records, Reports, Inspections, and Enforcement

Section 72.51, Material Balance, Inventory and Records Requirements for Stored Materials.

Comment No. 317: Environmental Policy Institute, Wash., D.C. (29)

"We note that both the GEIS on the Handling and Storage of Spent Light Water Reactor Fuel--NUREG-0404 and the proposed rule on 10 CFR Part 72 fail to consider higher burnup rates and improved LWR Fuel Cycle development. NUREG-0404 is based upon 25,000 MWD/MTU and notes fuel producer expectancies of 33,000 MWD/MTU. DOE (U.S. Department of Energy)'s Draft Environmental Impact Statement on the Storage of U.S. Spent Power Reactor Fuel EIS-0015-D characterizes burnup rates at 33,000 MWD/MTU for PWR fuel and 27,000 MWD/MTU for BWR fuel. Recent papers presented by the DOE argue for substantially higher burnup rates of 45,000 MWD/MTU or more. DOE is proposing 50,600 MWD/MTU for PWR's and 47,000 MWD/MTU for BWR's. To accomplish this, DOE is proposing an increase in enrichment to roughly 4.3%. These higher burnup rates already under development contracts will substantially alter both spent fuel characteristics (fission

gases, cladding/fuel interaction, cladding integrity, thermal and radiation output) and discharge rates for spent fuel. While the proposed rule consistently overlooks the need for thorough analysis and record-keeping of specific spent fuel rod and assembly characteristics, we believe that the failure to consider the substantially different characteristics and discharge rates of high-burnup fuel is a significant flaw in both the proposed rule and the NUREG-0404 document."

Discussion: An individual ISFSI will be designed to accommodate specific types of fuel assemblies with a stated maximum burnup, heat output and radiation characterisitcs. There is little reason to suspect that any fuel which has performed satisfactorily in a reactor cannot be safely stored under the much less severe conditions of spent fuel storage in a properly designed ISFSI. The proposed rule does not overlook the need for thorough analysis of all the factors involved in a license granted under Part 72. Such an analysis is provided in the SAR required under Section 72.15.

The records will include specific fuel assembly characteristics related to its content of special nuclear materials. The recordkeeping requirements pertinent to the characteristics of stored fuel are addressed in paragraph 72.51(a).

Comment No. 318: Edison Electric Institute. (68)

"This section should clearly recognize the character of spent fuel in terms of material accountability. A specific statement should be included that analytical analysis of the nuclear material components and the composition of the nuclear material are not required to verify quantities at the time of receipt, at inventory points or at the time of shipment. Nuclear compositions should be accepted as determined by the shipper to the ISFSI and the composition and quantities should be retained unchanged and recorded without modification when the spent fuel is shipped from the ISFSI. Material control in a ISFSI should be by item control and piece count that does not require verification by analytical analysis."

Discussion: It is normal procedure to accept spent fuel composition data as determined by the shipper based on its exposure history until such fuel is dissolved at a reprocessing plant and an analysis can be made of the dissolver solution. Material control by item control and piece count is the normal practice at an ISFSI.

72.51(b)

Comment No. 319: Connecticut, Department of Environmental Protection. (4)

"It is also suggested that Section 72.51b be revised to have the physical inventory coincide with the semi-annual Commission Material Status Reports."

Discussion: This is normally the case, however, the timing of inventory taking is up to the operator of an ISFSI.

Comment No. 320: American Nuclear Society (ANS57.7). (28)

"Section 72.51(b) What is intended by 'a physical inventory'? Does this mean physically verifying each fuel assembly stored in the ISFSI?

"A piece count and selected small quantity audit of randomly selected fuel assemblies for verification would be adequate."

Comment No. 321: Kaiser Engineers. (21)

"It is suggested that when using the term "inventory" it is made completely clear that physical inventory is the requirement and no chemical or isotopic assay is required."

Comment No. 322: Allied-General Nuclear Services. (27)

"Section 72.51(b) required a 'physical inventory' of all spent fuel in storage at intervals not to exceed 12 months or as otherwise directed by the Commission. This provision would benefit from added definition. A physical inspection of each assembly on a periodic basis would appear not only unnecessary but would also involve needless radiation exposure. A system of two-person identification of each assembly upon its initial placement in storage and upon any later movement, coupled with periodic total 'piece counts' (without assembly identification) and with random sampling for identification would provide the needed assurance. Consequently, we suggest that Section 72.51(b) be modified to clarify that a procedure such as that outlined above would meet the 'physical inventory' requirement."

Comment No. 323: American Nuclear Society (ANS57.7). (28)

"72.51(b) Delete paragraph. With all the other records required by (a), (c) and (d), you have a perpetual inventory system. Conducting a physical inventory should be at the discretion of the licensee."

Comment No. 324: Bechtel National, Inc. (38)

"Paragraph (b) - The requirement for '. . . a physical inventory of all spent fuel in storage at intervals not to exceed 12 months . . .' could be interpreted to mean the handling of each fuel element for physical inventory verification which would increase the potential for accidents. We recommend that the requirement be further defined to indicate the acceptability of inventorying by such means as statistical sampling."

Comment No. 325: U.S. Department of Energy. (42)

"(p. 46317, center, 72.51(b)) - A physical inventory conducted annually or more frequently in 5000 MTHM ISFSI containing 15,000-25,000 fuel assemblies could range anywhere from very costly to impossible if unpacking of the array or visual reconfirmation of fuel serial numbers were required. A reasonable approach to meeting this requirement is represented by the DOE directive 5630.2 where it states that book records supplemented by observation as feasible and physical containment and administrative controls will suffice for highly radiactive material (>100 rems/hour at one meter from an unshielded surface). A further amplification (from the same source) of permissible practices is: 'Radioactive nuclear material in long term storage or in operations which is inaccessible for unique identification or individual piece counting because of radiation levels, should be accounted for based on a principle of containerization where the items are identified, if possible, or (at a minimum) counted at the time

the identified zones in the fuel storage area, or any other well-defined three dimensional space that will remain unchanged during the inventory period. Containers shall be uniquely identified including serial numbers, dimensions (if applicable), listing of contents and location of grid number. The control of material in containers should follow the practices for individual items including the use of such things as TID's,* wherever possible, and control of operations that might lead to unreported changes in the batch content.'"

Discussion: A periodic inventory of spent fuel in storage at an ISFSI is necessary as a check on the records of fuel in storage. As reflected by the above comments, there are a number of inventory techniques that are acceptable for an ISFSI. The details of what technique could best be used for a specific ISFSI may depend on the design of the installation and the quantity of spent fuel shipped in and out. If necessary, further guidance on this subject will be presented in a regulatory guide.

Section 72.52, Reports of Accidental Criticality or Loss of Special Nuclear Material.

Comment No. 326: American Nuclear Society (ANS57.7). (28)

"72.52 Put a period after 'material.' When you continue by saying 'contained in spent fuel,' you are implying an accident report should be made if a fuel element ruptures and the pellets fall to the bottom of the pool. Do you really want such a report under that condition? As a matter of fact, you cover any loss of SSNM in paragraph 72.53."

Discussion: The staff does want a report covering fuel element ruptures resulting in pellets falling to the bottom of the pool, if this should occur. The report required by Section 72.52 is an incident report whereas the report required by Section 72.53 is a semi-annual transactions report.

Comment No. 327: General Electric Company (47)

"This Section requires reporting of the title topics and states in part: 'Each licensee shall report . . . any loss of special nuclear material contained in spent fuel.' The meaning of 'any loss' in this context should be clarified.

"The loss of SNM in spent fuel can only occur through the loss of spent fuel which is unlikely. Therefore, if 'any loss' means any loss of fuel bundle, then let the regulation so state. However, if the intent is to quantify and report SNM levels in the basin water, then let the regulation state that, but in the latter case, some minimum reporting limit should be established."

Discussion: The meaning of "any loss" in this context is a measurable or observable loss through any cause that resulted in a loss of any part of the special nuclear material contained in spent fuel assemblies.

At normal operating temperatures and water composition, the SNM content of the pool waters in a water basin in which oxide fuels are stored is expected to be negligible and hence not reportable. The report required under this section is an incident report pertaining to an actual physical loss of SNM.

Section 72.54, Nuclear Material Transfer Reports

Comment No. 328: American Nuclear Society (ANS57.7). (28)

"Section 72.54 Last sentence - Does 'received' mean when the cask is received at the ISFSI? Should clarify, verification of the fuel assembly must be made before the NRC-741 can be completed and returned to DOE and the shipper. Should say ' . . . received, verified and stored.'"

Comment No. 329: Allied-General Nuclear Services. (27)

"Section 72.54 (Nuclear Material Transfer Reports) would greatly benefit from clarification of its final sentence which requires submittal of a report within 10 days after the spent fuel is 'received.' Because of possible delays between the date on which a shipping cask arrives at an ISFSI and the date on which an assembly is removed from such cask, identified and placed in storage, it is recommended that this provision be modified to require such submittal within 10 days after the spent fuel is 'placed in storage.'"

Comment No. 330: U.S. Department of Energy. (42)

"(p. 46317, right, 72.54) - Because a cask may be received but not unloaded and its contents not verified within 10 days, it would not be possible in all cases to submit form NRC-741 within the required 10 days. This section should be modified to add at the end words like, 'unloaded, and its identity verified.'"

Discussion: The wording of this section has been changed to reflect the need to verify cask contents prior to submittal of form NRC-741.

Comment No. 331: Nuclear Fuel Services, Inc. (46)

"Paragraph 72.54 - It would appear adequate for the shipper of spent fuel to send only one copy of the NRC-741 to the receiver, as presently required by 10 CFR 70.54. The requirement for three copies should be deleted."

Discussion: The wording of section 72.54 is identical to that of section 70.54.

Comment No. 332: Valore, McAllister, Aron and Westmoreland. (40)

"The record keeping and reporting procedures should be supplemented by an electronic waste transfer tracking system (ESTTS). Such a system should be maintained at a separate central (computer) facility for all ISFSI's. The facility should track the ISFSI system from initiation of waste transfer (spent fuel) from a nuclear reactor or ISFSI to acceptance at an ISFSI or other depository. The facility could thus maintain a constantly updated record of fissile material inventories at each ISFSI. This could be of use in the event of record loss or emergencies and certainly adds an additional control mechanism over the location and movement of spent fuel for the entire system."

Discussion: Such a system is operated by DOE at Oak Ridge, Tennessee. Form NRC-741 is the imput data for this system.

Section 72.55, Inspections and Tests

Comment No. 333: American Nuclear Society (ANS57.7). (28)

"Section 72.55(c) This section as written would allow any and all tests that could be conceived and 'deemed appropriate or necessary' to be required. It also appears that if the licensee does not choose to perform the test, that the Commission would perform it. The statement appears to be too broad and all encompassing. More definitive information should be given to clarify this requirement."

Comment No. 334: American Nuclear Society (ANS57.7). (28)

"Specific requirements should be stated that limit the time (say 48 hours) that a test would impact receiving operations."

Comment No. 335: Allied-General Nuclear Services. (27)

"Section 72.55(c) requires performance by licensee, or by the Commission, of tests which the Commission deems appropriate or necessary. As written, the licensee is not protected from arguably unwarranted tests. This subsection should be modified to require that (a) upon request of licensee, the Commission demonstrate that the tests are appropriate or necessary and that (b) such tests be scheduled in a manner which would minimize their impact on ISFSI operations."

Comment No. 336: Duke Power Company. (60)

"Section 72.55(c) should either be deleted or justification given for its purpose."

Comment No. 337: Nuclear Fuel Services, Inc. (46)

"Paragraph 72.55(c) - Item (1) allowing for "tests of spent fuel during handling and storage" should be deleted. The other three items allow the NRC to perform tests on activities conducted by the ISFSI licensee. The Item (1) as written implies that the NRC might conduct tests at the ISFSI, possibly relevant to other licensees but not relevant to the ISFSI."

Comment No. 338: American Nuclear Society (ANS57.7). (28)

"72.55(c) I do not think that you can test items (1) and (2). You could inspect them, however. Items (3) and (4) you can test and inspect this equipment. I believe the entire paragraph should be rewritten. You could put a period after 'regulations.'"

Comment No. 339: U.S. Department of Energy. (42)

"(p. 46317, right, 72.55(c)) - The words, 'or permit the Commission to perform,' should be deleted. Only the ISFSI operators would perform tests within the facility, including tests proposed and witnessed by the Commission."

Comment No. 340: Allied Chemical Company (Idaho). (71)

"This section needs clarification. It is not clear what is meant by '. . . test of (1) spent fuel during handling and storage, (2) spent fuel handling and storage facilities.'"

Discussion: This requirement is intentionally broad to encompass unforeseeable events that may cause the Commission to exercise these rights.

Tests on spent fuel in storage may involve lifting selected fuel assemblies out of their storage position to assure that there has been no significant buildup of corrosion products on the fuel assembly, that the fuel assemblies remain structurally sound, and that the geometry and required clearances of storage racks or canisters has not been significantly altered due to some operational occurrence.

Normally, any test performed at an ISFSI would be carried out by the ISFSI operating personnel. However, the NRC reserves the right to conduct such tests as may be warranted with its own personnel or other personnel under its supervision.

Comment No. 341: General Electric Company. (47)

"(c) This Section gives the Commission authority to perform or cause the licensee to perform tests as deemed appropriate '. . . for the administration of the regulations in this part.' It should be made clear in the regulation that the NRC will respect the proprietary nature of the information derived from testing. Further, any testing in behalf of NRC should be limited to areas related to the safety of the facility."

Discussion: The protection of proprietary information is covered under 10 CFR Part 2.790. The NRC's mandate covers both safety and environmental protection.

Comment No. 342: Ebasco Services, Inc. (52)

"Page 46310, First Column, Second Paragraph - The provisions for periodic inspection and surveillance of critical components should be related to specific, identified concerns and requirements for inspection and surveillance."

Discussion: The requirements for periodic inspection and surveillance are specific to the design and operation of an individual ISFSI. For example, the requirements for pool storage may be quite different from those for dry storage, and those for a large installation may be different from those of a small one.

Comment No. 343: Valore, McAllister, Aron and Westmoreland. (40)

"Unannounced inspections by the Commission of an ISFSI should be mandated."

Discussion: This point is covered in Section 72.56(a). In practice, NRC inspectors experience little difficulty in making any inspections they think necessary.

Section 72.56, Maintenance of Other Records and Reports

72.56(b)

Comment No. 344: U.S. Department of Energy. (42)

"What sort of financial report would NRC expect from a DOE installation to satisfy this annual financial reporting requirement?"

Comment No. 345: Nuclear Fuel Services, Inc. (46)

"The requirement to file the annual financial report and certified financial statements may make little sense for a potential government agency licensee such as the Department of Energy."

Discussion: Other government agencies, such as DOE, would be granted an exemption from this requirement.

Comment No. 346: Nuclear Fuel Services, Inc. (46)

"Paragraph 72.56(c) - The proposed requirement that 'if a retention period is not otherwise specified, such records shall be maintained until the Commission authorizes their disposition' should be deleted. For such a simple facility with so few radiologically significant records, the NRC should accept the minor burden of identifying the specific records to be retained."

Discussion: The records involved are those required by license conditions or the requirements of Part 72. A licensee may request the disposal of records if the records involved no longer serve a useful purpose.

Section 72.57, Violation

Comment No. 347: U.S. Department of Energy. (42)

"What is the extent of applicability of this section to DOE and its contractors once legislation enabling NRC to license a DOE storage facility has been obtained?"

Discussion: The DOE and its contractors would be required to comply with NRC regulations, including this section.

Subpart E--Siting Criteria

GENERAL COMMENTS

Comment No. 348: Valore, McAllister, Aron and Westmoreland. (40)

"An ISFSI should not be permitted to be located in the same community where any nuclear generating facility is located:

"1. Multiple accidents could entirely destroy the community's infrastructure;

"2. Risks are compounded;

"3. The regulatory effort of the NRC should be to formulate guidelines and regulations on transfer of spent fuel from cooling pools and temporary storage facilities to permanent waste storage and disposal facilities. These latter facilities should be in areas of remote isolation and developed pursuant to a regional plan by the Department of Energy, the Environmental Protection Agency or the Interagency Nuclear Waste Management Task Force."

"If an ISFSI were co-located with a power reactor, it would seem that:

"1. An accident due to the occurrence of a natural phenomena is more likely;

"2. An accident with the reactor could adversely affect the ISFSI (even close it down) or a problem with the ISFSI could adversely affect the reactor."

Discussion: There are no obvious technical reasons for precluding the location of an ISFSI in the same community as a nuclear generating facility. Such a site may be the best available for storing spent fuel discharged by that power reactor complex.

The risk of a catastrophic accident at an ISFSI is quite remote. The location of an ISFSI near a power plant would not add significant risk to the public health and safety. Both reactors and ISFSIs are designed to withstand natural phenomena to protect public health and safety. The location of an ISFSI near a reactor would not increase the probability of the occurrence of natural phenomena.

The storage of spent fuel in an ISFSI is a static type of operation. An accident at an ISFSI is unlikely to seriously affect a nearby reactor. An accident at a reactor should have little effect on spent fuel in storage at an ISFSI. However, a serious accident at a nearby reactor could cause a cessation of receiving and shipping operations at an ISFSI, and might temporarily interfere with its operations.

The NRC is developing regulations covering permanent waste storage and disposal facilities. Other government agencies with a shared interest are providing input to this effort.

Comment No. 349: Shaw, Pittman, Potts and Trowbridge. (50)

"The regulations should provide that a site previously approved by NRC in connection with a facility license would require no further NRC review for an ISFSI license. If, for example, a site was adequate (from geological, hydrological, seismic, etc., standpoints) for a reactor, it should be defined adequately for an ISFSI."

Comment No. 350: Edison Electric Institute. (68)

"A provision should be included in Part 72 that recognizes the already accepted qualifications of both an applicant and a site that have current license approvals under Part 50. Any application for a license under Part 72 for an ISFSI facility to be located on the site of a Part 50 facility for which the applicant holds a construction or an operating license should be accepted as a pre-qualified applicant with a pre-qualified site. Such pre-qualification should be applicable at least to financial responsibility, population distribution and a majority if not all of the elements of an environmental evaluation."

Discussion: A site that has been approved for a Part 50 facility, in general, is likely to be acceptable for an ISFSI. However, the pre-qualification of sites licensed under Part 50 without review in relation to the proposed design of the ISFSI does not seem prudent. Information on a specific site that has been submitted to the NRC in connection with other licensing actions need not be repeated in a Part 72 license application: It can be incorporated by specific references to previous submissions.

An applicant qualified under Part 50 should be able to meet the Part 72 qualification requirements; but that does not exempt an applicant from complying with the requirements of Part 72.

Comment No. 351: Sargent and Lundy Engineers. (73)

"The extent of site investigation required in Subpart E-Siting Criteria is not compatible with the potentially low radiological risk from ISFSI as expressed throughout the proposed rules."

Discussion: The siting criteria are designed to ensure that the site selected will be compatible with the ISFSI operations from both an environmental and public health standpoint.

Section 72.61, General Criteria

Comment No. 352: Nuclear Fuel Services, Inc. (46)

"The wording of this paragraph might be interpreted to require a licensee to propose and evaluate several sites. We recommend the use of the term 'the proposed site' throughout this section."

Comment No. 353: Shaw, Pittman, Potts and Trowbridge. (50)

"These general criteria as written apply to 'proposed sites for the ISFSI.' It is unclear why reference is made to multiple sites and a single ISFSI. The reference should either be to 'proposed site for the ISFSI' or to 'proposed sites for ISFSI's.'"

Discussion: Changes have been made in the wording of the rule to specify the proposed site where applicable. However, the proposed site will have to be compared with available alternative sites to establish that an alternative site does not offer significant environmental or safety advantages over the proposed site.

Comment No. 354: Exxon Nuclear Company, Inc. (22)

"It is suggested the probability criteria be added to indicate a threshold for the occurrence of external natural events, external man-induced events, and natural phenomena, below which design protection against such events is not required."

"A design earthquake is suggested with a recurrence interval of at least 500 years. Could a probability threshold derived from this recurrence interval also be used as the criteria suggested in the preceeding comment for other events which could impact the safety of ISFSI?"

Discussion: This approach was considered in the drafting of the rule and Regulatory Guide 3.44. However, it was not possible to obtain a consensus among specialists having expert knowledge about the various types of natural phenomena to establish a consistent basis for various natural phenomena events. Moreover, there is considerable controversy about establishing a probabilistic approach to seismic risk. The 500 year recurrence interval was a proposed element of siting criteria, not the design earthquake.

Comment No. 355: American Nuclear Society (ANS2.19). (41)

"The criteria appear quite nebulous in several places."

Discussion: Subpart E contains specific criteria where these can be stated. Where specific criteria cannot be defined, it identifies factors that must be evaluated in determining the acceptability of a proposed site.

Comment No. 356: American Nuclear Society (ANS57.7). (28)

"72.61(b) Delete 'and man-induced' because at the time of site selection there should not be any man-induced events to be evaluated."

Discussion: Man-induced events refers to nearby activities such as mining, transportation, airports, etc.

72.61(c)

Comment No. 357: Bechtel National, Inc. (38)

"This paragraph and Section 72.64 paragraphs (a) and (c) require that the effects of the ISFSI on people in the region be examined and that effects which would otherwise be unacceptable shall be compensated for by the ISFSI design. As such, the proposed regulation does not give any guidance as to what is acceptable and what is not. Specific guidance should be provided in the regulations to avoid confusion in the licensing process and to provide firm guidance to the applicant. Unacceptable effects should be defined in terms of radiological dose limits."

Discussion: These paragraphs have been revised. Dose criteria are defined in Sections 72.67 and 72.68.

72.61(f)

Comment No. 358: Shaw, Pittman, Potts.and Trowbridge. (50)

"This provision, requiring an environmental analysis, is unnecessary. Instead, 10 CFR §51.5 should be amended to add ISFSI licensing as the type of action requiring NRC environmental analysis."

Discussion: 10 CFR Part 51 is now being revised; ISFSIs will be covered in the revised rule.

Section 72.62, Criteria for Design Basis External Natural Events

Comment No. 359: Nuclear Fuel Services, Inc. (46)

"It is singularly disappointing that the Staff should propose such an unspecific regulation on the criteria for design basis for external natural events. The NRC should draw upon their vast experience in reactor siting and extend the scope of natural phenomena resistance criteria for ISFSI beyond the specific earthquake resistance (0.25g/500 year return) to at least specify tornado winds and precipitation rate. Due consideration should be given to the very low potential release source involved in the storage of aged fuel. For example, NRC calculates[a] a tornado strike on the Barnwell Fuel Receiving and Storage Station would result in less than 0.1 rem to the critical organ of the maximum individual when fuel with cooling times as short as 150 days is stored."

Discussion: The design basis for external natural events is both site-specific and ISFSI design specific. Tornado winds and precipitation rate may not be significant factors for specific sites (e.g., desert) or ISFSI designs (e.g., below grade pools). The requirement is that those potentially harmful natural phenomena which can occur at the proposed site be evaluated and considered in the design of the proposed ISFSI.

Comment No. 360: Shaw, Pittman, Potts and Trowbridge. (50)

"This sub-paragraph requires that 'appropriate methods shall be adopted for establishing the design basis natural events for important natural phenomena. The method should be justified as being compatible with the region and the current state of knowledge.' This appears to require that the licensee justify the seismic criteria established by this regulation. Unless this is the intent, this sub-paragraph should be modified to make clear that it applies only to facilities located at sites whose seismic characteristics lie outside those specified in paragraph 72.71, General Design Criterion 2(ii)."

Discussion: It is the responsibility of the applicant to select and justify methods for evaluating natural phenomena at the proposed site. Geologic and seismic criteria are specifically addressed in Section 72.66. Section 72.62 addresses other potentially serious natural phenomena that may occur at the proposed site.

Comment No. 361: Nuclear Fuel Services, Inc. (46)

"The NRC Staff, not the licensee, should bear the responsibility for identifying what are 'appropriate methods' for establishing design basis for natural phenomena

and man-induced events. The licensee using these 'appropriate methods' would compute the magnitude of the event."

Discussion: Any applicant applying for a license under Part 72 should be qualified to judge what methods are appropriate for establishing the design basis for his specific ISFSI design and site conditions. The NRC role is to determine whether the methods used are indeed appropriate for his specific site/design conditions.

Comment No. 362: U.S. Department of Interior. (65)

"Criteria for natural events to be considered in site selection are given only for seismicity. However, we recommend the potential for flooding also be considered in the selection of a site for an ISFSI. Flooding could affect storage facilities adversely and should be covered by criteria. Avoidance of floodplain sites would be in line with policies established in Executive Order 11988, Floodplain Management."

Comment No. 363: Tennessee Valley Authority. (72)

"We believe Section 72.62 is vague and does not specify a design basis flood. This contrasts with draft Regulatory Guide 3.24.1 and 3.24.3 which specify a Probable Maximum Flood (PMF) approach. We do not believe that a PMF approach is justifiable for an ISFSI because the consequences of floods are much less severe."

Discussion: The draft regulatory guides referenced were developed specifically for ISFSIs of the water basin type: with the tops of the pools located at or near grade. For this type of ISFSI, flooding should be avoided. Draft Regulatory Guide 3.44, which was published for comment in December 1978, also reflects the staff view that a below grade ISFSI should be located above the PMF level on a given site. Thus, subparagraph (f) has been added to Section 72.61 to indicate that a floodplain site is unsuitable for an ISFSI.

Section 72.63, Criteria for Design Basis Man-Induced Events

Comment No. 364: American Nuclear Society (ANS57.7). (28)

"72.63(a) (b) (c) Delete second sentence in (a) and entire sentence (b) and rewrite (c) as follows: Appropriate methods shall be adapted and justified for the design basis of the ISFSI as being compatible with the characteristics of the region and the current state of knowledge. These paragraphs are talking about phenomena, when all we are talking about are man-made facilities."

Discussion: Man-induced events (or phenomena) are the results of man's activities in the region of the proposed site. Examples of such events are explosions at a nearby mine or quarry, release of hazardous or toxic chemicals from a nearby manufacturing facility, and an airplane crash if located on the flight path of a nearby airport. Such events (or phenomena) due to man's activities must be evaluated to the extent that these are pertinent in the same manner as natural phenomena.

Section 72.64, Criteria for Defining Potential Effects of ISFSI on the Region

Comment No. 365: Ohio Power Siting Commission. (11)

"Paragraph 72.64, Sections (a) and (b)

"An evaluation of usual characteristics should also be made."

Discussion: Comment accepted and incorporated in the revised text of Section 72.64, now Section 72.65.

Section 72.65, Criteria For Regional Distribution of Population.

Comment No. 366: Shaw, Pittman, Potts and Trowbridge. (50)

"This requirement appears to duplicate that set forth in sub-paragraph 72.61(e). If these are intended to cover separate actions by the applicant, the difference should be more clearly set forth."

Discussion: Section 72.61 is a summary of general criteria, with subsequent sections treating each subject in more detail. The requirements in Section 72.65 have been rewritten and placed in different sections in accordance to criteria for specific site-related areas.

Comment No. 367: Isham, Lincoln and Beale. (64)

"In view of the state of technology with respect to spent fuel storage, and the low possibility of radiation exposure to the public from such facilities, there is no justification for considering population density as an independent safety criterion in connection with identifying a site for an independent spent fuel storage installation. Population density should at most be considered with any environmental review that you are conducting."

Discussion: This section, in part, develops information about the distribution of the population in the region which is necessary to evaluate the adequacy of the proposed emergency plan. Criteria for defining a region have been rewritten and placed in Section 72.64.

Comment No. 368: Gilbert/Commonwealth. (44)

"Part 72.65, 'Criteria for Regional Distribution of Population,' discusses the need to evaluate the proposed site for potential accident consequences over the 'operational lifetime' of the ISFSI. Since Part 72.32 limits the initial ISFSI license to no more than 20 years, with the possibility of renewal, the length of the operational life is uncertain. Clarification of the regulatory intent behind the 20 year license limits and criteria for license renewal would be desirable."

Discussion: Section 72.65(a) has been deleted, including the requirement to project the character and distribution of the population over the lifetime of the ISFSI. See responses to comments on Section 72.32 relative to the duration and renewal of licenses. Section 72.64 now defines the criteria used to establish regions and includes a revision of population distribution requirements.

Comment No. 369: Shaw, Pittman, Potts and Trowbridge. (50)

"The 'neighboring area' concept, defined in §72.3(k), is too indefinite to allow meaningful evaluation. A more explicit definition, along the lines of the 'low population zone' (§100.3(b)), should be adopted."

Comment No. 370: Bechtel National, Inc. (38)

"Paragraph (d) - An evaluation of the potential for adverse consequences to people within the neighboring area is required. The definition for neighboring area is the area considered with respect to the possibility of implementing contingency measures. A more specific definition should be provided. (See comment regarding Section 72.3 Definitions - (k) Neighboring area.)"

Comment No. 371: Shaw, Pittman, Potts and Trowbridge. (50)

"The limits specified on use of a controlled area should at a minimum be no more strict than those in 10 CFR §100.3(a) for exclusion areas. As written, the provision might not be interpreted to allow the kinds of transportation activities permitted under §100.3(a)."

Discussion: The definitions of "controlled area" and "neighboring area," which has been changed to ISFSI-EPZ, under Section 72.3 have been revised. The ISFSI-EPZ to be defined in the application is that area in which the emergency plan might be implemented, if necessary, in the event of a serious accident at the ISFSI. Section 72.69 contains the criteria for defining the ISFSI-EPZ.

Comment No. 372: Lowenstein, Newman, Reis, Axelrad and Toll. (48)

"Although the Supplementary Information states that 'the population distributions at licensed reactor sites would be acceptable for the location of ISFSI's' (43 F.R. 46310), this determination is not included in the proposed regulation. The regulation should make explicit that if an ISFSI is to be located at a licensed reactor site, population distribution information would not need to be provided and reviewed.

"The regulation should also provide, however, that in view of the acknowledged low level of potential risk of an ISFSI, population densities higher than, and population distributions different than, those at licensed reactor sites may also be acceptable."

Discussion: Applications under Part 72 covering an ISFSI to be constructed at a licensed reactor site may include updated population distribution information, or cover this subject by specific reference to the applicable sections of the SAR for the Part 50 license if this information is still current.

Comment No. 373: Natural Resources Defense Council, Inc. (66)

"Current population criteria are vague and inadequate. The proposed §72.65 is even worse. Specific criteria defining population levels which are acceptable and man rem doses calculated using design basis accident conditions and conservative assumptions are the only reliable standards. Also the use of conservatively calculated man rem doses would permit a basis for comparison of

alternative sites for safety purposes. See generally Natural Resources Defense Council and Citizens for a Better Environment Comments on Proposed Amendment to Appendix E to 10 CFR Part 50, In the Matter of Appendix E - Emergency Plans for Production and Utilization Facilities, October 23, 1978."

Discussion: In general, calculations of man-rem doses based on design basis accidents are used to assess site suitability for nuclear facilities. However, such calculations for an ISFSI, in which only aged fuel is stored, indicate that other criteria are likely to govern the choice of a site relative to the alternative sites available to an applicant.

Comment No. 374: Westinghouse Electric Corporation. (61)

"Section 72.65 contains criteria for regional distribution of population which are not applied to LWRs. For reasons stated in the cover letter, such additional requirements are not appropriate. Furthermore, the proposed regulation requires, in paragraph 72.61(e) and 72.65(e), that the potential for radiological consequences in the region shall be evaluated. It is believed that the intent, although not clear, of this requirement is the performance of an offsite dose analysis of the design basis accident(s) with respect to the regional population. This is above and beyond the requirement for light water reactors under 10 CFR 100 Additionally, once the analysis has been completed, no criteria have been established against which to measure the acceptability of the results of the analysis. The only requirement for 'regional' population dose assessment in the case of LWR licensing is in the NEPA evaluation contained in the Environmental Report which is performed using realistic assumptions for the accident scenario. Definitive design objectives for such evaluations are given in Appendix I to 10 CFR 50."

Discussion: The requirements of Section 72.65 have been rewritten and placed in different sections of the regulation. Section 72.68 establishes the criteria for the controlled area and Section 72.69 establishes the criteria for the neighboring area. Appendix I to 10 CFR Part 50 does not apply to an ISFSI.

Comment No. 375: Nuclear Fuel Services, Inc. (46)

"In Section 72.65 of Subpart E, make the following changes:

"'(a) The proposed site . . . and distribution of people in the region. Such a study shall include evaluation of present and future uses of land and water within the region and shall take into account any special . . .

"'(b) A controlled . . . for the proposed site.

"'(c) The licensee . . . from the controlled area.

"'(d) The neighboring area . . . evaluated with respect to both the potential for adverse consequences to people or to the environment from a release of radioactive material and the capability of implementing protective measures as may be necessary to mitigate the immediate effects of such a release.

"'(e) The distribution of people in the region . . . from normal and potential accidental releases of radioactive material or other toxic materials and the potential impact from construction, operation and decommissioning of the ISFSI during its lifetime.'"

"Paragraph 72.65(a) - The term 'character' should be defined or deleted."

Discussion: The requirements previously located in Section 72.65 have been revised, taking into account the above suggestions. See Sections 72.64, 72.68 and 72.69.

Section 72.66, Criteria for Defining Acceptable Seismic Characteristics.

The proposed siting of ISFSI's in areas of low potential seismicity, as defined by a probabilistic approach rather than the deterministic approach used for nuclear power plants, elicited the following twenty comments.

Comment No. 376: Exxon Nuclear Company, Inc. (22)

"The recognition that the single static nature of an ISFSI makes the seismic risk less serious than for a reactor and that substantial resources can be expended both in site investigation work and debate on exact site specific design values is indeed correct. The seismic criteria proposed, therefore, represents a reasonable approach for these types of facilities."

Comment No. 377: Arizona Nuclear Power Project. (59)

"We support the idea of a 'new seismic siting approach' which recognizes that the seismic risk factor for an ISFSI is less serious than for a nuclear reactor. Along the same line we support the thought that an approved reactor site is most certainly suitable for an ISFSI."

Comment No. 378: T. C. Buschbach. (6)

"I hesitate to endorse any statement in the regulation which requires ISFSI's to be designed to withstand a 0.25g acceleration or requires the sites to have a ground motion potential of no more than 0.25g. Philosophically, I have no quarrel with the concept of using existing seismic risk maps, choosing sites with earthquake ground motion potential of no more than 0.25g with recurrence interval of 500 years, and building the ISFSI without costly site-specific investigations. It is an excellent alternative.

"The other alternatives should be defined as clearly as the one just discussed. Transportation may become a more serious problem than would be the designing of an ISFSI for a site where horizontal acceleration may be expected to exceed 0.25g. In a few years this option may be extremely important and the option should be clearly available.

"The latter options (referring to designing for less than 0.25g) should be readily available rather than being presented as an acquiescence. We are currently working on a new seismic risk map, and the options are apt to become more important in the future."

Comment No. 379: Southern Company Services, Inc. (54)

"The offer of acceptance of 0.25g as the limiting earthquake ground motion appears to be a positive step to cut costs and reduce regulatory review time; however, in reviewing the application of these design features, there are a number of factors in the regulation which limits its use. Some geological investigation would be required to ascertain that no unusual geological condition exists. The foundation investigation would have to ascertain that bedrock exists at the base level for the structures. After these two conditions are determined, there would be little additional expense accrued to determine a site specific "g" value. The set "g" value of .25g is proposed to approve some 95% of the continental area seismically. In looking at the Southeast, the bedrock requirement excludes about 75% of the area. In considering the area east of the Rockies, this requirement excludes the coastal plains, the river valleys and the embayment areas, leaving probably less than 50% of the area. Of the areas available, much of it is remote and the terrain is too rough for developing a site for this usage. More and more restrictions are being added to transporting of radioactive material and in the future, long hauls may be prohibitive in costs. In the Southeast most of the area (except around Charleston and a portion of the Piedmont province) is designated as UBC Zone 0 or Zone 1 and the proposed value is extremely high for the potential seismic loading conditions. If a new seismic siting approach is to be offered, it would include a more rational approach of various values for general locations and foundation conditions."

Comment No. 380: American Society of Civil Engineers. (34)

"The proposed regulation is directed toward new sites for an ISFSI rather than recognizing that the majority of sites may be contiguous to existing licensed reactors. The regulation sets minimum seismic criteria which are in excess of criteria used in the licensing of most reactor facilities in the aseismic Southeast U.S. The regulation attempts to justify such conservative criteria by stating that these criteria will not affect the design of the simple structures involved and by emphasizing--in four separate statements--that the adoption of such conservative criteria will be in lieu of site investigations.

"This regulation is written as if it must justify the arbitrary selection of ultra conservative seismic criteria. If such conservative seismic criteria are reasonable, then the cost savings due to omitting site investigations are not relevant.

"The regulation infers that site investigation costs will be reduced. Nothing could be further from reality. The regulation still requires the site seismicity to be characterized by showing the probability of seismicity is below stated levels. Furthermore, the site will have to be free of those unusual geologic conditions which are only determined during site investigation.

"While it may be appropriate to specify minimum acceptable levels of design, there is no justification for adopting ultra conservative designs just because the proposed structure is supposedly simple."

Comment No. 381: Edison Electric Institute. (68)

"We concur with the position that any site with a peak horizontal ground acceleration of not greater than 0.25g with a recurrence interval of at least 500 years, shall be deemed suitable for an ISFSI site. A specific reference should be provided for the basis of determining that the g value of a site is no greater than 0.25g. However, ISFSI's should not be excluded from sites with a greater g value. Any site that has an established g value either above or below 0.25g for a Part 50 facility should also be deemed acceptable for a Part 72 installation that is designed to withstand the established g loadings for that site."

Comment No. 382: American Nuclear Society (ANS2 19). (41)

"Regardless what ground acceleration is utilized, documentation must be provided to support the proposed acceleration level. We may someday arrive at the point where there is a published map with which we all agree, but at the present, we have no such document. As an alternative, it is suggested the user of 10 CFR Part 72 be encouraged to select a site where the horizontal ground acceleration is 0.25g or less."

Comment No. 383: General Electric Company. (47)

"(a) This Section defines acceptable seismic criteria. The value of 0.25g for peak horizontal ground acceleration is too restrictive and a value of 0.2g is more appropriate. Our rationale is based on the following considerations:

"1. The value of 0.25g cannot be inferred from the reference cited (Report by Algermissen and Perkings of USGS). Rather, 0.2g is given as the value that covers most of regions east of Rockies.

"2. The value of 0.2g is consistent with present practice for design of equipment to be located in buildings. This typical requirement is given in the latest version of the Uniform Building Code.

"3. The value of 0.25g seismic requirements may eliminate many suitable sites due to liquefaction consideration.

"4. The purpose of selecting minimum design earthquake level is for convenience in lieu of expensive and time-consuming site investigation. Therefore, this selected earthquake level should be high enough to cover a representative number of potential sites and low enough to avoid excessive economic penalty. In this regard, we believe 0.2g is more appropriate.

"It is not clear whether the alternative approach states, '. . . of establishing a site specific 'g value,'' permits the use of a value less than 0.25g. This should be clarified."

Comment No. 384: Nuclear Fuel Services, Inc. (46)

"FR 46310 - It appears to NFS that the relationship between horizontal ground motion acceleration and recurrence interval is as yet too tenuous to justify a specific number such as '500 years.' The NRC should utilize the experiences gained in both the review of more than a hundred reactor sites and the extensive survey for the Nuclear Energy Center study to develop a Regulatory Guide identifying the appropriate seismic parameter by geographical region."

Comment No. 385: American Society of Civil Engineers. (34)

"It is recognized that the rationale of 0.25g seismic requirement is to avoid expenditure of substantial resources in investigation work to establish site specific seismic data, but here again if ISFSI is located near existing licensed facility, some of this data may already be available and made investigative and review work of site-specific seismic design data a relatively simpler task.

"Therefore, it is suggested that seismic criteria state the establishment of a site specific g value by the procedure of Part 100 or as an alternative approach, use of at least 0.25g horizontal ground motion acceleration in which case, the integrity of the ISFSI will be considered adequate, without the need for costly seismic site investigations, analyses, and reviews."

Comment No. 386: Department of Water and Power, City of Los Angeles. (53)

"Our understanding of the Nuclear Regulatory Commission's (NRC) intention in proposing Title 10, Code of Federal Regulations, Part 72 (10 CFR 72), as stated in the Supplementary Information was to consider 'whether a new seismic siting approach for an ISFSI should be developed which recognizes that the simple st nature of an ISFSI makes sies risk less serious than it is for a reactor' (emphasis added). However, the proposed regulations as set forth in paragraphs 72.66 and 72.71 of 10 CFR 72 do not accomplish the NRC's intention. We believe that the 'new seismic siting approach for an ISFSI' being considered by the NRC as set forth in paragraphs 72.66 and 72.61 of 10 CFR 72 would still require extensive geologic investigations and would not result in significant savings of resources and time. It appears that the modification of seismic and geological siting criteria (e.g., use of probabilistic methods) for nuclear facilities would be more appropriately located in a revised Title 10, Code of Federal Regulations, Part 100 (10 CFR 100).

"For the above reasons, we believe that with regard to the criteria for defining acceptable seismic characteristics for an ISFSI located at a site which has not been licensed, the proposed regulations in paragraph 72.66 of 10 CFR 72 should provide that the site seismic and geologic characteristics for evaluation of the suitability of the site shall be determined in accordance with 10 CFR 100. Also, we believe that the proposed regulations in paragraph 72.71 of 10 CFR 72 should provide that structures, systems and components important to safety shall be designed to withstand the effects of natural phenomena, such as earthquakes with a horizontal ground motion acceleration as determined by 10 CFR 100.

"Additionally, as peak acceleration levels increase for a given site, the appropriateness of the NRC staff's requirement for anchoring a Regulatory Guide 1.60 response spectra based on peak ground acceleration becomes questionable. Evidence was presented to the NRC and the Advisory Committee on Reactor Safeguards on studies conducted for the San Joaquin Nuclear Project Early Site Review Report, indicating that there are more appropriate methods for establishing spectra levels of shaking associated with earthquakes. Alternate methodologies presented include the scaling of real earthquake response spectra, use of spectral intensities and spectral ordinates. We believe that the emphasis placed in the proposed regulation on the use of peak ground acceleration for determining the seismic characteristics of a site (i.e., for normalizing design response spectra) is not appropriate for sites with moderate to high peak ground accelerations."

Comment No. 387: Lowenstein, Newman, Reis, Axelrad and Toll. (48)

"The first sentence of §72.66(a) is presumably intended to permit the siting of an ISFSI without the need for costly seismic investigations, analyses and review. It might not achieve this purpose, however, because it does not specify the information source that will be conclusively accepted by the Commission without need for further proof by applicant. We suggest that the first sentence be redrafted to provide explicitly that the applicant need not provide detailed information and seismic findings by the Commission and will not be required if the ISFSI is to be located (1) at a site where a production or utilization facility is currently licensed under Part 50 with a 'g' value for a Safe Shutdown Earthquake of 0.25g or less, or (2) at a site within an area satisfying the earthquake ground motion potential and recurrence interval set forth in the regulations as demonstrated by authorities named in the regulations (e.g., incorporating into the regulations a reference to the report identified in footnote 2 of 43 F.R. 46310) or equivalent authorities.

"We assume that the second sentence of §72.66(a) is intended to provide complete flexibility to an applicant to ignore the 'novel siting approach' set forth in §72.66 and instead to proceed under Part 100. Thus, if an applicant wishes to establish pursuant to Part 100 a site-specific 'g' value of less than 0.25g he is free to do so; and he could then design the ISFSI accordingly. (For this reason there should be deleted the parenthetical expression in Quality Standard (2)(ii) of §72.71 which requires designing for an acceleration of at least 0.25g. On the other hand, if he wishes to use a site where a greater 'g' value would be applicable, he is free to establish the site-specific acceleration and design the ISFSI accordingly.

"Further comment on the referenced USGS report (Algermissen and Perkins, Open File Report 76-416, 1976, 'A Probabilistic Estimate of Maximum Acceleration in Rock in the Contiguous United States') is in order. Algermissen and Perkins, in the cited document, present a preliminary map of horizontal accelerations in rock with a 90% probability of not being exceeded in 50 years; based on information presented in the report, the maximum accelerations on the same probabilistics based which might be anticipated with a recurrence interval of 500 years would be approximately 2.7 times the values shown on the Algermissen and Perkins map. From this it would appear that a substantial fraction of the country lying between the 75th and 105th meridians would be able to justify a substantially lower seismic criterion that the 0.25g value selected. In fact, Algermissen and Perkins state:

"'It can also be surmised, from the acceleration vs. return period rule-of-thumb and rough considerations of the area involved, that an attempt to produce an acceleration map of the Eastern United States by a uniform distribution of all historical seismicity east of the Rocky Mountains would results in a uniform motion level between 4 and 10%g. Such a map would emphasize the hypothesis that earthquakes could happen anywhere in the Eastern United States but the motion levels as design levels are probably easily met by structures conforming to wind loading codes--earthquake protection would not be a design criterion at all.'

"It would thus appear appropriate to consider establishing as the seismic criterion a value less than 0.25g, and require that facilities proposed for sites where the anticipated peak acceleration based on the Algermissen and Perkins data might be exceeded, that a complete seismic evaluation would be required. It would appear from the Algermissen and Perkins map that relatively few additional sites would be excluded from the standardized consideration by reducing the g value to 0.20."

Comment No. 388: H. Ashar. (16)

"It should be recognized that the peak acceleration associated with a 'horizontal ground motion potential' is not necessarily the same as the maximum design ground acceleration. Also, the phrase 'up to a 500 year recurrence interval' gives me an impression that we would accept an earthquake having less than 500 year recurrence interval. I do not believe this is the intent. Recognizing the purpose of this section of the Regulation, I suggest the following changes.

"(a) Design Earthquake (DE) is defined as an earthquake having an recurrence interval of no less than 500 years.

"(b) Any site, having design maximum ground acceleration (corresponding to DE) at an ISFSI foundation level of greater than 0.25g, shall be deemed unsuitable for an ISFSI.

"(c) For soil sites, where DE could potentially cause soil failure, it must be shown by a site specific investigation and analysis that soil failure will not occur due to the expected vibratory ground motion at the site. Sites with potentially unstable soils may be made suitable by remedial action."

Comment No. 389: F. Anderson. (17)

"(a) Sites with a horizontal ground motion potential of greater than 0.25g with a 500 year recurrence interval (equivalent to a 90% probability of not being exceeded in 50 years) shall be deemed unsuitable for an ISFSI.

"(b) Sites which meet the criterion of 'a' above and which are founded on bedrock are suitable for an ISFSI. Unless some unusal geological characteristics is identified, no detailed site specific earthquake analysis is required. For soil sites, where vibratory ground motion could potentially cause failure, it must be shown by a site specific

investigation and analysis that soil failure will not occur due to the expected vibratory ground motion at the site during the projected operating lifetime of the installation and that horizontal ground acceleration at the ISFSI foundation does not exceed 0.25g. Sites with potentially unstable soils may be made suitable by remedial action.

"(c) For ISFSI designs other than the water basin type, proposed sites shall be evaluated on the basis of a site specific investigation and analysis.

"(d) Sites which do not meet the site suitability requirements of the above criteria may be evaluated and determined acceptable in accordance with Section 72.8 of this Part."

Comment No. 390: Nuclear Fuel Services, Inc. (46)

"Paragraph 72.66(a) - The requirement might be clearer if it read 'A site with a peak . . . shall be deemed suitable for an ISFSI and require . . .'"

Comment No. 391: Ebasco Services, Inc. (52)

"Page 46310, Second Column, Paragraph continued from previous column - The sentence 'based on previous evaluations of the impact of transporting spent fuel, the savings achieved by the site restrictions are justified,' needs further justification. Please clarify what savings would be achieved by the site restriction."

Comment No. 392: New York Energy Office. (70)

"The term 'active fault' as used in Section 72.66 should be defined in the proposed regulations. The terminology should be comparable to that of 10 CFR 100, Appendix 'A', III Definitions."

Comment No. 393: American Society of Civil Engineers. (34)

"Section 72.66 indicates that a peak horizontal ground acceleration of not greater than 0.25g with a recurrence interval of at least 500 years can be used to define the earthquake or that a site specific g value can be determined by procedures outlined in 10 CFR 100. Several clarifications are needed for this section as follows:

"1. Horizontal ground acceleration is specifically stated; therefore, vertical acceleration should be specified or the word horizontal removed.

"2. The ground motion should be specified as free-field surface motion.

"3. This section implies that if a site specific g value is determined, an earthquake with a return period of 500 years could be used. This should be clearly stated.

"4. In the majority of the eastern United States, a 500-year earthquake would result in maximum accelerations less than 0.10g. This is quite a bit smaller than 0.25g which would definitely affect the cost of at least the equipment. This can be handled by the approach suggested in Item 1.

"5. Specification of just a peak g value is not complete. Additional information should be included concerning ground response spectra and methods of analyses (static and dynamic) or tests for structures, systems, and components. 10 CFR 100, Section VI (a) is an example of what needs to be added. Use of the regulatory guide spectra is applicable for most sites, but some reference or information should be in 10 CFR 72."

Comment No. 394: Tennessee Valley Authority. (72)

"Section 72.66(a) indicates that a peak horizontal ground acceleration of not greater than 0.25g with a recurrence interval of at least 500 years can be used to define the earthquake or that a site specific 'g value' can be determined by procedures outlined in 10 CFR 100. We suggest several clarifications that are needed for this section as follows:

"a. Horizontal ground acceleration is specifically stated; therefore, vertical acceleration should be specified or the word 'horizontal' removed.

"b. The ground motion should be specified as free-field surface motion.

"c. This section implies that if a site specific 'g value' is determined, an earthquake with a return period of 500 years could be used. This should be clearly stated. In the majority of the eastern United States, a 500-year earthquake would result in maximum accelerations less than 0.10g. This is quite a bit smaller than 0.25g which would definitely affect the cost of at least the equipment.

"d. Specification of just a peak 'g value' is not complete. Additional information should be included concerning ground response spectra and methods of analyses (statis and dynamic) or test for structures, systems, and components. 10 CFR 100, Appendix A, Section VI(a) is an example of what needs to be added. Use of the regulatory guide spectra is applicable for most sites, but some reference or information should be in 10 CFR 72."

Comment No. 395: NRC Staff.

"(a) A peak horizontal ground acceleration of 0.25g and vertical ground acceleration of .17g will be applied at ground surface in the free field for the dynamic design of all ISFSI structures. The peak acceleration will be used with the R.G. 1.60 spectral envelope to provide spectra for design.

"The ISFSI design earthquake is considered a faulted condition, as is the SSE for nuclear power plants. Dynamic or equivalent static loads are to be treated in the same manner as for the SSE for nuclear power plants as described in Appendix A. 0.25g is a high value for many areas compared to that which would result from Appendix A procedures. However, it is accommodated in the design of ISFSI structures with a minimal expense compared to an Appendix A investigation as required for nuclear power plants. As an alternative, the applicant has the option of establishing a site specific 'g value' and/or spectra by the procedures of Part 100 of this Chapter. No ISFSI shall be built where ground acceleration will exceed 0.25g with a recurrence interval of 500 years (equivalent to a 90% probability of not being exceeded in 50 years) An ISFSI site which is satisfactory by this criteria will require only the Foundation engineering and geological hazards investigations covered in the following paragraph(b).

"72.66, pp(b) - Insert after 'bedrock', defined as having a shear wave velocity of 3500/sec or greater, . . . last sentence - insert following - For non-bedrock sites, soil structure interaction is to be treated in the same manner as for the SSE in nuclear power plants as described in Appendix A to 10 CFR 100."

Discussion: Section 72.66 has been extensively revised to cover both site investigations and the determination of the ISFSI design earthquake for massive structures. A differentiation is made between the eastern part of the U.S. and the seismically active area west of the Rocky Mountains. For sites which have been evaluated by the criteria and level of investigations required by Appendix A of 10 CFR Part 100, the ISFSI design earthquake is the SSE. For other sites, a standardized design earthquake of 0.25g may be used in most of the eastern U.S. or a site specific earthquake may be determined and used; for sites west of the Rocky mountains, a site specific design earthquake must be determined.

72.66(c)

Comment No. 396: Edison Electric Institute. (68)

"The reference to designs other than water basin type requiring a site-specific investigation and analysis appear to be inappropriate and should be eliminated. The seismic characteristics of 72.66 should be applicable to all types of ISFSI's."

Comment No. 397: Bechtel National, Inc. (38)

"ISFSI designs for dry storage should be evaluated to the same seismic criteria as for water basin-type designs."

Comment No. 398: Shaw, Pittman, Potts and Trowbridge. (50)

"This sub-paragraph states that fuel storage facility designs other than the water basin type will require that the proposed sites be valuated on the basis of the site-specific investigation and analysis. This appears to imply that storage facility designs other than the water basin type will require the full site-specific seismic analysis and justification of design seismic criteria that would be required of a reactor or fuel reprocessing plant. The most likely

alternative designs to the water pool storage are those involving direct storage of fuel containers in caissons at near-grade level in the ground, or air-cooled vault storage, neither of which involves consideration of the loss of coolant as a result of seismic damage to a pool structure. It therefore appears that, unless it can be demonstrated that there are other potential effects of seismic disturbances on these types of storage which are not likely to result from a seismic disturbance of a water pool storage, they should be treated on the same basis as water pool storage facilities as far as the seismic requirement is concerned."

Discussion: The referenced subparagraph has been revised. The criteria for seismic and geologic characteristics for those types of spent fuel storage installations which utilize other than massive structures will be determined on a case-by-case basis.

Section 72.67, Criteria for Defining Potential Radiological Consequences

Comment No. 399: North Shore Coalition for Safe Energy. (35)

"In spite of 'quality controls' and Federal regulations, human and mechanical fallibility have resulted in numerous infractions of safety requirements at commercial nuclear facilities, along with 'incidents' and accidents, and there is no reason to believe that this would not be true of ISFSIs. Increased spread of radioactivity to workers and the public means increased contamination of the human genetic pool. Since any amount of ionizing radiation can cause cancer, leukemia and genetic defects, setting 'acceptable' dose limits of radiation exposure on or off an ISFSI site during normal or abnormal operations is meaningless. The use of the phrase 'as low as reasonable achievable' is another instance of the Nuclear Regulatory Commission's refusal to take seriously its public mandate for nuclear safety. The so-called benefits of ISFSIs accrue only to the licensees and the nuclear industry, while the workers and the public are being asked to sustain the costs of life, health and suffering to this and all future generations."

Discussion: Under normal operating conditions, the storage of aged spent fuel in an ISFSI is not likely to release any significant amount of radionuclides to the environs. Moreover, the siting criteria in Part 72 are intended to ensure that even in the event of an accident at the site there will be no undue risk to the health and safety of the public. Section 72.67 has been revised to address criteria for normal and expected releases of radioactive material and expected direct radiation.

Comment No. 400: Valore, McAllister, Aron and Westmoreland. (40)

"The specification of 'controlled area' and 'neighboring area,' defined in paragraph 72.3(g) and (k), is not entirely clear in paragraph 72.67(a) and (b). If it is the intent that the radii of these areas be calculated from 72.67(a) and (b), then additional guidance will be necessary as to the meaning of 'during normal operations and anticipated occurrences' and 'under accident conditions.' If the issuance of either a Regulatory Guide or a report comparable to TID-14844 on this subject is contemplated, it would be helpful to say so."

Discussion: The terms controlled area and neighboring area (now ISFSI-EPZ) have been redefined in Section 72.3. "During normal operations and unusual

occurrences" means as a result of day-to-day operations and incidents that might occur with a frequency of greater than once a year.

Comment No. 401: Nuclear Fuel Services, Inc. (46)

"It is not clear why the NRC has chosen to utilize the term 'controlled area' in Part 72 rather than 'restricted area' as used in other parts. It would appear highly desirable to use the traditional term, i.e., 'restricted area.'"

Discussion: The controlled area as defined in Part 72 is based on a whole body dose to any individual of the general public of -

(a) Less than 25 mrem per year from normal operations, and
(b) Less than 5 rem from any postulated accident.

The restricted area as defined in Part 20 is based on -

(a) A maximum whole body dose to an individual (occupational worker) of 3 rem in any calendar quarter and 5 rem in any calendar year from normal operations,
(b) A maximum whole body dose to an individual beyond the restricted area boundary (i.e., in an unrestricted area) of 500 mrem in any calendar year from normal operations, and
(c) Personnel monitoring of each individual entering the restricted area who is likely to receive 1.25 rem in any calendar year.

By these definitions, the restricted areas and unrestricted areas with a potential dose greater than 25 mrem would always be designated within the controlled area of an ISFSI. The scope of a controlled area also includes postulated accident conditions not associated with either a restricted or unrestricted area. Therefore, the designation of a controlled area of an ISFSI does not replace the need for restricted or unrestricted area designations for licensee personnel radiation protection but is an additional clarification of the general public radiation protection needs.

Comments on the Applicability of Part 100 and Appendix I dose criteria were as follows:

Comment No. 402: Westinghouse Electric Corporation. (61)

"The proposed regulations set radiological siting criterion in Paragraph 72.67(b) which appears to be arbitrary in nature and inconsistent with the LWR radiological criteria set forth in 10 CFR 100. We are of the opinion that the existing radiological siting criteria in 10 CFR 100 should be equally applicable to the ISFSI facilities and we strongly recommend that the setting of any new radiological siting criteria in 10 CFR 100 should be equally applicable to the ISFSI facilities and we strongly recommend that the setting of any new radiological siting criteria in 72.67(b) must be based on clearly defined and sound justification.

"The justification given for the 5 rem requirement is that this will permit an ISFSI to be located on a reactor site without adding substantially to public risk. This justification is inappropriate for the following reasons:

". Not all ISFSI's will be located on reactor sites. Those that are not should not be subjected to more stringent criteria than LWRs.

"• Even if an ISFSI is located on a reactor site, it is not clear that such a stringent limit is required. The limit applied should be the same as that for the LWR (25 rem), as is the case if a second LWR were to be located on an existing reactor site."

Comment No. 403: Ebasco Services, Inc. (52)

"Page 46319, First Column, Paragraph 72.67(b) - We find the establishment of a more restrictive offsite individual accident dose limit for ISFS installations than contained in 10 CFR 100 to be inconsistent with the supplementary introduction statements regarding the risk of accidents in such facilities relative to risks associated with power reactors. The rationale set forth in the introductory statement, to the effect that such a lower value will provide a satisfactory limit on the incremental risk to the public resulting from locating an ISFSI on an existing reactor site, implies a degree of precision and utilization of risk assessment techniques which does not currently exist. Indeed there are no comparable strictures based on incremental risk placed on the co-location of a number of power reactor units on a single site. We recommend that the ISFSI offsite accident dose limit be made consistent with the 10 CFR 100 limit (i.e., 25 rem in 2 hours). Although the lower limit of 5 rem may well be reasonably achievable in most cases, we find this to be an inadequate basis for regulation."

Comment No. 404: Southern Company Services, Inc. (54)

"The requirements should be consistent with Part 100 for the same reasons."

Comment No. 405: Southern Company Services, Inc. (54)

"Reference should be to Part 50 Appendix I or the requirements should be made consistent. Although the potential is much less at this type facility the requirements should be consistent as a rational approach."

Comment No. 406: Connecticut, Department of Environmental Protection. (4)

"We would like to recommend, however, that Section 72.67 be revised downward to at least include the numerical guides that are used to meet the ALARA objectives for Light Water Reactors. A spent fuel storage installation at a reactor site must meet these numerical guides and it seems reasonable to apply them to all storage installations."

Discussion: Due to the short lived radionuclides involved, Part 100 and Appendix I to Part 50 are specifically applicable only to nuclear power plants; these regulations are not applicable to an ISFSI in which aged fuel is stored.

Part 100 siting criteria were developed specifically for power and test reactors of a proven design. The relationship between the reference dose guideline values and the determination of site-related areas in Part 100 was established on the basis of both the magnitude of the consequences and the probability of an accident occurring and the predicted dose being delivered to an individual. The Part 72 dose guidelines for accidents were derived from recommended protective actions for projected doses to populations by the EPA for planning purposes (EPA-520/1-75-001).

The ALARA objectives stated in Appendix I to Part 50 were developed on the basis of the technology available for rad waste treatment systems in LWR designs. Such ALARA objectives are not applicable to ISFSI designs for storing aged spent fuel. Part 72 has adopted the EPA limits stated in 40 CFR Part 190 for normal operations of uranium fuel cycle facilities. The EPA has endorsed this action. ALARA design objectives for an ISFSI will be determined on a case-by-case basis.

Comment No. 407: Natural Resources Defense Council, Inc. (66)

"The provision to automatically approve siting for accident purposes at an existing reactor site (43 Fed. Reg. 46310, column 1) is totally unacceptable. An accident with exposures of just below 5 rem per person (proposed §72.67(b)) is not insignificant and does materially increase the risk to the public health and safety, particularly at existing reactor sites with high population concentrations like Seabrook, Zion, and Indian Point. Each AFR site should be evaluated on a case-by-case basis with respect to its acceptability."

Comment No. 408: Gilbert/Commonwealth. (44)

"Part 72.67(b) limits the calculated exposure at the outside boundary of the controlled area following a postulated accident to 5 rem after 2 hours. (Note: Exposure should be in Roentgen; dose equivalent in rem.) We believe this proposed limit to be without scientific basis. The supplementary information which accompanied the Federal Register notice indicated that with such a limit, an ISFSI located on a reactor site would then not add substantially to the risk to the public off site, presumably in accordance with proposed General Design Criteria 5, 'Proximity of Sites.' We believe this restriction to be without merit. In the case of ISFSI's located away from other nuclear facilities, there appears to be no basis for the restriction. To limit the hypothetical accident dose to this low level in the case of combined nuclear facilities requires the postulation of coincident initiating failures followed by additional failures in each facility. This has not been done in the case of multiple reactors at a site, nor is it justified in this case. We believe the accident limits of 10 CFR 100 to be more appropriate."

Comment No. 409: Environmental Policy Institute, Wash., D.C. (29)

"The criteria for defining potential radiological consequences under accident conditions in section 72.67 establishes a criterion of 5 Rem in two hours at the outside boundary of the controlled area. The regulation is vague as to whether this is a maximum dose, an average exposure potential, or an exposure to the maximum individual or some other measurement. The basis for this criterion must be specifically defined. We also note that a 5 Rem exposure in two hours to an individual is not an insignificant dose. In fact, it is a dose presenting significant risk and should be reduced by at least an order of magnitude."

Comment No. 410: Yankee Atomic Electric Company. (55)

"Paragraph (b) of section 72.67 specifies an exposure limit of 5 Rem in 2 hours for the controlling design basis accident at the outside boundary of the controlled area. It is not clear whether this exposure is meant to be a whole body exposure or an organ limit or both."

Discussion: It is very unlikely that individuals beyond the controlled area of an ISFSI site would receive exposures at a level of 5 rem in the event of an accident. Only if the spent fuel became unshielded could direct radiation exposures reach such a level. Moreover, it is difficult to postulate an accident at a water basin which would result in the instantaneous loss of pool water; there would be time to implement an emergency evacuation plan to ensure that there would be no undue risk to the health and safety of the public. These criteria have been revised and placed in Section 72.68 as requirements for establishing the controlled area. A minimum distance of 100 meters has been specified for a controlled area. Further discussion of this subject is given in the discussion of major issues in Chapter I.

Comment No. 411: Bechtel National, Inc. (38)

"The regulation should be clarified to indicate that the '5 Rem in 2 hours' limit applies to the whole body, and additional limits for other body organs should be specified."

Comment No. 412: Valore, McAllister, Aron and Westmoreland. (40)

"Also, in paragraph 72.67(a) and (b), it is not clear whether the reference is to the dose accumulated over one year or 2 years, respectively, or to the dose commitment accumulated over the same periods. Presumably, the latter is the case, but the intent of the paragraph could be made clearer. This confusion, incidentally, also pervades 10 CFR 100.

"In any event, the word 'exposure' in 72.67(b) should be changed to 'dose,' since rem is a unit of dose, not exposure."

Comment No. 413: Nuclear Fuel Services, Inc. (46)

"We recommend that this paragraph be rewritten to something like: '(b) The conservatively calculated radiation dose to any organ of any individual located beyond the boundary of the controlled area for two hours immediately following a postulated accident shall not exceed (blank) rem.' The actual quantitative dose limit should correspond to the protective action guidance of the EPA."

Comment No. 414: Tennessee Valley Authority. (72)

"We suggest the phrase should read, 'exceed 5 rem whole body dose in 2 hours.'"

Discussion: Skyshine exposure from exposed spent fuel would be direct gamma radiation causing a whole body dose during the time of exposure. There would be no dose accumulation. Direct radiation would be to the whole body and body organs. Accident dose criteria are more definitively defined in (new) Section 72.68 of the final rule.

The following comments were addressed to the application of 40 CFR Part 190 in Part 72.

Comment No. 415: Bechtel National, Inc. (38)

"Paragraph (a) - Consideration should be given to the possibility of combined dose from multinuclear facilities. We suggest this paragraph be rephrased to be consistent with 40 CFR Part 190."

Comment No. 416: Nuclear Fuel Services, Inc. (46)

"The referenced EPA regulation (40 CFR 190.11) also limits the total quantity of radioactivity that may be released to the general environment from the entire uranium fuel cycle. The NRC should either indicate what proration of the EPA limit is applicable to ISFSI or exempt such ISFSI as insignificant contributors."

Comment No. 417: Shaw, Pittman, Potts and Trowbridge. (50)

"This paragraph in effect interprets EPA standards in 40 CFR 190.10(a) as being applicable at any individual facility in the uranium fuel cycle. The NRC's interpretation and application of the EPA standard should be explained clearly."

Comment No. 418: Natural Resources Defense Council, Inc. (66)

"The establishment of the 25 MREM limit for radiation exposures does not adequately account for possible exposures from other parts of the fuel cycle. The total dose set by EPA for any individual is 25 MREM/year from the nuclear fuel cycle. Some evaluation of other potential exposures for the individuals living near an AFR must be made to assure that total fuel cycle exposures are no more than 25 MREM."

Comment No. 419: Tennessee Valley Authority. (72)

"We believe by referencing 40 CFR 190.11 in the footnotes, the Commission infers an annual dose equivalent from this facility of 25 mrem total body, 75 mrem thyroid, and 25 mrem to other organs. Yet, in the 'Supplementary Information' the ISFSI is considered as part of the uranium fuel cycle.

"This appears to be a discrepancy in annual dose equivalent limits and should be clarified."

Comment No. 420: U.S. Environmental Protection Agency. (51)

"Our only comment of substance concerns your requirement that such independent storage facilities provide radiation protection consistent with this Agency's public health protection standards for the Uranium Fuel Cycle (40 CFR 190). We generally support your use of these requirements in this fashion. Your use of these standards in combination with the other requirements stated in the proposed rule will, we believe, provide adequate public health protection for such facilities."

Discussion: In general, this subparagraph states that the annual dose commitment from the operation of an ISFSI shall not exceed EPA regulations for the uranium fuel cycle. Other nuclear facilities in the region will have to be considered with respect to these criteria. However, an ISFSI is not likely to contribute significantly to the radiation exposure or dose commitment of the public. The specific criteria given in Section 72.67(a) have been revised and are now in Section 72.68.

Comment No. 421: New York Energy Office. (70)

"Consideration should be given to reducing the proposed annual dose limit criteria. A reduction of the proposed limit would be in accordance with the 'as low as reasonably achievable' concept defined in 10 CFR 20. Spent fuel storage pool experience to date appears to indicate that a lower limit would not be restrictive to the normal operation of the facility."

Discussion: The "as low as is reasonably achievable" requirement of 10 CFR Part 20 still applies to the design and operations of an ISFSI.

Comment No. 422: F. Anderson. (17)

"An alternative approach to the proposed Part 72 accident dose limit of 5 rem in 2 hours is the use of a minimum distance limit to the nearest boundary of the controlled area. The controlling accident, i.e., largest radiological consequences, resulting from a design basis event would be evaluated by a conservative but realistic analysis of the potential exposure of an individual at this minimum distance. If the realistically calculated exposure from the controlling accident exceeded the annual dose limits within two hours, an increased controlled area distance would be required. The stated dose criteria would be applied to any potential accident at ISFSI which is considered credible, can be mechanistically described and can be realistically evaluated.

"Comments regarding the site criteria stated in Subpart E of the proposed Part 72 should address the possible alternative approach as well as the stated approach for ISFSI accident evaluations."

Discussion: A minimum site boundary distance of 100 meters has been added in the revision of this section, however, the criterion limiting public exposure to less than 5 rem has been retained.

Comment No. 423: F. Anderson. (17)

The following change in wording was suggested:

> "'(a) During normal operations . . . shall not exceed 25 mRem . . ., 75 MRem . . ., and 25 MRem to any other organ of any member of the public located . . . as a result of exposures to planned . . . materials, randon and its daughters excepted, to the general environment and to radiation from the ISFSI operations.* Unusual regional and site characteristics shall be taken into account in the evaluation of planned discharges of radioactive materials."

Discussion: This section was rewritten as suggested.

Section 72.XX, Transportation

Comment No. 424: Pennsylvania Bureau of Radiological Health. (36)

"The regulations do not appear to directly address the problem of spent fuel transportation which would be associated with an ISFSI. We recognize that this area has been extensively addressed in other NRC generic proceedings, however,

there may be interfacing aspects which need to be further considered in these regulations. Specific examples might include siting considerations which take into account transportation corridors and restraints, or further consideration of transportation accidents using site specific parameters."

Comment No. 425: American Nuclear Society (ANS2.19). (41)

"The 'Supplementary Information' states that the imposition of this site restriction (of 0.25g with a recurrence interval of 500 years) does raise the possibility that a small amount of additional transportation of spent fuel might be necessary to reach an acceptable ISFSI site from a few reactors in the U.S. Some state and local regulations may not permit the transportation of radioactive material across state borders. This should be recognized when siting an ISFSI which is to be used by several utilities."

Comment No. 426: Connecticut, Power Facility Evaluation Council. (43)

"We suggest an additional criterion to add to Subpart 4 - Siting Criteria. In choosing sites for ISFSI, consideration should be given to transportation corridors involved in moving spent fuel from present locations to the proposed sites. The regulations should define criteria for locating ISFSI with minimum transportation."

Comment No. 427: New York Energy Office. (70)

"Potential effects resulting from the increased handling and transportation of spent fuel to an Independent Spent Fuel Storage Installation should be considered in the licensing process."

Discussion: In response to these comments a new section 72.70, Spent Fuel Transportation, has been added to the rule.

Subpart F--General Design Criteria

Section 72.71, General Design Criteria

General Comments

Comment No. 428: Shaw, Pittman, Potts and Trowbridge. (50)

"In general, the General Design Criteria should be more specific to remove from dispute the nature of the design required."

Discussion: This is a frequent comment on NRC regulations. In fact, some people would like NRC to issue approved designs. The NRC position is that it should issue general design criteria and approve specific designs which meet such criteria as these are presented. In addition, the NRC encourages the development of standard designs wherever such standardization would be beneficial.

Comment No. 429: Mississippi Power and Light Company. (39)

"Subpart E and Subpart F - In the Preamble to the proposed regulations, the NRC recognizes that the potential risk of an accident affecting the health and safety of the public associated with storage of aged spent fuel is small due to the inherent inert nature of aged spent fuel and that therefore, aged spent fuel does not need 'a high degree of protection from weather extremes, tornadoes, or tornado generated missiles' and 'the emergency water supply system need not be permanently installed, provided it is available within the time span needed.' However, the minimal risk associated with the storage of spent nuclear fuel is not adequately reflected in the body of the regulations, and in particular, Subpart E and Subpart F of the regulation should be modified to specifically incorporate this concept. This is essential to avoid unnecessary delays in the licensing of AFR storage installations and uncertainties in the construction and financing of such facilities."

Discussion: The basic thrust of Part 72 is that the safety of spent fuel storage is provided by the integrity of the storage structure. Little can happen to aged spent fuel stored under water provided that there is no significant loss of water. Dry storage facilities would also place primary reliance on the integrity of the structures involved.

However, there are other design conditions which must be met to ensure safe operation and minimize the environmental impact of ISFSI operations. Sections of this subpart have been revised to better define the applicability of the stated general design criteria.

Section 72.71(2), Protection Against Environmental Conditions and Natural Phenomena and the Design Earthquake

A number of commenters apparently were misled by the wording in Section 72.66 and the relationship between the use of a 500 year earthquake acceleration value of 0.25g to determine site suitability and the use of the same value of 0.25g as a minimum design value. Their comments are:

Comment No. 430: American Nuclear Society (ANS57.7). (28)

"72.71(2)(ii) Delete parenthetical expression because it conflicts with paragraph 72.66(a). In that paragraph you allow the applicant an option."

Comment No. 431: American Nuclear Society (ANS2.19). (41)

"The proposed rules (72.66,67) require that all ISFSI be designed for 0.25g peak horizontal ground acceleration and be sited only in places where the 500-year earthquake acceleration is less than 0.25g. According to the map prepared by Algermissen and Perkins, the 500-year earthquake acceleration is less than 0.20g in three-fourths of the continental U.S. It may not be economical to design for 0.25g (even considering the reduced licensing effort) in places where the 500-year earthquake acceleration may be only 0.05g. Also, the ISFSI located near nuclear power plants in most midwest and Eastern states, the design earthquake of 0.25g for the ISFSI - a relatively low risk facility - would exceed the SSE for the nuclear power plant. This situation is likely to

raise questions in the mind of the public as to the safety of the nuclear power plant. We recommend: the 500-year earthquake acceleration should be selected for the design of ISFSI."

Comment No. 432: Gilbert/Commonwealth. (44)

"Finally, there is a discrepancy between the General Design Criteria provided in 10 CFR 72.71 and the seismic characterisitcs discussed in 10 CFR 72.66 in relation to the peak horizontal ground acceleration of 0.25g. Section 72.66 provides the option of using the 0.25g/500 year recurrence earthquake, or of establishing a site specific g value in accordance with 10 CFR 100. However, Part 72.71(2)(ii) mandates the use of the 0.25g value by stating: '. . . shall be designed to withstand the effects of natural phenomena such as earthquakes (with a horizontal ground motion acceleration of at least 0.25g). . .' Should an applicant (choose to) qualify the facility seismic design basis according to a 10 CFR 100 investigation at a value below 0.25g, then the imposition of the 0.25g value is unwarranted and unduly restrictive. We suggest the deletion of the portion of 10 CFR 72.71(2)(ii) quoted above in parenthesis."

Comment No. 433: General Electric Company. (47)

"(2)(ii) This Section states criteria for protection against the effects of natural phenomena. The earthquake horizontal ground motion acceleration of at least 0.25g is reiterated here. The comments on §72.66 (above apply here, as well."

Comment No. 434: Shaw, Pittman, Potts and Trowbridge. (50)

"This sub-paragraph, and in particular sub-sub-paragraphs (A) and (B) appear to be in direct conflict with the criteria set forth in para graph 72.66, and with the apparent intent of the Statement of Considerations both of which imply that 'costly seimic site investigations, analyses, and review' are not required if the applicant demonstrates that his facility will meet the 0.25g requirement. This discrepancy should be clarified, preferably by deleting sub-sub-paragraphs (A) and (B) of 72.71(2) with their introductory sentence beginning 'The design basis for these structures, systems and components shall reflect . . .'"

Comment No. 435: Southern Company Services, Inc. (54)

"This section should permit the use of a site specific ground motion acceleration ('g' value) as allowed in Paragraph 72.66."

Comment No. 436: R. Neil. (62)

"Section 72.71(2)(ii) requires that a ground motion acceleration of at least 0.25g be a design basis. This conflicts with 72.66(a) which gives the option of using a site specific acceleration. The applicant should have the option of using the same design basis earthquake as an already approved reactor at the same site without additional study or regulatory review.

Comment No. 437: Edison Electric Institute. (68)

"The design requirement to withstand earthquake horizontal ground motion acceleration of at least 0.25G should be required only for those installations sited on the basis of 72.66 without a seismic analysis of the site. For those sites where a determination is made that a g value lower or higher than 0.25g is applicable, the determined g value may be used as the design requirement."

Comment No. 438: Allied Chemical Company (Idaho). (71)

"Reference paragraph 72.66 instead of the parenthetical phrase stating seismic accelerations of at least 0.25g. Paragraph 72.66 allows an exception."

Comment No. 439: Tennessee Valley Authority. (72)

"This statement appears to be inconsistent with Section 72.66(b) in that '(with a horizontal ground motion acceleration of at least 0.25g)' does not allow for the possibility of using a lower site specific earthquake even if justified by adequate supporting data."

Discussion: Section 72.66 has been broadened to cover both the geological/seismological investigations required and the determination of the design earthquake.

A number of commenters took exception to the use of a design earthquake value of 0.25g particularly for an ISFSI which is located at the site of a power plant which was designed for a lower (SSE) value. These are:

Comment No. 440: American Society of Civil Engineers. (34)

"As stated in supplementary information, the ISFSI poses a small potential risk due to the relatively inert nature of aged spent fuel and the simple static nature of an ISFSI makes seismic risk less serious than it is for a reactor, therefore, the severe seismic requirements of at least 0.25g are inconsistent in the Subpart F 72.71(2)(ii)."

Comment No. 441: General Electric Company. (47)

"As further illustration of the above, we are concerned that the seismic design basis of 0.25g is overly conservative for this application. A recent ACRS recommendation indicated that a 0.2g acceleration was an adequate design basis for power plants in the eastern United States. This value of 0.2g is also consistent with the value in the latest version of the Uniform Building Code. We recommend that the design basis be reduced to 0.2g or that the regulation provide for a site specific design basis of less than 0.2g based on site investigation."

Comment No. 442: Shaw, Pittman, Potts and Trowbridge. (50)

"It would appear that the NRC should develop additional background justification for the selection of the 0.25g seismic criterion. If, indeed, 0.25g lies below the structural seismic criterion at which substantial cost penalties begin to be incurred to meet increased acceleration values, then that thesis should be developed and supported with authoritative cost data."

Comment No. 443: Sargent and Lundy Engineers. (73)

"The horizontal ground acceleration of at least 0.25g is overly conservative for a low risk facility. For an ISFSI located near nuclear power plants in most midwest and Eastern states, the design earthquake of 0.25g would exceed the SSE for the nuclear power plants. This situation may raise undue questions in the mind of the public as to the safety of the nuclear power plant. We recomment: the 500 year earthquake acceleration should be selected for the design of ISFSI."

Another group of commenters recommended that an ISFSI be designed for a site specific g value. These are:

Comment No. 444: Nebraska Department of Environmental Control. (3)

"The seismic requirements should include the option of construction to meet the 0.25g acceleration or of performing the seismic analysis to justify a lower acceleration. The design of the basin to meet 0.25g is primarily a matter of additional concrete and construction material. However, the auxiliary systems designs become much more involved for increased seismic acceleration. If 0.25g is required and a facility is located at the site of an operating reactor design to 0.15g, the lack of logic is obvious. Also, such location would obviate the possible use of existing rad waste systems in the existing nuclear facility for processing the new storage facility liquids."

Comment No. 445: T. C. Buschbach. (6)

"The psychology of requiring an ISFSI to be designed to withstand 0.25g acceleration becomes bothersome when the ISFSI is to be located near the site of a nuclear power plant that was constructed to withstand 0.15g acceleration. Whether the reasons be psychological or economic, there should be a clear option of performing a site specific seismic investigation and of negotiating a design value of less than 0.25g."

Comment No. 446: American Nuclear Society (ANS2.19). (41)

"Since this document would be adopted as a Federal Law, it would appear that requiring an ISFSI to be designed for the ground acceleration of 0.25g or greater may be too restrictive and may haunt us in the long run. It is suggested the document contain wording to permit the designer to use a lower or higher g value if supporting data are provided."

Comment No. 447: Allied Chemical Company (Idaho). (71)

"An exclusion clause should permit design of the ISFSI's to a lower seismic acceleration provided sufficient evidence is presented to support the lower seismic acceleration."

Discussion: Section 72.66 has been extensively revised to cover both site investigations and the determination of the ISFSI design earthquake for massive structures. A differentiation is made between the eastern part of the U.S. and the seismically active areas west of the Rocky Mountains. For sites which have been evaluated by the criteria and level of investigations required by Appendix A of 10 CFR Part 100, the ISFSI design earthquake is the SSE. For other sites, a

standardized design earthquake of 0.25 g may be used in most of the eastern U.S. or a site specific earthquake may be determined and used; for sites west of the Rocky mountains, a site specific design earthquake must be determined.

Comment No. 448: Environmental Policy Institute, Wash., D.C. (29)

"The proposed rule notes that aged fuel 'need not have a high degree of protection from weather extremes, tornados, or tornado missiles.' Again we must note that the age of the spent fuel per se is not an adequate means of characterizing either design or operating parameters. We take exception to the statement that a high degree of protection of spent fuel is not required, especially as a regulatory position. We also find the proposal that facility cooling systems and emergency water supply systems may not be capable of withstanding natural phenomenon to be an improper and inadequate regulatory position. The Commission's contention that corrective action can be taken within an adequate period of time is not defensible. There is no way to assure that proper personnel, parts, and radiological conditions will cooperate to assure containment and acceptable occupational exposures. In addition the Commission assumes here that the phenomenon affecting the plant does not similarly affect the surrounding geograph ical area which may be relied upon to provide corrective services."

Comment No. 449: Allied Chemical Company (Idaho). (71)

"It is not apparent why aged spent fuel need not have a high degree of protection from weather extremes, tornadoes, or tornado generated missiles. The facility should provide enough protection from these natural events to preclude possible criticalities and the rupture of the basin."

Discussion: The referenced statement was somewhat misleading. Spent fuel does require a high degree of protection--but it is the protection provided inherently by the structure in which the fuel is stored. In the case of water basins, this is the pool structure and the storage racks. The point that should have been made is that the safety of spent fuel in storage is not dependent on auxilliary or service systems which could be damaged by weather extremes. The age of spent fuel is a key factor in the regulatory requirements for spent fuel storage. If freshly discharged fuel is ruptured by something like a tornado missile, this could cause a release of short-lived isotopes of iodine and xenon. Hence fresh fuel must be protected from tornado missiles. However, the rupture of greater than one year aged spent would cause the release of only ^{85}Kr and very small amounts of ^{129}I which have a very low dose effect. Likewise, some of the facilities such as the control room at a nuclear power plant are essential to the control of the plant under accident conditions, hence must be protected from things like tornado missiles. No similar requirement exists for an ISFSI.

Freshly discharged fuel also generates enough heat due to the decay of short-lived radionuclides that it requires a reliable cooling system. After a year's decay the heat generation rate is low enough to allow evaporative cooling of the spent fuel pools, if necessary. There must be a reliable source of makeup water but the delivery system to the pool need not be a hardened facility. An earthquake is the only type of natural phenomena which could cause a gross rupture of the basin or a criticality which would require a gross distortion of the spent fuel storage racks. Tornadoes and tornado-generated missiles might cause damage to ISFSI buildings but not to the pool structures.

The following seven comments addressed the subject of tornado-generated missiles.

Comment No. 450: American Society of Civil Engineers. (34)

"It is stated in the Supplementary Information, 'Aged spent fuel, having lost the short-lived radionuclides by decay, need not have a high degree of protection from weather extremes, tornadoes, or tornado generated missiles.'

"1. The rationale for this statement should be given in the text, included in an appendix, or referenced to a supporting document.

"2. Section 72.71, General Design Criteria, Overall Requirements, section (2)(ii) states, 'Structures, systems, and components important to safety shall be designed to withstand the effects of natural phenomena such as earthquakes (with a horizontal ground motion acceleration of at least 0.25g), tornadoes (excluding tornado missiles), lightning, hurricanes, floods, tsunami, and seichs without impairing their capability to perform safety functions.'

"The statement from the Supplementary Information lumped all extreme weather events together and implies that consideration for these events is not critical to the design; however, the requirements in the general design criteria specifically name extreme weather events to be considered in the design, except tornado generated missiles. This ambiguity needs to be resolved."

Comment No. 451: Bechtel National, Inc. (38)

"Aged fuel - We agree with the concept that 'aged fuel . . . need not have a high degree of protection from weather extremes, tornadoes, or tornado-generated missiles,' and 'the cooling system need not be designed to withstand the extremes of natural phenomena'; provided there is an assured source of makeup water and some means of getting it to the storage pool if needed. We suggest the wording of paragraph 72.62 and 72.71(2) of the regulation be modified to recognize the minimal risk associated with the storage of aged fuel and to be consistent with the intent expressed in Supplementary Information statement. Here we see a discrepancy between the intent as expressed in the 'Supplementary Information' and the regulation which calls for protection against tornadoes. A draft regulation guide (3.24.3 - 5/2/78) goes on to say that the ISFSI should be designed to withstand the efforts of the Design Basis Tornado (DBT) defined according to R.G. 1.76.

"The ANS Working Groups 2.19 and 57.7 have concluded based on the radiological risk study, that an ISFSI need not be designed to resist the effects of tornadoes.

"We recommend that the requirement regarding tornadoes be deleted."

Comment No. 452: Department of Energy. (42)

"(p. 46309, right, last paragraph) - It is stated in this paragraph that 'Aged spent fuel . . . need not have a high degree of protection from weather extremes, tornadoes, or tornado generated missiles.' However, General Design Criterion (2)(ii) (p. 46319) states 'Structures, systems and components important to safety

shall be designed to withstand the effects of . . . tornadoes (excluding tornado missiles), lightning, hurricanes, floods, tsunamis and seiches without impairing their capability to perform safety functions.' This apparent discrepancy should be resolved and the General Design Criteria put in proper perspective."

Comment No. 453: Duke Power Company. (60)

"There appears to be conflict between 72.71 Overall Requirements 2(ii) and the last paragraph in the right column on page 46309 for design requirements for tornado protection."

Comment No. 454: Stone and Webster Engineering Corporation. (69)

"Paragraph 72.71(2)(ii) excludes tornado missiles as a design basis. However, Draft Regulatory Guide 3.24.3 (revised September 1, 1978) discusses tornado missile analyses. This is an inconsistency. Therefore, the Regulatory Guide should be revised to be consistent with the design bases requirements of Part 72."

Comment No. 455: Tennessee Valley Authority. (72)

"The statement from the Supplementary Information lumped all extreme weather events together and implies that consideration for these events is not critical to the design; however, the requirements in the general design criteria specifically name extreme weather events to be considered in the design, except tornado generated missiles. This ambiguity needs to be resolved."

Comment No. 456: Sargent and Lundy Engineers. (73)

"Sargent and Lundy believes that: The design requirements for tornadoes be deleted. The ANS Working Groups 2.19 and 57.7 have concluded, based on the radiological risk study [Reference 1], that ISFSI need not be designed to resist the effects of tornadoes."

Discussion: The release of gap activity from stored aged fuel due to damage from tornado missiles does not represent a significant hazard. Hence, there is no requirement for missile protection. However, it is considered necessary to preclude a gross collapse of buildings and massive overhead equipment into a spent fuel storage area. Building side and roof panels may be allowed to blow off but the building structural members must be designed to resist high wind loadings and tornado stresses.

Comment No. 457: H. Ashar. (16)

"It appears that we want applicants to design structures, systems, and components for a horizontal ground motion acceleration $\geq$0.25g (sky is the limit).

"Philosophically, if we have determined that ISFSI can be designed for an earthquake of 500 year recurrrence interval, it is conceivable that we would accept the same recurrence interval for other natural phenomena such as tornadoes, floods and seiches. In that case it is not understandable why the safety related structures, systems, and components should not be designed for corresponding tornado missiles."

Comment No. 458: Tennessee Valley Authority. (72)

"The level of natural phenomena to be used as acceptable design bases should be made more explicit. Two methods appear satisfactory. Preferably, these requirements should be specified on the basis of an acceptable recurrence interval for the events in order to account for regionally varying phenomena. For example, a 500-year tornado wind might be specified. Alternately, plant design and review standardization could be further advanced by requiring specific design basis values (e.g. a 200 mph tornado wind) at the expense of overdesign for some phenomena in some regions."

Discussion: Using a probability basis for other natural phenomena in addition to earthquakes was considered in the drafting of Part 72, but was found to be impractical. There is little choice but to use site-specific deterministic methods for defining the natural phenomena which must be accommodated in a specific ISFSI design. When a frequency or probabilistic analysis of historical data is used to estimate very low probability events, there is generally too much uncertainty to make the estimate useful to design purposes.

72.71(2)(ii)(B)

Comment No. 459: Exxon Nuclear Company, Inc. (22)

"The use of the word "appropriate" could use clarification. It is assumed that it is not necessary to look at all possible combinations of man-caused and natural phenomena type accidents, but only combinations where one accident can directly lead to the other. If this is so, it should be clearly stated."

Comment No. 460: Bechtel National, Inc. (38)

"The phrase 'appropriate combinations' cannot be defined in realistic terms. We suggest deletion of (B)."

Discussion: The requirement is to evaluate those events or combinations of events which could lead to or cause an accident condition.

72.71(2)(iii), Determining the intensity of natural phenomena.

Comment No. 461: Exxon Nuclear Company, Inc. (22)

"The natural phenomena for which this capability is required should be listed; presumably it is only earthquake."

Comment No. 462: Bechtel National, Inc. (38)

"This requirement needs to be clarified. We assume the intent is to require measuring devices such as accelerometers, wind and rain gauges."

Comment No. 463: U.S. Department of Energy. (42)

"Clarify the purpose of specifying in the General Design Criteria that the licensee provide the capability for determining intensity of natural phenomena for comparison with design bases. Is a seismograph station and a

tornado velocity and pressure measuring station required? Are these to be operated through the lifetime of the ISFSI?"

Comment No. 464: Nuclear Fuel Services, Inc. (46)

"If this proposed requirement is meant to require seismic motion monitors, it should so state. As written, the requirement could be interpreted to require 'capability for determining the intensity' of 'lightning' or 'tornado winds.'"

Comment No. 465: Tennessee Valley Authority. (72)

"This section should be more specific as to which natural phenomena should be measured. Lightning, as listed above, is a natural phenomenon, but it would be inappropriate to be required to determine its intensity."

Discussion: This requirement is site-specific; in an area subject to high winds, wind velocities might be of interest; in an area of potential seismic activity, a seismograph might be needed. Not all types of instruments would necessarily be needed at all sites.

72.71(2)(iv), Protection of Acquifers.

Comment No. 466: Environmental Policy Institute, Wash., D.C. (29)

"Requirement (2)(iv) provides for the protection of an aquifer, but it should also provide for the protection of surface waters adjacent to the site from radioactive materials."

Comment No. 467: Bechtel National, Inc. (38)

"The potential for the transport of radioactive materials to man can be reduced by design. It cannot, however, be completely precluded. The paragraph should be reworded to read: 'measures must be taken to reduce the potential for transport to radioactive materials to man and the environs through this pathway.'"

Comment No. 468: Valore, McAllister, Aron and Westmoreland. (40)

"Under no circumstances should an ISFSI be located over or near an aquifer."

Comment No. 469: Nuclear Fuel Services, Inc. (46)

"The proposed requirement that 'if an ISFSI is located over an aquifer, measures must be taken to preclude the transport of radioactive materials to man and the environs through this potential pathway' is an overstatement of the potential hazard involved. No such specific requirement is highlighted for a nuclear reactor or other nuclear fuel cycle facility. An ISFSI would have pool water contamination of about 10^{-3} uCI/ml, not much of a hazard. If the proposed requirement is meant to preclude an ISFSI near a major underground water resource, a Reg Guide specifying such prohibited areas would expedite siting and review."

Comment No. 470: Southern Company Services, Inc. (54)

"Almost all sites will be over an aquifer of sorts and to preclude the potential for transport of radioactive materials through this medium is virtually impossible. As the flow of an aquifer is normally very slow, means are available to restrict or limit the movement outside the site borders. We suggest a rewording to limit the transporting within present offsite requirements."

Comment No. 471: General Electric Company. (47)

"This Section requires 'measures' to be taken if an ISFSI is located over an aquifer. There is need to define further the juxtaposition limits (being all areas on Earth are located 'over an aquifer'); the permissible release limits, and the 'measures' impled (see also comments on §72.33)."

Comment No. 472: Lowenstein, Newman, Reis, Axelrad and Toll. (48)

"Quality Standard 2(iv) pertaining to an ISFSI location 'over an aquifer' is ambiguous and redundant in light of the requirement in 2(i). In view of the limited potential releases of radioactive materials and the very small likelihood of its transport to the biosphere via a groundwater pathway, and in the absence of any definition of what constitutes an 'aquifer,' this requirement is unduly restrictive and unnecessary and should be eliminated from the proposed rule."

Comment No. 473: Yankee Atomic Electric Company. (55)

"We believe that this paragraph needs further clarification. A definition of aquifer to which this section will apply would be helpful. We believe that the word 'preclude' should be replaced by 'limit' and that the section should conclude with a phrase such as '. . . if analysis indicates that there exists a mechanism by which radionuclides could reach the aquifer.'"

Comment No. 474: Westinghouse Electric Corporation. (61)

"We recommend the word 'reasonably' be inserted between the words 'to' and 'preclude.'"

Discussion: This requirement has been reworded "...if the ISFSI is located over an aquifer which is a major water resource, measures shall be taken to preclude the transport of radioative materials to the environment...."

Section 72.71(3), Protection Against Fires and Explosions

Comment No. 475: American Nuclear Society (ANS57.7). (28)

"Section 72.71 Overall Requirements 3 - Would suggest that 'credible' be inserted between 'under fire' (5th line) for clarification. Also what type explosion was projected? Is ion exchange resin the only one to be considered? What was intended?"

Comment No. 476: Bechtel National, Inc. (38)

"Paragraph (3) - Protection against fires and explosions - The requirement that 'structures, systems, and components important to safety shall be designed and located so as to continue to perform their safety function effectively under fire and explosion exposure conditions' is excessive, especially if the systems or components are in the immediate area of the fire. The wording contained in GDC 3 of 10 CFR 50, Appendix A, would be more appropriate. It is recommended that the wording in the proposed regulation be changed to read: 'Structures, systems, and components important to safety shall be designed and located to minimize, consistent with other safety requirements, the probability and effect of fires and explosions.'"

Comment No. 477: U.S. Department of Energy. (42)

"Explain what is meant by explosions detection, alarm and suppression systems."

Comment No. 478: Nuclear Fuel Services, Inc. (46)

"This proposed requirement is almost identical to the requirement of 10 CFR 50, Appendix A, Criterion 3 and, therefore, greatly overstates the hazard potential involved in a fire at an ISFSI. At the ISFSI the fuel will be either under water while in storage or within a shipping cask designed to withstand fire accidents. Difficulties with this (and other) proposed requirement arise due to the non-quantified definition (proposed 72.3(s)) of 'important to safety.' Until the NRC provides a quantifiable decision criteria for establishing what structures, systems and components are 'important to safety,' regulatory ambiguities will abound."

Comment No. 479: Shaw, Pittman, Potts and Trowbridge. (50)

"What kind of explosions are contemplated by this requirement? There appear to be no systems in the facility which might be subject to possible explosion hazard from internal sources. If this requirement is intended to refer to protection against a type of sabotage, the boundary limits of an explosion against which the portection must be required should be stated. (This would appear to be a case of a requirement having been lifted from a different regulation, without consideration of the applicability of the detailed requirement to the fuel storage facility.)"

Comment No. 480: Westinghouse Electric Corporation. (61)

"Subparagraph 72.71(3) requires that 'Structures, systems and components important to safety shall be designed and located so as to continue to perform their safety functions effectively under fire and explosion exposure conditions.' This design criterion as written is unnecessarily over-stringent and is above and beyond what is required for LWR facilities (re.10 CFR 50, Appendix A, GDC No. 3 and Regulatory Guide 1.120, Regulatory Position C.1.d.(1)), as it implies that other non-Fire-related plant accidents be considered coincident with fires and explosions.

"Accordingly, we recommend that the foregoing sentence in the proposed 72.71(3) be replaced with the LWR requirement defined in 10 CFR 50, Appendix A, GDC No. 3,

which states: 'Structures, systems and components important to safety shall be designed and located to minimize, consistent with other safety requirements, the probability and effect of fires and explosions.'"

Comment No. 481: Natural Resources Defense Council, Inc. (66)

"Fire may be one of the most serious hazards for an AFR because the fire becomes the mechanism for an alteration in and dispersal of the nuclear material. The provisions of proposed Design Criteria (3) do not recognize this and include vague generalities and numerous loopholes. For instance, noncombustibles and heat-resistant materials are only required to be used where practical. There is no basis to dilute safety in the name of economy. The Union of Concerned Scientists petition on fire protection systems provides ample support for the need for careful standards for fire protection and those comments are incorporated here by reference."

Comment No. 482: Stone and Webster Engineering Corporation. (69)

"'Protection against fires and explosions' (third sentence) implies that explosion detection, alarm, and suppression systems are provided. We suggest deletion of the words 'Explosion and' from the beginning of this sentence."

Discussion: Fires could occur in electrical systems and collected combustible low-level wastes. Their dispersal must be avoided.

Spent fuel stored under water or even in the types of dry storage with which we are now familiar is not subject to damage by fires or explosions (other than those caused by a deliberate act of sabotage) and hence is not a major concern.

An ISFSI, or at least parts thereof, is not necessarily manned on a continuous basis as it is a static facility in which manning is required only during receiving, shipping and periodic maintenance and surveillance activities. Hence, there is a need for fire detection equipment, and at least in some areas, depending upon its design, fire suppression equipment. Its requirements are not necessarily comparable to those of a power plant.

Section 72.71(4), Sharing of Structures, Systems and Components

Comment No. 483: F. D. Anderson. (17)

"In Paragraph (4) change to read: 'Structures . . . will not impair the capability to operate the ISFSI safety or the capbility to return and maintain the ISFSI in a safe condition following a design basis event.'"

Comment No. 484: Shaw, Pittman, Potts and Trowbridge. (50)

"The definition of ISFSI seems to preclude sharing facilities with another facility, while General Design Criteria 4 (§72.71) would seem to permit sharing under certain circumstances. Sharing should be permitted."

Discussion: The limitations on the sharing of facilities is strictly from a safety standpoint. The sharing of facilities is allowable (and may be desirable) provided such sharing does not jeopardize the safety of any of the facilities shared

Section 72.[illegible]5), Proximity of Sites

Comment No. 485. F. D. Anderson. (17)

"In Paragraph (5) change to read: An ISFSI . . . nuclear operations shall be designed to ensure that . . . not result in undue risk to the public health and safety. The ISFSI operations will not contribute significantly to the potential cumulative risk of the combined operations."

Comment No. 486: Nuclear Fuel Services, Inc. (46)

"This proposed requirement is identical to that specified for a nuclear power plant. Unlike nuclear power plants, the proximity of an ISFSI to another nuclear facility presents no significant incremental potential hazard and may well have some risk reduction due to proximity. The issue of combined radiological effect of discharge was considered in the development of EPA's 40 CFR 190. If the NRC wants a consideration beyond the EPA regulation, they should quantify 'significant risk.'"

Comment No. 487: Ebasco Services, Inc. (52)

"As in our comments above on offsite accident dose limits, the strictures placed on co-location of an ISFSI with other nuclear facilities to limit incremental risk is not consistent with the Commission's siting policy with regard to power reactors. If it is accepted that the risk associated with an ISFSI is considerably less than the risk associated with a power reactor, it must be accepted that the incremental risk associated with co-locating an ISFSI with a power reactor cannot increase overall risk significantly. The current level of uncertainty in risk assessment techniques does not permit quantification of risk of the degree that would be required to show compliance with the requirements of item (5) of the proposed General Design Criteria. We therefore recommend its deletion."

Comment No. 488: Southern Company Services, Inc. (54)

"Does this relate to one owner? If not this would be outside the control of the licensee."

Discussion: Although an ISFSI limited to the storage of aged fuel is considered a low risk operation, if located near another nuclear facility, the location, design and operations of the ISFSI must not be allowed to impact on the safety of other nuclear facilities involved.

Section 72.71(7), Emergency Capability

Comment No. 489: Bechtel National, Inc. (38)

"Emergency capability - We suggest for clarity the second sentence be changed to read 'The design shall ensure capability of maintaining the safety functions during an accident, as necessary, of onsite facilities . . .'"

Comment No. 490: U.S. Department of Energy. (42)

"Explain how the designer can ensure 'capability for use, as necessary, of . . . offsite facilties and services such as hospitals, fire and police departments, ambulance service, and other emergency agencies.'"

Discussion: This requirement was included to ensure that access doors, corridors, etc., would be designed to allow the passage of a stretcher, for example, and that access to the facility such as gates and roadways, would be designed to allow access of emergency equipment, for example, a fire engine.

Section 72.71(8), Confinement, Barriers and Systems

72.71(8)(i)

Comment No. 491: American Nuclear Society (72.71). (28)

"Would suggest adding 'mechanical' between gross ruptures. Isn't this what we want to protect them from?"

Comment No. 492: Environmental Policy Institute, Wash., D.C. (29)

"Provides for the protection of fuel cladding and gross ruptures but does not specify if physical barriers or procedures are required nor does it establish a level of adequacy."

Comment No. 493: Nuclear Fuel Services, Inc. (46)

"Paragraph 72.71(8) - The proposed requirement that 'fuel cladding shall be protected against degradation and gross ruptures' is too broad and vague. It could be interpreted to require canning of fuel assemblies. Cladding obviously undergoes some 'degradation' during long-term storage, but there is lots of empirical evidence that such 'degradation' is not deleterious to health and safety. We reach this conclusion based upon our experience, statements by the NRC (Page S-3 of Reference b) and DOE (Page 17.1 of Reference a) and a review of the other references cited in these comments. We know of no 'gross ruptures' of light water commercial power reactor fuel occurring after the fuel has been stored for one year. This requirement should be deleted."

Comment No. 494: Shaw, Pittman, Potts and Trowbridge. (50)

"The criterion requires protecting the fuel cladding against degradation and gross ruptures, but gives no indication of what, if any mechanisms are contemplated."

Comment No. 495: Westinghouse Electric Corporation. (61)

"Subparagraph 72.71(8)(i) on design requirement for 'Confinement barriers and systems' states that 'The fuel cladding shall be protected against degradation and gross ruptures.' We recommend that this provision be rewritten as: 'The fuel cladding shall be protected against gross ruptures including proper consideration for minimizing long-term degradation of the cladding.'"

Comment No. 496: Cleveland Electric Illuminating Company. (67)

"To prevent degradation, some of the failed fuel might be containerized. A section should be included discussing the storage of spent fuel in cannisters. If fuel is stored in containers then it should be required that only the integrity of the container be maintained against all postulated events."

Comment No. 497: Allied Chemical Company (Idaho). (71)

"The word 'significant' should be inserted prior to degradation in the first sentence. It would be impossible to present enough evidence that no degradation could occur during storage."

Comment No. 498: Tennessee Valley Authority. (72)

"A degradation of cladding should be defined in Section 72.3 as that which would cause the offsite accident dose limits to be exceeded.

"Tornado missile impact could cause what might be considered as 'gross ruptures' and 'cladding degradation'; however, accident analyses may show the doses to be acceptable. Therefore, we suggest this item should be rewritten to allow clad failures of this type and magnitude, if the exposures are within the limits."

Discussion: The primary confinement barrier of spent fuel in storage is the cladding. As one of the general design criteria, it is necessary that an ISFSI be designed to provide a storage environment and handling equipment which will preserve cladding integrity. Specifically how this is accomplished is a subject of the detailed design of the installation.

This requirement is not directed toward the canning of fuel assemblies, although for operating considerations, some plants may can failed fuel. Also, this requirement is not directed toward accident conditions such as protection from ruptures due to tornado missiles. It is directed toward the basic design of the facility.

72.71(8)(ii)

Comment No. 499: Bechtel National, Inc. (38)

"Because of the inert nature of an ISFSI, a single failure of a system should be explicitly limited to a single active failure. (This comment also applies to paragraph (11), subparagraph (i).) We also suggest deletion of the sentence starting with 'Drains, . . .' as the previous sentence is sufficiently inclusive."

Comment No. 500: Ebasco Services, Inc. (52)

"What pool water level would be considered to be a safe limit? This limit probably should be sufficient shielding. However, for doses to be as low as reasonably achievable would mean a study is required of the maximum shielding water depth that could be reasonably achieved, rather than just a depth that results in acceptably low doses."

Comment No. 501: Southern Company Services, Inc. (54)

"Since temporary loss of water will not cause criticality why is it necessary to design to maintain a 'safe' pool water level?"

Discussion: A design provision to prevent inadvertant draining of water below what has been established as the safe level for a specific facility is considered good engineering practice. The safe limit is a function of specific facility design but is normally in the order of about eight feet above the highest point of the spent fuel during either transfer or storage.

The loss of water below a minimum depth will not cause a criticality, but could significantly affect background radiation levels in occupied areas and have an impact on operation and surveillance activities.

Comment No. 502: American Nuclear Society (ANS57.7). (28)

"It should not be a requirement to have water level monitoring equipment alarm 'both locally and in a continuously manned location,' if the local area is continuously manned, the licensee may choose to have a second alarm location but this should be his choice. Remove the words 'both locally and' replace with 'locally if not continuously manned or in . . .'"

Comment No. 503: Allied General Nuclear Services. (27)

"Section 72.71(8)(ii) requires, by its final sentence, monitoring both locally and in a continuously manned location. It is suggested that this be modified to clarify that, if the local station is continuously manned, a second alarm station is optional rather than required."

Comment No. 504: U.S. Department of Energy. (42)

"Because there is no credible mechanism for dropping water level rapidly enough to require prompt local action, and because local alarms should be reserved for events that require prompt local action (e.g., high air activity, criticality without shielding), this section should be changed to delete the local water level alarm requirement. It is suggested that the water level alarm be retained only at the continuously manned location."

Discussion: The requirement for water level monitoring is that a low level alarm be in a continuously manned location. The wording has been changed accordingly.

72.71(8)(iii)

Comment No. 505: F. D. Anderson. (17)

"(change) Paragraph (18)(iii) to read: 'with appropriate confinement, ventilation and filtration systems.'"

Comment No. 506: Tennessee Valley Authority. (72)

"We suggest addition of the following at the end of this subsection, '. . . to control airflow paths for proper airborne radioactivity routing and to provide for pressurization of the safety-related buildings.'"

Discussion: It is expected that the types of ventilation systems required are relatively small unit systems designed for specific operations rather than the large building systems common to many nuclear facilities.

Section 72.71(10), Control Room or Control Areas

Comment No. 507: Middle South Services, Inc. (37)

"The control room should not necessarily be located in the spent fuel area. It should be permitted to be in a separate building. Where an ISFSI is located on a reactor site, the reactor control room could be utilized. For normal operations, local control would be sufficient."

Comment No. 508: Louisiana Power and Light Company. (49)

"The control room need not be located in the ISFSI. Where an ISFSI is placed on a reactor site, the reactor control room could also contain the ISFSI control area. Local control should suffice for normal operating conditions, and a 'control room,' as such, should not necessarily be required."

Comment No. 509: Tennessee Valley Authority. (72)

"We believe it should be permissible to abandon the control room in certain accident situations if it can be ensured that no controls or monitors are required from the control room during the period of evacuation or that the required controls or monitoring can be accomplished from another area that is habitable. A requirement for continuous control room occupation should not be necessary for the quasi-static nature of spent fuel storage. Also, it would be very expensive to design the control room for the postulated accident conditions (e.g., LOCA) that may exist at a site shared by a nuclear power plant."

Discussion: This requirement is primarily addressed at a fully independent away-from-reactor facility. It is quite possible that the monitoring (as differentiated from operating) controls for an ISFSI located at a reactor site could be in the reactor control room or any other continuously manned location.

Comment No. 510: Shaw, Pittman, Potts and Trowbridge. (50)

"Similarily, section 72.71(10) appears to mandate a control room, or centralized control of all active functions of the facility; reference is made in this paragraph to 'control areas' but a rather general design criterion is established which would appear difficult to meet without an enclosed control room."

Comment No. 511: American Nuclear Society (ANS57.7). (28)

"Clarification of this section as to what is meant by action to be taken to 'operate the ISFSI safety under normal conditions' is needed. The intent should be to monitor under normal conditions not to operate. Suggest that 'if required' be inserted in line 2 so it reads - 'A control room or control areas, if required, shall be designed to permit occupancy and action to be taken to monitor the ISFSI safety under normal condition and to maintain the ISFSI in a safe condition under off-normal or accident conditions.'"

Discussion: This requirement does not mandate a control room or centralized control of all ISFSI operations. The requirement is for the monitoring of conditions within the ISFSI and to be able to take necessary actions in case of emergency from an accessible control location.

Comment No. 512:

"A clarification is recommended for this paragraph. As worded, it could be interpreted that the ISFSI is to be operated remotely from a control room or control areas. Certain items should be controllable from central locations. However, many items such as cranes, hoists and underwater tools should be operated by persons having visual contact with the operating items. This paragraph should be expanded to describe more fully the intent of permitting visual contact operation during normal activites and to provide safe control during off-normal or accident conditions."

Discussion: This comment makes a good point; some operations must be visually controlled. However, the requirement does not limit visual control of certain operations, but rather to permit access when needed.

Section 72.71(11), Utility Services

Comment No. 513: Duke Power Company. (60)

"Section 72.71 which addresses 'Utility services' is not entirely clear. Reference should be made to electric power sources if that is what is meant by utility services."

Discussion: Utility services could cover electric power, water supply, and communications.

Comment No. 514: Shaw, Pittman, Potts and Trowbridge. (50)

"The criterion on Utility Services includes a single failure assumption. The regulations should indicate whether the single failure assumption is also meant to apply as to other aspects of ISFSI design.

Discussion: The single failure assumption is not generally applicable to other aspects of ISFSI design. This is a design-specific consideration and not subject to broad generalization.

Section 72.71(12), Design for Criticality Safety

Comment No. 515: U.S. Department of Energy. (42)

"Significant effort should always be applied to avoid accidental criticality. However, where the consequences of the criticality are significantly lessened (by the interspersing of shielding as in a water storage pool) and where one of the most significant control measures (the absence of a moderator in a fissile array) is denied the facility operator because water is present, the avoidance of criticality should be assured by guarding against the occurrence of one, rather than two, unlikely changes. This approach is used in the draft ISFSI standard ANS 57.7 in sections 6.10.1.1.4 and 6.10.1.1.5 and should be

used in section 72.71(12). Only one mechanism remains in some compacted at-reactor storage basins currently; namely, the presence of a neutron poison. Favorable geometry (the only other control mechanism listed in 72.71(13)) was removed in the act of compacting the fuel array. Were the neutron poison to be removed, a criticality might occur. The consequences, however, might be no more significant than those coming from the operation of a low power swimming pool reactor.

Discussion: The NRC has historically applied the double contingency principle to criticality safety. This is reflected in the wording of section 6.10.1.4 of ANSI/ANS 57.7 (October, 1979 draft) as follows:

> "....the nuclear safety analysis shall demonstrate that criticality could not occur without at least two unlikely, independent, and concurrent failures or operating limit violations."

This wording can also be found in ANSI N16.1-1975, which is endorsed in Regulatory Guide 3.4, "Nuclear Criticality Safety in Operations with Fissionable Materials Outside Reactors."

Comment No. 516: Ohio Power Siting Commission. (11)

"You may wish to note the requirements of the Standard Review Plans for Safety Analysis Reports, section 9.1.2-4, item 2a which requires Seismic Category I, K_{eff} of 0.95 or less with an infinite array of fuel elements of highest probable enrichment and demineralized water. It might be helpful if proposed new regulations were accompanied by a covering letter which refers the review to the appropriate Regulatory Guides."

Comment No. 517: Wisconsin Electric Power Company. (26)

"Stating that handling, transfer, and storage systems shall be designed to be maintained subcritical is vague. A K_{eff} value equal to or less than 0.95 should be specified."

Comment No. 518: Nuclear Fuel Services, Inc. (46)

"Paragraph 72.71(12) - Our experience is that significant delays arise during Staff reviews of fuel assembly storage due to the use of different calculational methods by the Staff and licensee. We strongly recommend that the NRC publish very specific regulatory guides (including acceptable cross-section sets, scope of evaluation and acceptable codes) for the calculations of nuclear criticality safety margins. It is our understanding that Reactor Licensing has developed and promulgated such information via its Standard Review Plan."

Comment No. 519: Shaw, Pittman, Potts and Trowbridge. (50)

"The criterion adopts a standard of 'unlikely (i.e., very low probability) . . . changes,' but does not define what is meant by this term."

Discussion: The review of criticality design calculations for an ISFSI will be based on established NRC practice as reflected in the above referenced (NRR) Standard Review Plan.

Comment No. 520: Tennessee Valley Authority. (72)

"It should be possible to allow for a fuel handling system failure (from a single failure) and postulated resultant criticality (e.g., seismically caused fuel basket drop) if the doses are within the prescribed limits."

Discussion: This requirement is addressed to the design to prevent criticality. A beyond design event such as a basket drop would be analyzed as an accident and may be allowable if the resultant doses are within prescribed limits.

Comment No. 521: Valore, McAllister, Aron and Westmoreland. (40)

"The regulations should provide for procedures to make certain that:

"1. Total mass is less than critical mass;

"2. Subcritical geometry is maintained;

"3. Concentration of fissile material in solution is below a specified level;

"4. Sufficient poisons (neutron absorbers) are in with the fissile materials;

"a) A study should be done to determine if a large mass of fissile materials under accident conditions could go supercritical (leading to a nuclear explosion) or would it first go critical and dismantle itself before supercriticality is reached?"

Discussion: The total mass of spent fuel in an ISFSI could be 1000 metric tons or more. It is not total mass which is a factor, but rather to make provisions in the design to accommodate this mass safely.

Subcritical geometry is the preferred method of criticality control, however, the use of fixed poisons is allowable.

We know of no way in which the concentration of fissile material in solution at an ISFSI could be a significant factor. The sintered UO_2 fuel material is essentially insoluble in water.

We know of no credible mechanism by which a large mass of spent fuel could go supercritical with the release of enough energy to be a nuclear explosion.

Comment No. 522: Valore, McAllister, Aron and Westmoreland. (40)

"The Township shares the concern of the Commission over the possibility of accidental criticality in an ISFSI as evidenced by Criteria (12) and (13) of paragraph 72.71. While the regulations as now written require continued surveillance of the condition of whatever neutron absorbing materials are in the facility, there is no requirement that an actual measurement of the multiplication factor of the system be carried at any time over the entire life of the facility.

"It seems reasonable to the Township that the owner/operator of an ISFSI, from time to time, should perform 1/M experiments or in some other manner establish or estimate the multiplication factor of his facility. In the view of the Township, it is not very reassuring to be told to reply to a question regarding the value of k for a particular facility that 'we don't know what it is; we have never measured it."

Discussion: Criticality calculations are 'benchmarked' with measurements in critical assemblies representing a range of possible configurations and conditions. These facilities are designed to allow measurements to be made at 1/M values very close to 1. The calculational techniques, supported by such measurements have been developed to a high degree of sophistication. However, to the extent that uncertainties still exist, an allowance must be made for such uncertainties in the calculations for specific pool and storage rack configurations.

Theoretically, it might be possible to make 1/M measurements in a storage pool with a strong outside neutron source, but such measurements would be very difficult to make and meaningless from a practical standpoint. Because the value of 1/M in a storage pool is far below criticality, the uncertainties in such measurements would be much greater than the uncertainties in calculations; 1/M must approach 0.99 to be meaningful. It is much more accurate to extrapolate downward from a value of 1 than to extrapolate an approach to criticality from a low value.

Section 72.71(13), Acceptable Methods of Control

Comment No. 523: Ebasco Services, Inc. (52)

"The regulation should indicate whether credit for the use of liquid absorbing materials (poisons) in the pool is allowed."

Discussion: Based on present reactor pool practice, no credit would be given for the presence of soluble poisons in an ISFSI storage pool water.

Comment No. 524: Arizona Nuclear Power Project. (59)

"The statement in the introduction that periodic surveillance of critical components be required is vague. The most critical of the components is that of the fixed neutron poison, assuming a poisoned rack design, and related to this poison the proposed rule states the 'the design shall provide for positive means to verify their continued efficacy.' It could easily be argued that observation of a sealed noncorrosive kind of poison could be satisfactorily inspected by visual means but the regulation seems to indicate that some kind of 'test' is required. In reactors a coupon test approach is considered satisfactory for certain applications of data verification or collection and this type of approach might be satisfactory for this application."

Discussion: The requirement for periodic surveillance was not addressed specifically to fixed neutron poisons, but rather to all safety-related components of an ISFSI. The regulation does not indicate tests necessarily, but that some means that admits no question must be provided for verification of the use of fixed poisons.

Section 72.71(13(ii). On the use of fixed poisons:

Comment No. 525: Wisconsin Electric Power Company. (26)

"The requirement that neutron absorbing materials (poisons) be permanently fixed is unnecessary. The use of removable poisons which are locked into position should be satisfactory. A third paragraph should be added to this design requirement which would allow credit for the use of a soluble poison material in the storage pool cooling medium."

Comment No. 526: Environmental Policy Institute, Washington, D.C. (29)

"Allows for the use of neutron absorbing materials to be used as an alternative method of criticality control. While neturon absorbing has been used in fuel pool densification its use as a primary criticality control mechanism is questionable and experience with this practice over a 20 year period commensurate with the license period is not existent to our knowledge. In addition the use of such material adds to the contaminants in the pool as well as to the volume and hazard of decontamination, decommissioning, and radioactive waste to be disposed of upon termination. We do not believe that neutron absorbing materials should be permitted as an alternative method of criticality control at this time."

Comment No. 527: U.S. Department of Energy. (42)

"Verification of poison efficacy within the racks and bundles, once packed, would be very difficult; unpacking of the arrays to permit this verification is not feasible on a periodic basis throughout the life of the storage of fuel. Evaluation of coupons immersed in the same environment, as is now done in reactors, is proposed."

Comment No. 528: Stone and Webster Engineering Corporation. (69)

"Paragraph 72.71(13) suggests that permanently fixed neutron-absorbing materials is an 'alternative' method of criticality control and favorable geometry is the 'standard' method. The regulation should not define what is a standard and what is an alternative. We suggest combining the paragraphs to read as follows:

"(13) Acceptable methods of control. Favorable geometry (spacing and the use of permanently fixed neutron-absorbing materials (poisons) are acceptable methods of nuclear criticality control. Subcriticality is assured by limiting the reactivity through the control of spacing of the individual storage unit (one or more fuel assemblies) and, for underwater storage, by the neutron absorption by the water between storage units. Where solid neutron-absorbing materials are used for the prevention of nuclear criticality, the design shall provide for positive means to verify their continued efficacy. Storage racks must be structurally compatible with seismic design criteria."

Comment No. 529: Tennessee Valley Authority. (72)

"We suggest adding after '. . . the neutron absorption by the water,' the following phrase, 'and rack structure.' This is consistent with current design practice in which the rack structure is considered separate from a burnable

neutron poison material and as a result would not have to have a special poison verification program (e.g., periodic removal and inspection) established (other than to ensure that unacceptable corrosion has not occurred)."

Discussion: The use of fixed poisons is primarily for the deep pools and fixed racks used at nuclear power plants. Fixed poisons are not expected to be used for the shallow pools with movable canisters expected to be used at an ISFSI. However, fixed poisons are not prohibited, provided these can be designed in such a way that some means of verification can be provided to ensure that no degradation of the poison materials occurs with time. The details of design and surveillance are design-specific and not a subject for general design criteria.

The poison effect of the rack structure is included in criticality calculations. The wording has been modified as suggested by TVA.

Section 72.71(14), Exposure Control.

Comment No. 530: Ebasco Services, Inc. (52)

"The words 'significantly above background levels' should be defined in terms of a numeric range."

Discussion: Background levels are both site and design specific. The requirement has been revised to reference accepted exposure limits stated in Section 72.67.

Comment No. 531: Environmental Policy Institute, Wash. D.C. (29)

"As noted immediately above, the proposed rule does not address the problems, exposures, and potential releases from cask handling procedures. Cask handling and unloading offer the highest routine worker exposures and potential for release of radionuclides. Cask decontamination also results in a major portion of waste treatment problems. The proposed rule does not establish any requirements for design, procedures or transport vehicle/cask storage to reduce occupational exposures, tranport vehicle personnel, or releases from these operations. This is a major shortcoming of the proposed rule in general and the design objectives and radiological protection requirements in particular."

Discussion: The rule addresses all areas and operations where plant personnel may be exposed to levels of radiation or airborne radioactive materials above acceptable exposure limits for the general population.

Comment No. 532: Shaw, Pittman, Potts and Trowbridge. (50)

"This sub-paragraph requires the provision of shielding 'to assure that exposure to personnel in accessible areas are within the limits of Part 20 and are as low as is reasonably achievable.' This sub-paragraph fails to identify which criterion (i.e., within the limits of Part 20, or are as low as reasonably achieveable) takes precedence. How far is the licensee expected to go in providing shielding? For example, would it be expected that he would be required to provide shielding on the fuel handling machine to reduce the dose

from the pool water even if the radiation level from the water were already well within the limits of Part 20 exposure guidelines? This point should be clarified in this sub-paragraph."

Discussion: Part 20 contains both limits and the requirement of maintaining exposures "as low as is reasonably achievable." It is not expected that the dose on the fuel handling machine from the pool water in an ISFSI (with water purity $<5 \times 10^{-4}$ μCi/ml) will be too significant. If for some reason, the dose is relatively high and can be reduced by shielding of the operator's position, such may well be required to meet the ALARA objectives even if the expected dose is within Part 20 limits.

Comment No. 533: Kaiser Engineers. (21)

"This paragraph implies that shielding alone can provide personnel exposures ALARA. If this premise was taken in the design of an ISFSI, the facility would not be cost effective with respect to benefit-cost aspects of ALARA. Suggest that, for ALARA and Part 20 limits, the concept of dose rate and the duration of required occupancy by personnel be stressed rather than shielding alone. Suggest wording such as the following:

"'Shielding for the ISFSI shall be such that when considering the magnitude of dose rates from radioactive sources (i.e., spent fuel, equipment, radwaste, etc.) in conjunction with facility layout and time for operations (i.e., maintenance, surveillance, testing, etc.), the exposures to personnel are maintained as low as is reasonably achievable. In addition, the radiation shielding shall be designed to ensure that personnel exposure does not exceed the limits of Part 20 of this Chapter considering personnel occupany time during normal operation or during anticipated operational occurrences.'"

Discussion: In the total context of this section, shielding alone is not being relied upon to provide personnel exposures ALARA.

The subject of personnel exposures as a function of time spent for various operations is specifically covered in the applicant's SAR for the proposed facility.

Section 72.71(16), Effluent Monitoring

Comment No. 534: Shaw, Pittman, Potts and Trowbridge. (50)

"This sub-paragraph requires that effluent systems include means for measuring the flow of environmental diluting media either air or water, in addition to means for measuring the amount of radionuclides in any effluent. It is not clear how this requirement might be applied to a gaseous effluent. For example, an aqueous effluent released to a surface stream can be measured, and the stream flow can be measured, from which one can readily calculate the concentration of radionuclides in the environmental medium. In the case of a stack release of a gas, the concentration of radionuclides in the effluent gas stream can be determined, but it is not clear what is intended by the requirement for measuring the flow of air past the stack. It is clear that one can record the wind velocity and direction at the stack, from which one can calculate a dilution factor given the current meteorological parameters. If this is what is intended, it is suggested that the sub-paragraph be rewritten to make this more clear."

Comment No. 535: Nuclear Fuel Services, Inc. (46)

"'Measuring the amount of radionuclides in any effluent' would, if literally complied with, entail an unjustified burden. While the vast majority of air released from ISFSI will be filtered, some air will be released via cask entry doors unless a large airlock is provided. As noted by the Staff in the Supplementary Information, experience (Page 4-17 of Reference b) shows that airborne contamination above a spent fuel storage pool is not significant.

"We believe that the personnel exposure involved in 'measuring the amount of radionuclides' in solid wastes cannot be justified. We recommend that the proposed requirement read: 'Effluent systems shall include the means to determine the amount of radioactivity in airborne and waterborne effluents.'"

Discussion: An aqueous effluent released through a pipeline can be measured; similarly, the flow of air through a stack can be measured or determined by calculation. The diluting medium is not the stream flow or winds past the plant but the diluting media added within the system prior to discharge to the environment. Most air released from an ISFSI of the water basin type will probably be clean enough to discharge without filtration; only air from areas of high potential activity needs to be filtered.

Regarding solid wastes, it is expected that regulations and practices in force by the time operations are licensed under this part will require quite definitive statements as to their contents. Just how such determinations are made will depend on the requirements and the applicable technology available at that time.

Section 72.71(17), Effluent Control

Comment No. 536: Bechtel National, Inc. (38)

"Paragraph (17) - Effluent control - We recommend that the word 'minimize' be changed to 'control,' and the phrase, '. . . and under accident conditions' be deleted. The concept of ALARA should not be imposed on accident releases. The application of the ALARA concept to accident releases could impose excessive design requirements and lead to confusion in the licensing process."

Discussion: The concept of ALARA is not imposed on accident conditions. What is required is the capability to shut off the flow of effluents, if necessary. This section has been reworded, referencing §§72.67 and 72.68.

Comment No. 537: F. D. Anderson. (17)

"In Paragraph (17) last sentence to read: 'Capability . . . to ensure that the concentrations of radioactive materials in effluents are maintained within the limits of 10 CFR Part 20 and the resulting doses are within the limits of 40 CFR Part 190. The total quantities of radioactive material released in effluents shall be kept as low as is reasonably achievable.'

"This Section requires means to '. . . minimize the release in effluent of radioactive materials . . .' The word 'minimize' is not well considered in this context. Replace 'minimize' with '. . . limit to a level as low as reasonably achievable, the release in effluents . . .'"

Comment No. 538: Tennessee Valley Authority. (72)

"This section implies that 'as low as is reasonably achievable' amounts to termination of flow or retention of effluents. It is possible that releases during normal operation and accident conditions will not result in exposures that exceed site boundary limits and that the addition of features to terminate flow or retain effluents will not be cost-beneficial according to the methodology of Regulatory Guide 1.110. Therefore, we suggest you reword this section as follows:

"(a) Add this statement to the end of the first sentence: '. . . or it shall be shown by appropriate analyses that releases to the environment during normal operations (including anticipated occurrences) and during accident conditions are within acceptable exposure limits.'

"(b) Reword the last two sentences to read: 'System provided to monitor the release of materials shall be designed to be periodically tested and calibrated and shall provide adequate alarm(s) upon detection of release levels in excess of approved operating limits. In all cases, it shall be shown that the capability exists to ensure that the concentrations and total quantities of radioactive materials in effluents can be maintained within the limits of Part 20 and are as low as is reasonably achievable.'"

Discussion: Each of these comments was considered in the rewording of the text of this section which has been extensively revised.

Section 72.71(18), Spent Fuel and Radioactive Waste Storage and Handling Systems

Comment No. 539: General Electric Company. (47)

"This Section requires design consideration for establishing the safety of waste storage and handling systems. It would be beneficial to define or reference the acceptable forms for the ultimate disposal of treated radioactive wastes."

Discussion: A concerted effort is underway at this time to define the conditions for ultimate disposal of radioactive wastes. The pertinent regulations will be identified with 10 CFR Part 60 series numbers.

Comment No. 540: Ebasco Services, Inc. (52)

"Paragraph (18)(iii) - 'Confinement systems' should be defined more specifically. For instance, would a building with no special ventilation requirements over the spent fuel pool be adequate? If not, Paragraph (8)(iii), on the previous page, should be rewritten."

Discussion: It is expected that waste treatment will be carried out in confined systems such as shielded cells with filtered ventilation systems.

Comment No. 541: Cleveland Electric Illuminating Company. (67)

"We assume that the NRC does not mean 'testability' in the sense of testability of the heat removal capability by experiment. We suggest that 'testability' be defined as the ability to check system performance by periodic monitoring of instrumented system parameters."

Discussion: This comment reflects the current staff position but we think its formal definition to be unnecessary.

Comment No. 542: Southern Company Services, Inc. (54)

"The minimization of wastes is a fine objective and one, I am certain, all designers will include; however, it is not one that is auditable or proveable. As it is an economic consideration, it should not be required in a regulation."

Discussion: The impact of waste volumes is an environmental as well as an economic consideration. The control of waste volumes has not been addressed by all designers in the past. It is the opinion of the staff that this subject will become increasingly important in the future and is an appropriate subject for regulation.

Section 72.71(19), Waste Treatment

Comment No. 543: American Nuclear Society (ANS57.7). (28)

"Section 72.71(19) - It is recommended that this paragraph be amended to eliminate the requirement that onsite facilities be provided to concentrate all site generated wastes. Concentration and conversion into a form suitable for interim storage and ultimate disposal might be best accomplished at a location other than where the waste is generated. The following is a suggested rewording of this paragraph.

"Waste treatment - Waste treatment facilities shall be provided. Provisions shall be made for the conversion of site generated wastes into a form suitable for interim storage or ultimate final disposal."

Comment No. 544: Allied General Nuclear Services. (27)

"Section 72.71(19) requires that all site-generated wastes be concentrated at the ISFSI. Instances could well arise where, except for this provision, it would be beneficial, both economically and environmentally, that such concentration be performed at another licensed location, particularly if such were nearby. Accordingly, it is suggested that the last sentence of this subsection be replaced by the following: "Provision shall be made for the conversion of site generated wastes into a form suitable for interim storage and ultimate final disposal.'"

Comment No. 545: Bechtel National, Inc. (38)

"Waste treatment - We suggest deletion of 'interim storage and ultimate final' from the second sentence."

Comment No. 546: U.S. Department of Energy. (42)

"Clarify the last sentence. Does it refer to a typical waste treatment facility for concentrating waste, such as evaporators for radioactive liquid waste streams, or does it refer to all waste? If the latter, does it include items like protective clothing and supplies used in decontamination?"

Comment No. 547: Nuclear Fuel Services, Inc. (46)

"Paragraph 72.71(19) - 'These facilities shall be designed to concentrate all site generated wastes and convert them into a form suitable for interim storage and ultimate final disposal.' A licensee cannot satisfy this requirement due to the lack of NRC criteria for (1) balancing degree of compaction versus operation radiation exposure and public exposure via effluents from the compaction operations, (2) a definition of a form suitable for 'interim storage' and (3) a definition of the form suitable for 'ultimate final disposal.' We understand that the NRC Office of Nuclear Material Safety and Safeguards has such studies under contact. Until the completion and evaluation of these studies, it is premature to impose this proposed requirement.

"The total volume of radioactive waste generated at the ISFSI should not be significant. As noted in an earlier comment, the volume should be about 1000 ft^3/yr/million gallons of pool water. The waste composition will be primarily filter media and therefore not amenable to much concentration."

Comment No. 548: Lowenstein, Newman, Reis, Axelrad and Toll. (48)

"The second sentence of Standard (19), 'Waste Treatment,' should be deleted. There is no reason to require concentration of 'all' site generated wastes; as to some wastes concentration may be impossible, may involve unnecessary personnel exposure or may not be cost effective. As to converting such wastes to a form suitable for 'ultimate final disposal,' although such conversion might in many instances be accomplished onsite, there is no reason to deprive the licensee of the flexibility of using offsite facilities that might be more effective."

Comment No. 549: Edison Electric Institute. (68)

"The requirement 'to concentrate all site generated wastes,' needs further clarification since some waste, such as discarded equipment, do not lend themselves to concentration. Concentration requirements should be based on a combination of cost effectiveness and personnel radiation exposure considerations in addition to waste form and volume."

Discussion: The wording has been changed. There was no intent to deny the licensee the use of other than onsite facilities, if such were available.

In response to Comment Letter No. 46, it is agreed that waste treatment criteria are needed. However, it is expected that these criteria will be available when needed by a license granted under this rule. The total volume of wastes, including contaminated clothing and decontamination solutions and materials could be quite large. The water treatment wastes are expected to be only a small fraction of the total wastes.

Section 72.71(20), Decommissioning

Comment No. 550: Valore, McAllister, Aron and Westmoreland. (40)

"Fails to provide sufficient guidelines and procedures - this is especially true in respect to public participation."

Comment No. 551: American Nuclear Society (ANS2.19). (41)

"Concerned about the lack anywhere of a definition of the level to which a facility must be decontaminated to be decommissioned. ANS-N300-1975, Design Criteria for Decommissioning of Nuclear Fuel Reprocessing Plants, lacks a definition of the level of radioactivity acceptable for unrestricted use. According to the proposed EPA Criteria for Radioactive Wastes, dated November 15, 1978, once a material has been designated radioactive, there is no level at which its radioactive content can be considered negligible. This problem, lack of definition of or lack of acceptance of, a negligible level of radioactivity, is going to be of considerable difficulty to the industry."

Comment No. 552: General Electric Company. (47)

"This Section requires design to facilitate decommissioning. The wording regarding decommissioning should be made consistent with previous sections on this regulation (see comment on §72.18 and §72.38), and with related documents (NUREG-0436) and Regulation Guides."

Discussion: The NRC has not endorsed ANSI-300-1975. Decommissioning criteria are now under development by the NRC. A draft GEIS on Decommissioning of Nuclear Fuel Cycle Facilities, NUREG/0586, which includes ISFSIs, is being prepared and is scheduled for issue early in 1980.

Comment No. 553: Bechtel National, Inc. (38)

"We interpret the phrase '. . . minimize the quantity of radioactive wastes . . . at the time the facility is decommissioned,' to mean that the design should include features to minimize the accumulation of materials and equipment which cannot be adequately decontaminated (e.g., pool liners should prevent the concrete from becoming contaminated). We suggest that the word 'reduce' be used in place of 'minimize' and that the paragraph be expanded to indicate that this design objective should be consistent with safety considerations and functional requirements for the ISFSI."

Comment No. 554: Mississippi Power and Light Company. (39)

"The subsection on decommissioning of an AFR storage installation should be more specific. In particular, the subsection should provide that design criteria relating to reducing the quantity and facilitating the removal of radioactive wates and equipment at the time of permanent decommissioning of the installation must be established consistent with the safety and functional aspects of the installation. Furthermore, the word 'minimize' with reference to the quantity of radioactive wastes in the installation at the time of decommissioning is ambiguous and should be replaced by the word 'reduce.'"

Comment No. 555: Nuclear Fuel Services, Inc. (46)

"'. . . and to minimize the quantity of radioactive wastes . . . at the time the facility is permanently decommissioned.' The largest quantity of contaminated equipment at decommissioning should be the storage racks. It is inconceivable that the Staff would want to reduce the potential strength of storage racks in order to reduce a waste volume at twenty years later. If the Staff wants a stainless steel lining on the pool surface, it should be a specific requirement."

Comment No. 556: Shaw, Pittman, Potts and Trowbridge. (50)

"The decommissioning criterion requires that the ISFSI design 'minimize the quantity and facilitate the removal of radioactive wastes and contaminated equipment . . .' Some concept of cost-effectiveness should be included in this criterion, given the implications of the requirement to 'minimize.'"

Comment No. 557: Southern Company Services, Inc. (54)

"Some comment as above on minimizing."

Discussion: This is a general design criterion, i.e., to put the designer on notice that consideration should be given to its ultimate decommissioning in the design of the installation.

For a water pool type of installation, decommissioning may involve only the removal of surface contamination down to an acceptable level. The designer should keep this in mind and not bury contaminated piping in concrete, should provide fittings for the introduction of decontamination solutions on equipment, and to the extent feasible should avoid cracks and crevices which are difficult to decontaminate.

Subpart G--Quality Assurance

Section 72.75, Quality Assurance Program; Records

Comment No. 558: R. Beaver. (23)

"I agree with your requirements for a quality assurance program as described in par. 72.75 and your statement regarding quality standards in par. 72.71, especially with respect to the wording 'commensurate with the importance of the function to be performed.' I agree with your requirements under (6) of par. 72.71 relative to testing and maintenance of systems and components that have safety-related functions. I would interpret this to mean that not all of the safety-related functions must have this capability . . . only those important to the function to be performed."

Comment No. 559: American Nuclear Society (ANS57.7). (28)

"72.75(a) Delete second sentence, delete second sentence in (b), and delete (c) entirely. All of these words are part of Appendix B."

Comment No. 560: Shaw, Pittman, Potts and Trowbridge. (50)

"Can it be concluded that any structure, system or component whose function is the subject of a requirement in this Part 72 is to be considered safety related, and therefore to require the application of a quality assurance program? If this is the intent, then what criteria may be used to evaluate 'the importance of individual structures, systems and components to safety,' in establishing an appropriate level of quality assurance program for each affected element? If it is not intended that all structures, systems and components are to be considered safety related, what criteria may be used to define the safety related structures, systems and components."

"Section 72.3(s) defines safety related structure systems and components as those items whose function is to maintain the required spent fuel storage conditions, to prevent damage to the spent fuel during transfer and storage and to protect plant personnel from exposure to radiation during design objectives. In one interpretation, this could be taken to include virtually everything within the boundary of the plant site. Section 72.71, under 'Overall Requirements,' sub-paragraph (1) 'Quality Standards,' states that structures, systems and components important to safety shall be designed, fabricated, and tested to quality standards commensurate with the importance of the function to be performed. Section 72.75(a) requires that a quality assurance program based on Appendix B of 10 CFR 50 shall be established and implemented to provide assurance that the safety related structure, systems and components will perform their safety functions. This paragraph goes on to state that 'the application of the quality assurance program should be commensurate with the importance of individual structure, systems and components.' These provisions add up to a rather broad range of possible interpretations both as to the specific items which might be included as Class I structures, systems and components, as well as to the extent of the quality assurance program requirements necessary to be imposed on the design, purchasing, fabricating, handling, shipping, storing, cleaning, erecting, installing, inspecting, testing, operating, maintaining, repairing, and modifying.

"On the other hand, the Statement of Considerations states that

"'. . . the heat capacity of the large volume of water in a spent fuel storage pool allows adequate time to take corrective action if the cooling system fails, provided there is an assured source of make up water, and some means of getting it to the storage pool if needed. Therefore the cooling system need not be designed to withstand the extremes of natural phenomena. Likewise, the emergency water supply system need not be permanently installed, provided it is available within the time span needed.'

"These statement would lead to the conclusion that the pool water treatment systems need not be considered to be Class I (or 'Q-list' items). However, the wording of the regulation may not necessarily be interpreted so as to lead to this same conclusion.

"While we would consider it undesirable to publish a list of specific items of equipment to be included on the Q-list, we do note believe it would be appropriate to include some further elaboration of the definition in section 72.3(s) in the form of a statement of the criteria which the NRC would plan to use in evaluating the applicant's identification of items on his Q-list, as well as

his definition of the extent of applicability of the QA program. It is our opinion that without this clarification, the regulation as presently drafted would inevitably lead to the inclusion on the Q-list and the imposition of the full 10 CFR 50 Appendix B QA program on all structures, systems and components of the fuel storage pool which have any relation to or contact with the spent fuel. If it is the intent of NRC that this be the case, then there should be a clear statement ot that effect in the regulation and in the Statement of Considerations."

Comment No. 561: American Society of Civil Engineers. (34)

"As stated in the reference, the Quality Assurance Program is based on the criteria in Appendix B of 10 CFR 50. The Quality Assurance Program shall be established and implemented to provide assurance that the safety related structures, systems, and components of an ISFSI will perform their safety functions. The application of the Quality Assurance Program should be commensurate with the importance of individual structures, systems and components to safety.

"It is recognized that safety is the number one concern when assessing the risks associated with the operation of an ISFSI facility. However; for the reason of maintaining credibility with the public in that all elements of the spent fuel storage facilities will continue to perform satisfactorily in service, it is essential that the non-safety related structure, systems, or components receive their due quality assurance assessments. In this way, the national interest will be better served.

"It is suggested that 72.75 be restructured as follows:

"72.75 Quality Assurance Program

"A. A Quality Assurance Program shall be established and implemented to provide assurance that systems, components, and structures of an ISFSI will perform safely and reliably. The requirements of 10 CFR 50 shall apply to non-safety related items as well as to safety items.

"B. The application of the Quality Assurance Program shall be commensurate with the importance of individual systems relative to safety, the environment, reliability, availability, cost, and schedule.

"C. The Quality Assurance program shall be applied during the design, procurement, fabrication, installation, inspection, test, operation, maintenance, repair and modification phases of the project.

"D. Appropriate records of the design, fabrication, erection, and testing of structures, systems, and components important to safety shall be maintained by or under the control of the licenses throughout the life of the installation.

"E. Quality Assurance means all those planned and systematic actions necessary to provide confidence that a structure, system, and component will perform satisfactorily in service. Quality

Assurance includes quality control, which comprises those quality assurance actions related to the physical characteristics of a material, structure, component, or system which provide a means to control the quality of the product."

Discussion: The rule provides for a quality assurance program which is selective or graded in its application, with emphasis placed on items and activities which are important to safety and to the extent of their importance to safety. It is assumed that the designer and future operator can best identify those items and actions to which his QA program should apply and how this program will be applied. It is anticipated that there are relatively few items and actions of an ISFSI design, construction and operations which will require full QA coverage. Specifically what these are and the extent of desired QA coverage is design specific and cannot be identified in general criteria.

The section has been reworded placing emphasis on importance to safety. A licensee may want to consider factors such as reliability, availability, cost and schedule but these factors are not subject to NRC regulation.

Subpart H--Physical Protection

Section 72.81, Physical Security Plan

Comment No. 562: Natural Resources Defense Council, Inc. (66)

"A final plan for safeguarding the AFR must be approved as part of the construction permit program. The exception contained in Part 73 for spent fuel must not be applicable unless the spent fuel meets the conditions of burnup, enrichment and age which are the premise for those exceptions."

Discussion: The physical protection plan for an ISFSI must meet the requirements of Part 73.

Comment No. 563: U.S. Department of Energy. (42)

"It is stated that the security plan "shall demonstrate how the applicant plans to comply with the applicable requirements of Part 73 of this chapter at the proposed installation.' However, Part 73 does not, to our knowledge, specify requirements for an ISFSI. Therefore, either this regulation or Part 73 would have to be revised to include ISFSI security requirements."

Discussion: §73.50 is being revised to specifically meet the needs of an ISFSI. (See 43 FR 35321, August 9, 1978.)

72.81(b)

Comment No. 564: Nuclear Fuel Services, Inc. (46)

"Paragraph 72.81(b) - '. . . ISFSI design features which will make the installation less vulnerable to sabotage . . .' Less vulnerable than what? We believe that the tests being conducted at Sandia Laboratories and the evaluations conducted by General Electric Company for MFRP show that an ISFSI does not present any undue risk to the public health and safety due to potential

sabotage. The Staff should provide very specific requirements on physical protection at ISFSI rather than the generalized, vague requirements of Section 72.81."

Discussion: The wording has been changed to read "...design features provided to protect the complex from sabotage...."

Comment No. 565: Allied Chemical Company, (Idaho). (71)

"This is very general and could be very difficult to comply with unless made somewhat more specific. Recommend deleting requirement to preclude inside sabotage.

"Also, the details fo physical protection should be kept confidential or this requirement could be self defeating because access to details could make the facility more vulnerable to sabotage."

Discussion: See response to preceeding comment. Physical security plans are kept confidential.

Comment No. 566: "Paragraph 72.81(b)(3) Kaiser Engineers. (21)

"The following statement should be added to the end of the reference paragraph to make clear the extent of the proposed quality assurance program:

"'The quality assurance program established for use related to structures and components that comprise the physical protection system shall not be required to comply with Appendix B to Part 50 of this chapter.'"

Discussion: On the contrary, the physical security system must be covered by an appropriate quality assurance program.

Comment No. 567: Wisconsin Electric Power Company. (26)

"No more than three copies of a facility security plan should be forwarded to the NRC. The security plan contains confidential material which should be disseminated on a need-to-know basis only."

Discussion: Ten copies are required.

Subpart I - Training and Certification of ISFSI Personnel

Comment No. 568: Shaw, Pittman, Potts and Trowbridge (50)

"Subpart I on training and certification should make explicit the obvious intent that these issues are not part of the licensing process."

Discussion: On the contrary, Subpart I is a part of the licensing process. Section 72.15 of this Part requires an applicant to include in the Safety Analysis Report, or as a separate submission, a description of the training program purusant to §72.92. Section 72.31 of this Part states, among other things, that the issuance of licenses is contingent upon a determination by

the Commission that training and certification of ISFSI personnel complies with Subpart I of this Part, and is acceptable.

Section 72.92, Responsibility for Training Program

Comment No. 569: Valora, McAllister, Aron and Westmoreland (40)

"The certification of the licensee's operators to the effect that they are adequately trained should be done by a separate group to avoid 'expedient' certification of inadequately trained personnel. Independent review of the training might be considered."

Discussion: Certification by the licensee based upon an approved training and certification program is acceptable to NRC. The licensee's training and certification procedures will be subject to NRC inspection.

Section 72.93, Physical Requirements

Comment No. 570: U.S. Department of Energy (42)

"Because of current federal restrictions on employer's hiring investigations and practices with regard to potential employee's physical and mental conditions, it may be difficult to meet these requirements in selecting personnel for safety-related activities."

Comment No. 571: Nuclear Fuel Services, Inc. (46)

"'Any physical or mental condition which might cause impaired judgment or motor coordination must be considered in the selection of personnel for safety-related activities.' Such vague and ambiguous requirements are inoperative and, therefore, not constructively adding to public health and safety. The Staff should draw upon their experience in implementing 10 CFR 55 and indeveloping 10 CFR 73, Appendix B, to provide much more substantive guidance."

Comment No. 572: Southern Company Service, Inc. (54)

"How do you determine an acceptable mental condition under present government restrictions? Is the requirement limited to knowledge or does it include psychological analyses?"

Discussion: This section has been revised to restrict an individual whose physical condition or general health is such as might cause operational errors from being permitted to operate safety-related equipment and controls. This requires certain judgements with respect to hiring and training of individuals, as well as judgement by a supervisor as to whether a certified individual's physical condition and general health are cause for concern about whether the individual can operate safety-related equipment and controls in a competent and safe manner.

Appendix A

Comparative Texts

10 CFR PART 72 COMPARATIVE TEXTS

Column 1	Column 2	Column 3
Proposed Rule Published For Comment, FR 43, 46309-46321, dated October 6, 1979	Text of Final Rule Reflecting Comments From Both the Public and NRC Staff	Reasons for Changes & Sources of Comments (Public or Staff)

Notes:

1. Changed material sidelined
2. New Material Underlined

PART 72 "LICENSING REQUIREMENTS FOR THE STORAGE OF SPENT FUEL IN AN INDEPENDENT SPENT FUEL STORAGE INSTALLATION" (ISFSI)

Subpart A—General Provisions

Sec.

72.1 Purpose.
72.2 Scope.
72.3 Definitions.
72.4 Communications.
72.5 Interpretations.
72.6 License Required.
72.7 General License to Own Spent Fuel.
72.8 Specific Exemptions.
72.9 Denial of Licensing by Agreement States.

Subpart B—License Application, Form, Contents

Sec.

72.11 Filing of Applications for Licenses; Oath or Affirmation.
72.12 Elimination of Repetition.
72.13 Public Inspection of Applications.
72.14 Contents of Application: General and Financial Information.
72.15 Contents of Application: Technical Information.
72.16 Contents of Application: License Conditions.
72.17 Contents of Application: Technical Qualifications.
72.18 Decommissioning Plan, Including its Financing.
72.19 Emergency Plan.
72.20 Environmental Report.

Subpart C—Issuance and Conditions of Licenses

72.31 Issuance of Licenses.
72.32 Duration of Licenses; Renewal.
72.33 License Conditions.
72.34 Changes, Tests, and Experiments.

TRANSFERS OF LICENSES—CREDITORS' RIGHTS—SURRENDER OF LICENSES

72.36 Transfer of Licenses.
72.37 Creditor Regulations.
72.38 Applications for Termination of Licenses.

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

72.39 Application for Amendment of License.
72.40 Issuance of Amendment.
72.41 Revocation, Suspension and Modification of Licenses.
72.42 Backfitting.

PART 72 LICENSING REQUIREMENTS FOR THE STORAGE OF SPENT FUEL IN AN INDEPENDENT SPENT FUEL STORAGE INSTALLATION (ISFSI)

Subpart A - General Provisions

Sec.

72.1 Purpose.
72.2 Scope.
72.3 Definitions.
72.4 Communications.
72.5 Interpretations
72.6 License Required; Types of Licenses.
72.7 Specific Exemptions.
72.8 Denial of Licensing by Agreement States.

Subpart B - License Application, Form, and Contents

72.11 Filing of Applications for Specific Licenses; Oath or Affirmation.
72.12 Elimination of Repetition.
72.13 Public Inspection of Applications.
72.14 Contents of Application: General and Financial Information.
72.15 Contents of Application: Technical Information.
72.16 Contents of Application: Technical Specifications.
72.17 Contents of Application: Applicant's Technical Qualifications.
72.18 Decommissioning Plan, Including Financing.
72.19 Emergency Plan.
72.20 Environmental Report.
72.21 Required Licensing Documents

Subpart C - Issuance And Conditions of Licenses

72.31 Issuance of Licenses.
72.32 Duration of License; Renewal.
72.33 License Conditions.
72.34 Public Hearings.
72.35 Changes, Tests, and Experiments.
72.36 Transfer of Licenses.
72.37 Creditor Regulations.
72.38 Applications for Termination of Licenses.
72.39 Application for Amendment of License.
72.40 Issuance of Amendment.
72.41 Modification, Revocation, and Suspension of Licenses.
72.42 Backfitting.

Subpart D—Records, Reports, Inspections, and Enforcement

72.51 Material Balance, Inventory and Records Requirements for Stored Materials.
72.52 Reports of Accidental Criticality or Loss of Special Nuclear Material.
72.53 Material Status Reports.
72.54 Nuclear Material Transfer Reports.
72.55 Inspections and Tests.
72.56 Maintenance of Other Records and Reports.
72.57 Violation.

Subpart E—Siting Criteria

72.61 General Criteria.
72.62 Criteria for Design Basis External Natural Events.
72.63 Criteria for Design Basis External Man-Induced Events.
72.64 Criteria for Defining Potential Effects of the ISFSI on the Region.
72.65 Criteria for Regional Distribution of Population.
72.66 Criteria for Defining Acceptable Seismic Design.
72.67 Criteria for Defining Potential Radiological Consequences.

Subpart F—General Design Criteria

72.71 General Design Criteria.

OVERALL REQUIREMENTS

NUCLEAR CRITICALITY SAFETY

RADIOLOGICAL PROTECTION

SPENT FUEL AND RADIOACTIVE WASTE STORAGE AND HANDLING

DECOMMISSIONING

Subpart G—Quality Assurance

72.75 Quality Assurance Program, Records

Subpart H—Plant Protection

Sec.
72.81 Physical Security Plan.

Subpart I—Training and Certification of ISFSI Personnel

72.91 Scope of Training Program.
72.92 Responsibility for Training Program.
72.93 Physical Requirements.
72.94 Submission for Approval

Subpart D - Records, Reports, Inspections and Enforcement

72.50 Safety Analysis Report Updating
72.51 Material Balance, Inventory and Records Requirements for Stored Materials.
72.52 Reports of Accidental Criticality or Loss of Special Nuclear Material.
72.53 Material Status Reports.
72.54 Nuclear Material Transfer Reports.
72.55 Other Records and Reports.
72.56 Inspections and Tests.
72.57 Violation.

Subpart E - Siting Evaluation Factors

72.61 General Considerations.
72.62 Design Basis External Natural Events.
72.63 Design Basis External Man-Induced Events.
72.64 Identifying Regions Around an ISFSI Site.
72.65 Defining Potential Effects of the ISFSI on the Region.
72.66 Geological and Seismological Characteristics.
72.67 Criteria for Radioactive Materials in Effluents and Direct Radiation from an ISFSI.
72.68 Controlled Area of an ISFSI.
72.69 ISFSI Emergency Planning Zone.
72.70 Spent Fuel Transportation.

Subpart F - General Design Criteria

72.71 General Considerations.
72.72 Overall Requirements.
72.73 Criteria for Nuclear Criticality Safety.
72.74 Criteria for Radiological Protection.
72.75 Criteria for Spent Fuel and Radioactive Waste Storage and Handling.
72.76 Criteria for Decommissioning.

Subpart G - Quality Assurance

72.80 Quality Assurance Program; Records.

Subpart H - Physical Protection

72.81 Physical Security Plan.
72.82 Design for Physical Protection.
72.83 Safeguards Contingency Plan.
72.84 Changes to Physical Security and Safeguards Contingency Plans

Subpart I - Training And Certification of ISFSI Personnel

72.91 Operator Requirements.
72.92 Operator Training and Certification Program.
72.93 Physical Requirements.

AUTHORITY: Atomic Energy Act of 1954, as amended, secs. 51, 53, as amended, 62, 63, 65, 81, 161 b, h, i, o, 182a as amended, 183 as amended, 184 as amended, 186, 187, Pub. L. 83-703, 68 Stat. 929, 930 as amended by 71 Stat. 576, 72 Stat. 632 and 79 Stat. 602, 932, 933, 935, 948, 953 as amended by 70 Stat. 1069, 954 as amended by 78 Stat. 602, 955, (42 U.S.C. 2071, 2073, 2092, 2093, 2095, 2111, 2201 (b), (h), (i), (o), 2232, 2233, 2234, 2236, 2237); sec. 234, Pub. L. 91-161, 83 Stat. 444, 42 U.S.C. 2282; sec. 274c, Pub. L. 86-273, 73 Stat. 688, (42 U.S.C. 2021(c)); under sec. 102(2)(C) of the National Environmental Policy Act of 1969, Pub. L. 91-190, 83 Stat. 853, (42 U.S.C. 4332), and under the Energy Reorganization Act of 1974, as amended, sec. 201, as amended, 202, and 206, Pub. L. 93-438, 88 Stat. 1242, as amended by 89 Stat. 413, 1243, 1246 (42 U.S.C. 5841, 5842, 5846).

Subpart A—General Provisions

§ 72.1

§ 72.1 Purpose.

The regulations in this part establish requirements, procedures and criteria for the issuance of licenses to receive title to, own, acquire, receive, or possess special nuclear material, byproduct material, and source material in spent fuel for the purpose of storage in the United States in an independent spent fuel storage installation (ISFSI) as defined in § 72.3 and establish and provide for the terms and conditions under which the Commission will issue such licenses. Such licenses are limited to the temporary storage only of spent fuel; no license under this part will be granted for the later permanent storage or disposal of spent fuel.

Authority

The provisions of this Part 72 are issued under the Atomic Energy Act of 1954, as amended, secs. 51, 53 as amended, 57 as amended, 62, 63, 65, 69, 81 as amended, 161b, h, i, o, 182a as amended, 183 as amended, 184 as amended, 186, 187, Pub. L. 83-703, 68 Stat. 929, 930 as amended by 71 Stat. 576, 72 Stat. 632 and 79 Stat. 602, 932 as amended by 78 Stat. 605 and 88 Stat. 475, 933, 934, 935 as amended by 88 Stat. 475 and 92 Stat. 3039, 948, 953 as amended by 70 Stat. 1069, 954 as amended by 78 Stat. 602, 955 (42 U.S.C. 2071, 2073, 2077, 2092, 2093, 2095, 2099, 2111, 2201(b), (h), (i), (o), 2232, 2233, 2234, 2236, 2237); sec. 234, Pub. L. 91-161, 83 Stat. 444 (42 U.S.C. 2282); sec. 274c, as amended, Pub. L. 86-273, 73 Stat. 688 as amended by Pub. L. 95-604, 92 Stat. 3036 (42 U.S.C. 2021(c)); under sec. 102(2)(C) of the National Environmental Policy Act of 1969, Pub. L. 91-190, 83 Stat. 853 (42 U.S.C. 4332) and under the Energy Reorganization Act of 1974, as amended, sec. 201, as amended, 202, and 206, Pub. L. 93-438, 88 Stat. 1242, as amended by 89 Stat. 413, 1243, 1246 (42 U.S.C. 5841, 5842, 5846).

Subpart A - General Provisions

§ 72.1 Purpose.

The regulations in this part establish requirements, procedures, and criteria for the issuance of licenses to possess power reactor spent fuel and other radioactive materials associated with spent fuel storage, in an independent spent fuel storage installation (ISFSI), and the terms and conditions under which the Commission will issue such licenses.

§72.1 was rewritten to clarify the purpose of this rule. Second sentence moved to §72.2 -Public & Staff.

§ 72.2 Scope.

The regulations in this part apply to all persons in the United States, including persons in Agreement States. The regulations in this part are limited to spent fuel. This includes the byproduct, special nuclear and source materials in the spend fuel to be stored or in storage in an independent spent fuel storage installation as defined by § 72.3. With respect to licenses covering the storage of spent fuel in an ISFSI issued prior to the effective date of this regulation, such licenses will not be renewed unless the operating requirements of this Part 72 are met.

§ 72.3 Definitions.

As used in this part:

(a) "Act" means the Atomic Energy Act of 1954 (68 Stat. 919) including any amendments thereto.

(b) "As low as is reasonably achievable" means as low as is reasonably achievable taking into account the state of technology, and the economics of improvements in relation to benefits to the public health and safety.

(c) "Byproduct material" means any radioactive material (except special nuclear material) yielded in or made radioactive by exposure to the radiation incident to the process of producing or utilizing special nuclear material.

(d) "Commission" means the Nuclear Regulatory Commission or its duly authorized representatives.

§ 72.2 Scope.

(a) Licenses issued under this Part are limited to the possession of power reactor spent fuel to be stored in a complex that is designed and constructed specifically for the temporary storage of power reactor spent fuel aged for at least one year, and to the possession of other radioactive materials associated with spent fuel storage.

(b) The regulations in this part apply to all persons in the United States, including persons in Agreement States.

(c) The requirements of this regulation are applicable, as appropriate, to both wet and dry modes of storage of spent fuel.

(d) Licenses covering the storage of spent fuel in an existing spent fuel storage facility shall be issued in accordance with the requirements of this part as stated in §72.31.

§ 72.3 Definitions.

As used in this part:

(a) "Act" means the Atomic Energy Act of 1954 (68 Stat. 919) including any amendments thereto.

(b) "As low as is reasonably achievable" (ALARA) means as low as is reasonably achievable taking into account the state of technology, and the economics of improvements in relation to (1) benefits to the public health and safety, (2) other societal and socioeconomic considerations, and (3) the utilization of atomic energy in the public interest.

(c) "Atomic energy" means all forms of energy released in the course of nuclear fission or nuclear transformation.

(d) "Byproduct material" means any radioactive material (except special nuclear material) yielded in, or made radioactive by exposure to, the radiation incident to the process of producing or utilizing special nuclear material.

(e) "Commission" means the Nuclear Regulatory Commission or its duly authorized representatives.

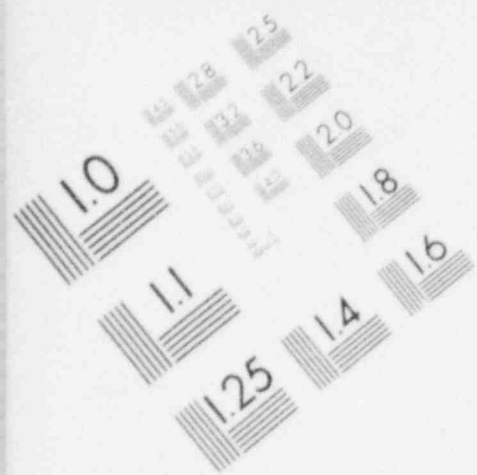
(a)Moved from §72.1-Staff.

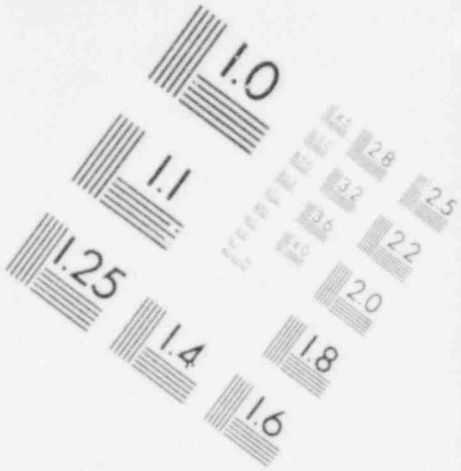
(c)Although previously covered in the Statement of Considerations, this statement needed to be included in the body of the rule-Public & Staff.

(d)Broadened scope to cover not only previously licensed facilities, but also existing facilities subject to licensing under this rule. The reference to operating requirements was misleading as this term was not defined in the proposed rule.

(b)Phrase added for consistency with other NRC regulations-Public & Staff.

(c)Added in response to Staff comment.





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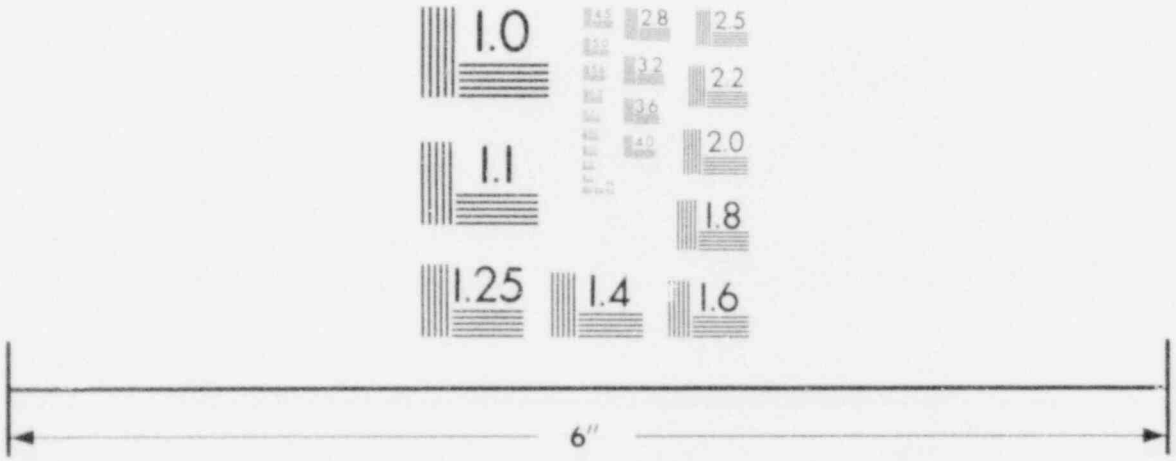

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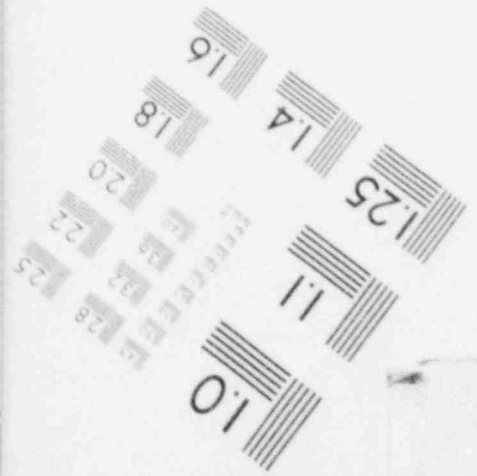

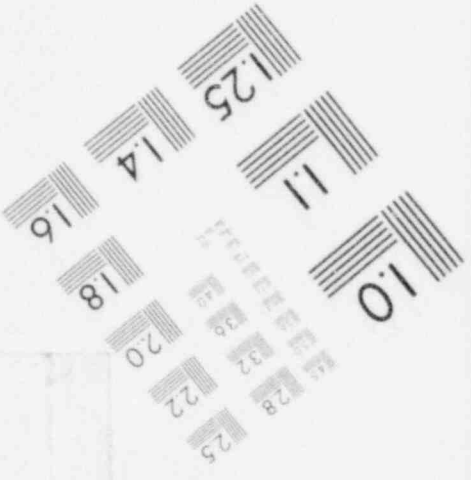

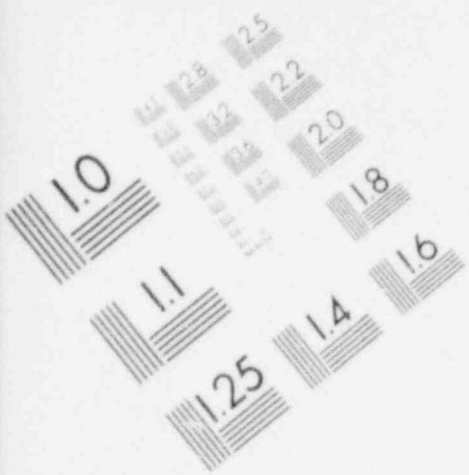

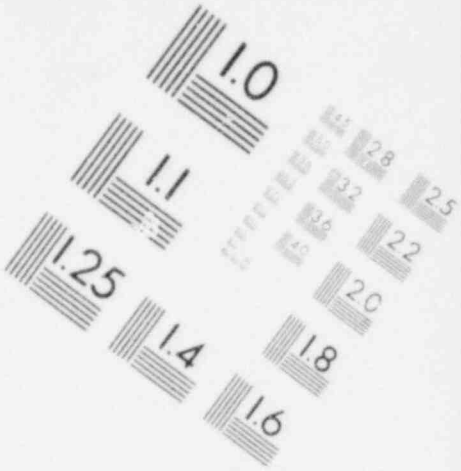

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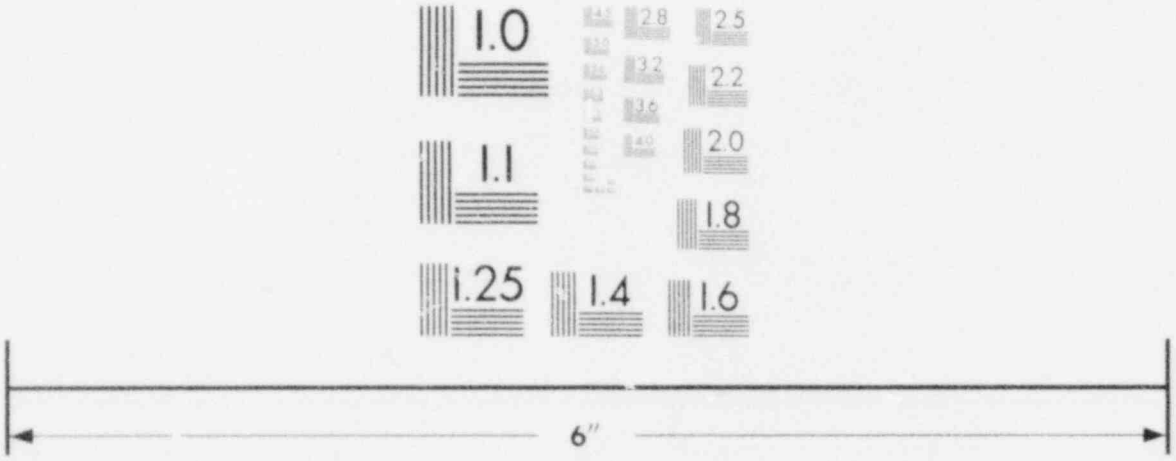

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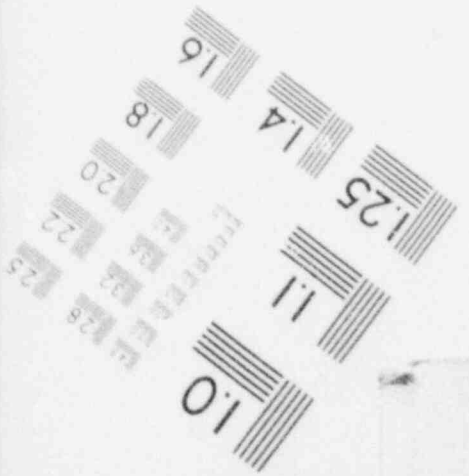

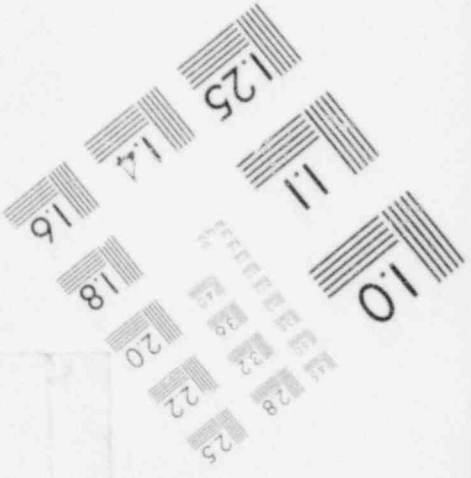

(e) "Commencement of construction" means any clearing of land, excavation or other substantial action that would adversely affect the natural environment of a site, but does not mean:

(1) Changes desirable for the temporary use of the land for public recreational uses, necessary borings or excavations to determine subsurface materials and foundation conditions or other preconstruction monitoring to establish background information related to the suitability of the site or to the protection of environmental values;

(2) Construction of environmental monitoring facilities;

(3) Procurement or manufacture of components of the installation.

(f) "Confinement system" means those systems, including ventilation, between areas containing radioactive substances and the environment.

(g) "Controlled area" means that area immediately surrounding the ISFSI complex, the use of which is controlled by the licensee.

(h) "Design basis" means the parameter values associated with that level of severity of an external event or combination of events selected for design of all or part of an ISFSI to insure that the structures, systems, and components important to safety (in relation to that event or combination of events) will maintain their integrity and will not suffer loss of function during or after the event or before completing its design function. These values may be (1) restraints derived from generally accepted "state-of-the-art" practices for achieving functional goals, or (2) requirements derived from analysis (based on calculation and/or experiments) of the effects of a postulated event under which a structure, system, or component must meet its functional goals.

(f) "Commencement of construction" means any clearing of land, excavation, or other substantial action that would adversely affect the natural environment of a site, but does not mean:

(1) Changes desirable for the temporary use of the land for public recreational uses, necessary borings or excavations to determine subsurface materials and foundation conditions, or other preconstruction monitoring to establish background information related to the suitability of the site or to the protection of environmental values;

(2) Construction of environmental monitoring facilities;

(3) Procurement or manufacture of components of the installation; or

(4) Construction of means of access to the site as may be necessary to accomplish the objectives of sections (1) and (2) above.

(g) "Confinement systems" means those systems, including ventilation, that act as barriers between areas containing radioactive substances and the environment.

(h) "Controlled area" means that area immediately surrounding an ISFSI for which the licensee exercises authority over its use and within which ISFSI operations are performed.

(i) "Design bases" means that information that identifies the specific functions to be performed by a structure, system, or component of a facility and the specific values or ranges of values chosen for controlling parameters as reference bounds for design. These values may be restraints derived from generally accepted "state-of-the-art" practices for achieving functional goals or requirements derived from analysis (based on calculation or experiments) of the effects of a postulated event under which a structure, system, or component must meet its functional goals. The values for controlling parameters for external events include: (1) estimates of severe natural events to be used for deriving design bases that will be based on consideration of historical data on the associated parameters, physical data, or analysis of upper limits of the physical processes involved and (2) estimates of severe external man-induced events to be used for deriving design bases that will be based on analysis of human activity in the region taking into account the site characteristics and the risks associated with the event.

(4)Added in response to Public comment.

(g)Phrase added to improve clarity-Staff.

(h)Re defined to clarify term used in Subpart E-Public & Staff.

(i)Clarification of definition and expanded definition of this term as used in the rule-Staff.

(i) "Historical data" means a compilation of the available information concerning a particular type of event derived from human history.

(j) "Independent spent fuel storage installation (ISFSI)" means a self-contained installation designed for the storage of spent fuel and capable of independent operation with all necessary supporting services.

(k) "Neighboring area" means that area immediately surrounding the controlled area in which population distribution and density and land and water uses are considered with respect to the possibility of implementing contingency measures.

(l) "NEPA" means the National Environmental Policy Act of 1969 including any amendments thereto.

(m) "Person" means (1) any individual, corporation, partnership, firm, association, trust, estate, public or private institution, group, Government agency other than the Department of Energy (DOE), except that the DOE shall be considered a person within the meaning of the regulations of this part to the extent that its facilities and activities are subject to the licensing and related regulatory authority

(j) "Design capacity" means the quantity in metric tons of spent fuel, its maximum burnup in MWD/MTU, and the total heat generation in Btu per hour that an ISFSI is designed to accommodate.

(k) "Floodplain" means the lowland and relatively flat areas adjoining inland and coastal waters including flood-prone areas of offshore islands. Areas subject to a one percent or greater chance of flooding in any given year are included.

(l) "Historical data" means a compilation of the available published and unpublished information concerning a particular type of event.

(m) "Independent spent fuel storage installation" (ISFSI) means a complex designed and constructed for the storage of spent fuel and other radioactive materials associated with spent fuel storage. An ISFSI which is located on the site of another facility may share common utilities and services with such a facility and be physically connected with such other facility and still be considered to be independent, provided that such sharing of utilities and services or physical connections does not (i) increase the probability or consequences of an accident or malfunction of components, structures or systems that are important to safety; or (ii) reduce the margin of safety as defined in the basis for any technical specifications of either facility."

(n) "ISFSI-emergency planning zone" (ISFSI-EPZ) means that area in the vicinity of an ISFSI within which protective action measures may be needed in the event of an accident at an ISFSI.

(o) "NEPA" means the National Environmental Policy Act of 1969 including any amendments thereto.

(p) "Person" means (1) any individual, corporation, partnership, firm, association, trust, estate, public or private institution, group, Government agency other than the Nuclear Regulatory Commission or the Department of Energy (DOE), except that the DOE shall be considered a person within the meaning of the regulations in this part to the extent that its facilities and activities are subject to the licensing and related

(j)Previously shown as a footnote to §72.15-Staff.

(k)Added definition-Staff.

(l)Revised to improve clarity.

(m)Reworded to improve clarity-Staff.

(n)Term neighboring area replaced by the term ISFSI-Emergency Planning Zone-Staff.

of the Commission pursuant to section 202 of the Energy Reorganization Act of 1974 (88 Stat. 1244), any State or any political subdivision of, or any political entity within a State, any foreign government or nation or any political subdivision of any such government or nation, or other entity; and (2) any legal successor, representative, agent, or agency of the foregoing.

(n) "Region" means a geographical area surrounding and including the site sufficiently large to contain all the features related to a phenomenon or to the effect from a particular event.

(o) "Site" means the real property on which the ISFSI is located. The site includes the controlled area.

(p) "Source material" means (1) uranium or thorium, or any combination thereof, in any physical or chemical form or (2) ores which contain by weight one-twentieth of 1 percent (0.05%) or more of (i) uranium, (ii) thorium, or (iii) any combination thereof. Source material does not include special nuclear material.

(q) "Special nuclear material" means (1) plutonium, uranium 233, uranium enriched in the isotope 233 or in the isotope 235, and any other material which the Commission, pursuant to the provisions of section 51 of the Act, determines to be special nuclear material, but does not include source material; or (2) any material artifically enriched by any of the foregoing but does not include source material.

(r) "Spent fuel" suitable for storage in an ISFSI means irradiated light water reactor nuclear power plant fuel which has undergone at least one year's decay since reactor shutdown.

regulatory authority of the Commission pursuant to Section 202 of the Energy Reorganization Act of 1974 (88 Stat. 1244); (2) any State; any political subdivision of a state, or any political entity within a State, (3) any foreign government or nation, or any political subdivision of any such government or nation, or other entity; and (4) any legal successor, representative, agent, or agency of the foregoing.

(q) "Population" means the people that may be affected by the change in environmental conditions due to the construction, operation, or decommissioning of an ISFSI.

(r) "Region" means the geographical area surrounding and including the site, which is large enough to contain (1) all the features related to a phenomenon or to a particular event that could potentially impact the safety of the ISFSI and (2) all measurable effects of environmental impact, both radiological and nonradiological, that are due to the construction, operation or decommissioning of an ISFSI.

(s) "Site" means the real property on which the ISFSI is located.

(t) "Source material" means (1) uranium or thorium, or any combination thereof, in any physical or chemical form or (2) ores that contain by weight one-twentieth of one percent (0.05%) or more of (i) uranium, (ii) thorium, or (iii) any combination thereof. Source material does not include special nuclear material.

(u) "Special nuclear material" means (1) plutonium, uranium 233, uranium enriched in the isotope 233 or in the isotope 235, and any other material which the Commission, pursuant to the provisions of section 51 of the Act, determines to be special nuclear material, but does not include source material; or (2) any material artificially enriched by any of the foregoing but does not include source material.

(v) "Spent fuel" as used in this Part means irradiated nuclear fuel that has undergone at least one year's decay since being used as a source of energy in a power reactor. Spent fuel includes the special nuclear material, byproduct material, source material, and other radioactive materials associated with fuel assemblies.

(q) Added definition.

(r) Revised to improve clarity and broaded scope of definition.

(v) Revised to improve clarity and broaden scope to other than LWR fuels. Second statement moved from previous §72.2 -Staff.

(s) "Structures, systems and components important to safety" means those items whose function is to (1) maintain the required spent fuel storage conditions, (2) prevent damage to the spent fuel during transfer and storage, (3) protect plant personnel from exposure to radiation in excess of design objectives.

§ 72.4 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 Nuclear Regulatory Commission, Division of Fuel Cycle and Material Safety, Washington, D.C. 20555

Communications, reports, and applications may be delivered in person at the Commission's Offices at:

7915 Eastern Avenue, Silver Spring, Md., or 1717 H Street NW., Washington, D.C.

§ 72.5 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 recognized to be binding upon the Commission.

(w) "Structures, systems, and components important to safety" means those features of the ISFSI whose function is (1) to maintain the conditions required to store spent fuel safely, (2) to prevent damage to the spent fuel during handling and storage, or (3) to provide reasonable assurance that spent fuel can be received, handled, stored and retrieved without undue risk to the health and safety of the public.

(x) "Temporary storage" means the interim storage, protection, and safeguarding of spent fuel and radioactive materials associated with spent fuel storage, for a limited time only, pending its ultimate disposal.

§ 72.4 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 Nuclear Regulatory Commission, Office of Nuclear Materials Safety and Safeguards, Division of Fuel Cycle and Material Safety, Washington, D.C. 20555. Communications, reports, and applications may be delivered in person at the Commission's Offices at 7915 Eastern Avenue, Silver Spring, Maryland, or at 1717 H Street, N.W., Washington, D.C.

§ 72.5 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 recognized to be binding upon the Commission.

(w)Revised for consistency with other NRC regulations-Public & Staff

(x)Added definition-Public & Staff.

§72.4 Added specific office for clarity.

§ 72.6 License required.

(a) No person may receive title to, own, acquire, receive, or possess special nuclear material, byproduct material, or source material in spent fuel for the purpose of storage in an independent spent fuel storage installation except as authorized by the general license in § 72.7, or as authorized in a specific license issued by the Commission in accordance with the regulations in this part.

(b) Licenses for special nuclear material are of two types: General and specific. Any general license provided in this part is effective without the filing of applications with the Commission or the issuance of licensing documents to particular persons. Specific licenses are issued to named persons upon applications filed pursuant to the regulations in this part.

§ 72.7 General license to own spent fuel.

A general license is hereby issued to receive title to and own source material, special nuclear material and byproduct material contained in spent fuel without regard to quantity. Regardless of any other provision of this chapter, a general licensee under this section is not authorized to acquire, deliver, receive, or possess source material, special nuclear material and byproduct material contained in spent fuel, except as authorized in a specific license.

§ 72.8 Specific exemptions.

The Commission may, upon application by 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 and will not endanger life or property or the common defense and security and are otherwise in the public interest.

§ 72.9 Denial of licensing by agreement states.

Licenses covering the storage of spent fuel in an ISFSI will not be issued by Agreement States.

§ 72.6 License Required; Types of Licenses.

(a) Licenses for spent fuel are of two types: general and specific. Any general license provided in this part is effective without the filing of applications with the Commission or the issuance of licensing documents to particular persons. Specific licenses are issued to named persons upon applications filed pursuant to the regulations in this part.

(b) A general license is hereby issued to receive title to and own spent fuel without regard to quantity.

(c) No person may acquire, receive, or possess spent fuel or radioactive material associated with spent fuel for the purpose of storage in an independent spent fuel storage installation except as authorized in a specific license issued by the Commission in accordance with the regulations in this part.

§ 72.7 Specific Exemptions.

The Commission may, upon application by 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 and will not endanger life or property or the common defense and security and are otherwise in the public interest.

§ 72.8 Denial of Licensing by Agreement States.

Agreement States may not issue licenses covering the storage of spent fuel in an ISFSI.

§§ 72.6 &72.7 combined to improve continunity & to emphasize that spent fuel is the licensed material & clarify the applicability of general versus specific license.

Subpart B—License Application, Form, Contents

§ 72.11 Filing of applications for licenses; oath or affirmation.

(a) *Place of filing.* Each application for a license under this part, or amendment thereof, should be filed with:

The Director, Division of Fuel Cycle and Material Safety, U.S. Nuclear Regulatory Commission, Washington, D.C. 20555.

Applications, communications, reports, and correspondence may be delivered in person at the Commission's offices at 7915 Eastern Avenue, Silver Spring, Md., or 1717 H Street NW., Washington, D.C.

(b) *Oath or affirmation.* Each application for a license or license amendment, including amendments to such applications, should be executed in three signed originals by the applicant or duly authorized officer thereof under oath or affirmation.

(c) *Number of copies of applications.* Each filing of an application for a license or license amendment under this part (including amendments to such applications) shall include in addition to three signed originals the required documents listed in Table I in the number of copies specified.

(d) *Fees.* The application, amendment and inspection fees applicable to a license covering the storage of spent fuels in an ISFSI are those shown in § 170.31 of this chapter.

§ 72.12 Elimination of repetition.

In any application, under this part, the applicant may incorporate by reference information contained in previous applications, statements or reports filed with the Commission: *Provided*, That such references are clear and specific.

§ 72.13 Public inspection of applications.

Applications and documents submitted to the Commission in connection with applications may be made available for public inspection in accordance with provisions of the regulations contained in Part 2 and Part 9 of this chapter.

Subpart B - License Application, Form, Contents

§ 72.11 Filing of Applications for Specific Licenses; Oath or Affirmation.

(a) Place of filing. Each application for a license, or amendment thereof, under this Part should be filed with the Director, Division of Fuel Cycle and Material Safety, Office of Nuclear Material Safety and Safeguards, U.S. Nuclear Regulatory Commission, Washington, D.C. 20555.

Applications, communications, reports and correspondence may also be delivered in person at the Commission's offices at 7915 Eastern Avenue, Silver Spring, Maryland, or at 1717 H Street, NW., Washington, D.C.

(b) Oath or affirmation. Each application for a license or license amendment (including amendments to such applications) shall be executed in an original signed by the applicant or duly authorized officer thereof under oath or affirmation.

(c) Number of copies of applications. Each filing of an application for a license or license amendment under this Part (including amendments to such applications) shall include, in addition to the signed originals, the documents listed in §72.21.

(d) Fees. The application, amendment, and renewal fees applicable to a license covering the storage of spent fuel in an ISFSI are those shown in § 170.31 of this chapter.

§ 72.12 Elimination of Repetition.

In any application under this part, the applicant may incorporate by reference information contained in previous applications, statements, or reports filed with the Commission: Provided, that such references are clear and specific.

§ 72.13 Public Inspection of Applications.

Applications and documents submitted to the Commission in connection with applications may be made available for public inspection in accordance with provisions of the regulations contained in Part 2 and Part 9 of this chapter.

(a)Added specific office for clarity.

CONTENTS OF APPLICATION

§ 72.14 Contents of application: General and financial information.

Each application shall state:

(a) Full name of applicant;

(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	[2]
72.36	Application for transfer of license	[2] 25
72.38	Application for termination of license	[2] 25
72.39	Amendment to license	[2] 25
72.75	Quality assurance program	25
72.81(a)	Physical security plan [3]	10
72.81(c)	Safeguards contingency plan [3]	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

§ 72.14 Contents of Application: General and Financial Information.

Each application shall state:

(a) Full name of applicant;

(b) Address of applicant;

(c) Description of business or occupation of applicant;

(d) If applicant is:

(1) an individual: citizenship and age;

(2) a partnership: name, citizenship, and address of each partner and the principal location at which the partnership does business;

(3) a corporation or an unincorporated association:

(i) the State in which it is incorporated or organized and the principal location at which it does business; and

(ii) the names, addresses, and citizenship of its directors and principal officers; or

(4) acting as an agent or representative of another person in filing the application: the identification of the principal and the 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

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, decontamination 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 capacity 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.

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 ISFSI complex; and

(3) Estimated shutdown and decommissioning costs, and the necessary financial arrangements to provide reasonable assurance prior to licensing that shutdown, decontamination, and decommissioning will be carried out after the removal of spent fuel from storage.

§ 72.15 Contents of Application: Technical Information.

(a) Each application for a license under this part shall include a Safety Analysis Report describing the proposed 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 the design bases for external events. Such assessment shall contain an analysis and evaluation of the major structures, systems, and components of the ISFSI that bear on the suitability of the site when the ISFSI is operated at its design capacity. If the proposed ISFSI is to be located on the site of a nuclear power plant or other licensed facility, the potential interactions between the ISFSI and such other facility shall be evaluated.

(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)Reworded to improve clarity.

(1) Provide verification and discuss the interactions between colocated facilities. Staff.

(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.

) The design bases and the relatic of the design bases to the princip 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 exposures 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

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

(3) The design of the ISFSI in sufficient detail to support the findings in §72.31, including:

(i) The design criteria for the ISFSI pursuant to Subpart F of this Part, with identification and justification for any additions to or departures from the general design criteria;

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

(iii) Information relative to materials of construction, general arrangement, dimensions of principal structures, and descriptions of all structures, systems, and components important to safety, in sufficient detail to support a finding that the ISFSI will satisfy the design bases with an adequate margin for safety; and

(iv) Applicable codes and standards.

(4) An analysis and evaluation of the design and performance of structures, systems, and components important to safety, with the objective of assessing the impact on public health and safety resulting from operation of the ISFSI and including determination of:

(i) the margins of safety during normal operations and expected operational occurrences during the life of the ISFSI; 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 exposures within the limits given in Part 20 of this chapter, and for meeting the objective of exposures as low as is reasonably achievable.

(6) The features of ISFSI design and operating modes to maintain low waste volumes.

(7) An identification and justification for the selection of those subjects that will be probable license conditions and technical specifications. Such subjects shall cover the design, construction, operation, and decommissioning of the ISFSI.

(3) Defines the detail required in the SAR. Staff.

(iii) Reworded to improve clarity. Public & Staff.

(4) A detailed not preliminary analysis is required. Public & Staff.

(7) Reworded to be consistent with the single license/one SAR concept. Staff.

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 for 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 chaper. 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 treatment of gaseous and liquid effleunts and from other sources.

(8) A plan for the conduct of operations, including the planned managerial and administrative controls system, and the applicant's organization, and program for the training of personnel pursuant to Subpart I of this Part.

(9) If the proposed ISFSI incorporates structures, systems, or components important to safety whose functional adequacy or reliability have not been demonstrated by prior use for that purpose or cannot be demonstrated by reference to performance data in related applications or to widely accepted engineering principles -- an identification of such structures, systems, or components along with a schedule showing how such safety questions will be resolved prior to the initial receipt of spent fuel for storage at the ISFSI.

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

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

(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 used for keeping levels of radioactive material in effluents to the environment as low as is reasonably achievable and within the exposure limits stated in § 72.67 of this part. The description shall include:

(i) An estimate of the quantity of each of the principal radionuclides expected to be released annually to the environment in liquid and gaseous effluents produced during normal ISFSI operations; and prior to the first receipt of spent fuel, a second estimate confirming the original estimate or, if the expected releases and exposures are significantly different from the original estimate;

(ii) A description of the equipment and processes used in radioactive waste systems; and

(9) Reworded to improve clarity and provide consistency. Public & Staff.

(i) Previous (i)(A) & (B) combined The term environment used instead of unrestricted area.

(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 infomation 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.

(iii) A general description of the provisions for packaging, storage, and disposal of solid wastes containing radioactive materials resulting from treatment of gaseous and liquid effluents and from other sources.

(13) An analysis of the potential dose or dose commitment to an individual outside the controlled area from accidents or natural phenomena events that result in the release of radioactive material to the environment or direct radiation from the ISFSI. The calculations of individual dose or dose commitment shall be performed for direct exposure, inhalation, and ingestion occurring as a result of the postulated design basis event.

(v) Deleted as redundant and improper application of ALARA principle. Staff.

(13) Reworded to better define requirement for dose analysis from accidents & natural phenomena. Such analysis should be on the duration of the event, not on an arbitrary time limit. Public & Staff.

(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-related 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.

(14) A description of the quality assurance program to be applied to the design, fabrication, construction, testing, and operation of the structures, systems, and components of the ISFSI important to safety, as required by § 72.80. The description of the quality assurance program shall identify structures, systems and components important to safety and shall show how the criteria in Appendix B to Part 50 of this chapter will be applied to those safety-related components, systems, and structures in a manner consistent with their importance to safety.

(15) A description of the detailed security measures for physical protection, including design features and the plans required by Subpart H of this Part.

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

(17) A description of the decommissioning plan required under § 72.18 of this Part.

§ 72.16 Contents of Application: Technical Specifications

Each application under this Part shall include proposed technical specifications in accordance with the requirements of § 72.33 and a summary statement of the bases and justifications for these technical specifications.

§ 72.17 Contents of Application: Applicant's Technical Qualifications.

Each application under this Part shall include:

(a) The technical qualifications, including training and experience, of the applicant to engage in the proposed activities.

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

(c) A description of the applicants' operating organization, delegations of responsibility and authority, and the minimum skills and experience qualifications relevant to the various levels of responsibility and authority.

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

(14) This section was reorganized for improved clarity. Staff.

(15) Reference updated.

§ 72.16 The term "technical specifications" was adopted as being more definitive of the type of license conditions addressed. Staff.

(c) Section rewritten to better express intent of this requirement.

§ 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. The 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.

§ 72.18 Decommissioning Plan, Including Financing.

(a) Each application under this part shall include a proposed decommissioning plan that contains sufficient information on proposed practices and procedures for the decontamination of the site and facilities and for disposal of residual radioactive materials after all spent fuel has been removed, in order to provide reasonable assurance that the decontamination and decommissioning of the ISFSI at the end of its useful life will provide adequate protection to the health and safety of the public. This plan shall identify and discuss those design features of the ISFSI that facilitate its decontamination and decommissioning at the end of its useful life

(b) The decommissioning plan shall include the financial arrangements made by the applicant to provide reasonable assurance that the planned decontamination and decommissioning of the ISFSI will be carried out.

§ 72.19 Emergency Plan.

An application to store spent fuel in an ISFSI shall 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.

(a) Rewritten to improve clarity on the requirements of the decommissioning plan. One objective of the proposed decommissioning plan is to provide input for design decommissioning. Public & Staff.

(b) Reworded to improve clarity & better define requirements.

§ 72.21 Required Licensing Documents

Section	Document	No. of Copies	Signed Originals
72.14	License Application	25	3
72.15	Safety Analysis Report[a/]	70	
72.18	Decommissioning Plan[a/]	25	
72.19	Emergency Plan[a/]	25	
72.20	Environmental Report[a/]	150	
72.35(b)	Report of ISFSI Design and Procedures Changes	25	3
72.36(b)	Application for Transfer of License	25	3
72.38	Application for Termination of License	25	3
72.39	Amendment to License	25	3
72.80	Quality Assurance Program[a/]	25	
72.81	Physical Security Plan[a/b/]	10	
72.82	Design for Physical Protection[a/b/]	10	
72.83	Safeguards Contingency Plan[a/b/]	10	
72.84	Changes to Physical Security and Contingency Plans	10	
72.92	Personnel Training Program[a/]	25	

a/Submitted with license application.
b/Physical protection plans will be withheld from public disclosure by the NRC.

§ 72.21 Table moved from § 72.14. Updated list. Public.

Subpart C—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 appropropriate 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.

Subpart C - Issuance and Conditions of Licenses

§ 72.31 Issuance of Licenses.

(a) Except as provided in paragraph (c) of this section, the Commission will issue a license under this Part upon a determination that the application for a license meets the standards and requirements of the Act and the regulations of the Commission, and upon finding that:

(1) The applicant's proposed ISFSI design complies with Subpart F of this part;

(2) The proposed site complies with the criteria in Subpart E of this Part;

(3) If on the site of a nuclear power plant or other licensed activity or facility, the proposed ISFSI would not pose an undue risk to the safe operation of such nuclear power plant or other licensed activity or facility;

(4) The applicant is qualified by reason of training and experience to conduct the operation covered by the regulations in this Part;

§ 72.31 was extensively revised and new sections added

(1) Reference updated.

(2) Reference updated.

(3) New Section.

(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.

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

(6) The applicant is financially qualified to engage in the proposed activities in accordance with the regulations in this Part;

(7) The applicant's quality assurance plan complies with Subpart G of this Part;

(8) The applicant's physical protection provisions comply with Subpart H of this Part;

(9) The applicant's personnel training program complies with Subpart I of this Part;

(10) The applicant's decommissioning plan and its financing pursuant to § 72.18 of this Part provide reasonable assurance that the decontamination and decommissioning of the ISFSI at the end of its useful life will provide adequate protection to the health and safety of the public;

(11) The applicant's emergency plan complies with § 72.19 of this Part;

(12) The applicable provisions of Part 170 of this chapter have been satisfied;

(13) There is reasonable assurance that (i) the activities authorized by the license can be conducted without endangering the health and safety of the public and (ii) such activities will be conducted in compliance with the applicable regulations of this Chapter; and

(14) The issuance of the license will not be inimical to the common defense and security.

(b) Grounds for denial for a license to store spent fuel in the proposed ISFSI may be commencement of construction prior to a conclusion or finding by the Director of the Office of Nuclear Materials Safety and Safeguards or his designee or after a public hearing, the Presiding Officer, Atomic Safety and Licensing Board, or the Commission acting as a collegial body, as appropriate, on the basis of information filed and

(7) Reference updated.

(8) Reference updated.

(10) Reworded to improve clarity & better define requirements.

(12) New section.

(13) Formally covered in (a) of this subpart.

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.

(c) For facilities that have been covered under previous licensing actions including the issuance of a Construction Permit under Part 50 of this chapter, a reevaluation of the site is not required except where new information is discovered which could alter the original site evaluation findings. In this case, the site evaluation factors involved will be reevaluated.

(c) New section. Staff

§ 72.32 Duration of License; Renewal.

§ 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.

(a) Each license issued under this Part shall be for a fixed period of time to be specified in the license but not to exceed 20 years from the date of issuance. Licenses may be renewed by the Commission at the expiration of that period upon application of the licensee.

(a) Reworded to improve clarity. Public & Staff.

(b) Applications for renewal of a license should be filed in accordance with the applicable provisions of Subpart B of this Part at least two years prior to the expiration of the existing license. Information contained in previous applications, statements, or reports filed with the Commission under the license may be incorporated by reference: Provided, that such references are clear and specific.

(b) Redundant, but section added in response to comments. Public.

(c) In any case in which a licensee, not less than 2 years prior to expiration of his existing license, has filed an application in proper form for renewal of a license, such existing license shall not expire until a final decision concerning the application for renewal has been made by the Commission.

(c) Section added for consistency with other NRC regulations. Staff.

§ 72.33 License Conditions.

§ 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 in-

(a) Each license issued under this part shall include license conditions. The license conditions may be derived from the analyses and evaluations included in the safety analysis report and amendments thereto submitted

§72.33 was restructured to cover legal & administrative subjects under (b) & technical subjects under (c).

cluded 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:

pursuant to § 72.15 of this part. License conditions pertain to design, construction and operation. The Commission may also include such additional license conditions as it finds appropriate.

(b) Every license issued under this Part shall be subject to the following conditions, even if they are not explicitly stated therein:

(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 in accordance with the procedures provided by the Atomic Energy Act and Commission regulations.

(3) Upon request of the Commission, the licensee shall, at any time before expiration of the license, 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 that meets the requirements of Subpart I of this Part.

(5) The licensee shall permit the operation of the safety-related equipment and controls of the ISFSI only by personnel whom the licensee has certified as being adequately trained to perform such operations, or by uncertified personnel who are under the direct visual supervision of a certified individual.

(c) Technical specifications submitted pursuant to § 72.16 of this Part shall include requirements in the following categories:

(b) See former (c).

(1) See former (c)(1)

(2) See former (c)(2)

(3) See former (c)(3)

(4) See former (c)(4)

(5) See former (c)(5). Reworded to cover trainees under supervision. Public

(c) The term "technical specification" is considered more meaningful in this context. Staff.

(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) Functional and operating limits and monitoring instruments and limiting control settings. (i) Functional and operating limits for an ISFSI are limits on fuel handling and storage conditions that are found to be necessary to protect the integrity of the stored fuel, to protect employees against occupational exposures and to guard against the uncontrolled release of radioactive materials. (ii) Monitoring instruments and limiting control settings for an ISFSI are those related to 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 include: (i) inspections of spent fuel in storage and monitoring; (ii) inspection, test and calibration activities to ensure that the necessary integrity of required systems, components and the spent fuel in storage is maintained; (iii) confirmation that operation of the ISFSI is within the required functional and operating limits; and (iv) a confirmation that the limiting conditions required for safe storage are met.

(4) Design features. Design features include items that would have a significant effect on safety if altered or modified, such as materials of construction and geometric arrangements.

(5) Administrative controls. Administrative controls include the 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.

(d) Each license authorizing the storage of spent fuels under this Part shall include technical specifications that, in addition to stating the limits on the release of radioactive materials for compliance with the limits of Part 20 of this chapter and the "as low as is reasonably achievable objectives" for effluents, require that:

(1) See former (b)(1).

(2) See former (b) (2).

(3) See former (b)(3). Reworded to improve clarity. Staff.

(4) See former (b)(4).

(5) See former (b)(5).

(d) First sentence deleted; not a requirement.

(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 occurences 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 by procedures for control of effluents by 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).

(1) Operating procedures for control of effluents be established and followed, and equipment in the radioactive waste treatment systems be maintained and used, to meet the requirements of § 72.67 of this Part;

(2) An environmental monitoring program be established to ensure compliance with the technical specifications for effluents; and

(3) An annual report be submitted to the appropriate regional office specified in Appendix D of Part 20 of this Chapter, with a copy to the Director, Office of Nuclear Material Safety and Safeguards, within 60 days after January 1 of each year, specifying the quantity of each of the principal radionuclides released to the environment in liquid and in gaseous effluents during the previous 12 months of operation and such other information as may be required by the Commission to estimate maximum potential radiation dose commitment to the public resulting from effluent releases. 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) The licensee shall make no change that would decrease the effectiveness of the physical security plan prepared pursuant to § 72.81 of this Part without the prior approval of the Commission. A licensee desiring to make such a change shall submit an application for an amendment to the license pursuant to § 72.39 of this Part. A licensee may make changes to the physical security plan without prior Commission approval, provided that such changes do not decrease the effectiveness of the plan. The licensee shall furnish to the Commission a report containing a description of each change within two months after the change is made, and shall maintain records of changes to the plan made without prior Commission approval for a period of two years from the date of the change.

(1) Reworded for internal consistency. Staff

(2) An added requirements. Staff.

(3) An annual report is considered adequate for the small releases expected from an ISFSI. Staff.

(e) Moved from § 72.35. Reworded at the suggestion of the staff.

(f) A licensee shall follow and maintain in effect an emergency plan that is approved by the Commission. The licensee may make changes to the approved plan without Commission approval only if such changes do not decrease the effectiveness of the plan, and if the plan, as changed, continues to contain the elements of Section IV of Appendix E of 10 CFR Part 50. Within six months after any such change is made, the licensee shall submit a report containing a description of any changes made in the plan to the appropriate NRC regional office specified in Appendix D to Part 20 of this chapter with a copy to the Director, Office of Nuclear Material Safety and Safeguards. Proposed changes that decrease the effectiveness of the approved emergency plan shall not be implemented unless the licensee has received prior approval of such changes from the Commission.

(f) Added requirement. Staff.

§72.34 Public Hearings.

(a) In connection with each application for a license or an amendment to a license under this Part, the Commission shall issue or cause to be issued a notice of hearing in accordance with § 2.104, or a notice of proposed action in accordance with § 2.105, of this chapter, as appropriate. Except as provided in paragraph (b) of this section, a hearing may not be held until after 30 days' notice and publication once in the FEDERAL REGISTER.

(b) In the absence of a request for hearing by any person whose interest may be affected, the Commission may issue a license or an amendment to a license without a hearing upon 30 days' notice and publication once in the FEDERAL REGISTER of its intent to do so. The Commission may dispense with such 30 days' notice and publication with respect to an application for an amendment to a license issued under this Part upon a determination by the Commission that the amendment does not involve a significant hazards consideration or an unreviewed safety question.

§ 72.34. Added requirement covering public hearings which reflect current licensing practice for spent fuel storage. Staff.

§ 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 defined in the basis for any license condition is reduced.

(b) The licensee shall maintain records of changes in the installation and of changes in procedures made pursuant to this section, to the extent that such changes constitute changes in the installation as described in the safety analysis report or constitute changes in procedures as described in the safety analysis report. The licensee shall also maintain records of tests and experiments carried out pursuant to paragraph (a) of this section. These records shall include a written safety evaluation which provides the bases for the determination that the change, test or experiment does not involve an unreviewed safety question. The licensee shall furnish to the Commission, or the appropriate regional office, 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. Any

§ 72.35 Changes, Tests and Experiments.

(a)(1) The holder of a license issued under this Part may, without prior Commission approval unless the proposed change, test or experiment involves a change in the license conditions incorporated in the license, an unreviewed safety question, significant increase in occupational exposure or a significant unreviewed environmental impact: (i) make changes in the ISFSI described in the Safety Analysis Report, (ii) make changes in the procedures described in the Safety Analysis Report, or (iii) conduct tests or experiments not described in the Safety Analysis Report.

(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; (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 defined in the basis for any technical specification is reduced.

(b)(1) The licensee shall maintain records of changes in the ISFSI and of changes in procedures made pursuant to this section if such changes constitute changes in the ISFSI or procedures described in the Safety Analysis Report. The licensee shall also maintain records of tests and experiments carried out pursuant to paragraph (a) of this section. These records shall include a written safety evaluation that provides the bases for the determination that the change, test, or experiment does not involve an unreviewed safety question. The records of changes in the ISFSI and of changes in procedures and records of tests shall be maintained for the lifetime of the ISFSI.

(2) Annually, or at such shorter interval as may be specified in the license, the licensee shall furnish to the appropriate regional office, specified in Appendix D of Part 20 of this chapter, with a copy to the Director, Office of Nuclear Material and Safeguards, a report containing

(a)(1) Reworded to improve clarity.

(2) Reworded to clarify requirement and distribution.

report submitted by a licensee pursuant to this paragraph will be made a part of the public record of the licensing proceeding. In addition to a signed original, 12 copies of each report of changes shall be filed. The records of changes in the installation and of changes in procedures and records of tests shall be maintained for the lifetime of the installation.

(c) The holder of a license issued under this part who desires (1) a change in license conditions or (2) to make a change in the installation or the procedures described in the safety analysis report or to conduct tests or experiments not described in the safety analysis report, which involve an unreviewed safety question or a change in license conditions, shall submit an application for amendment of his license pursuant to § 72.39.

(d) The licensee shall make no change which would decrease the effectiveness of the physical security plan prepared pursuant to § 72.81 without the prior approval of the Co mission. A licensee desiring to make such a change shall submit an application for an amendment to his license purusant to § 72.39. The licensee shall maintain records of changes to the plan made without prior Commission approval, for a period of 2 years from the date of the change, and shall furnish the Commission a report containing a description of each change within 2 months after the change is made.

TRANSFERS OF LICENSES—CREDI RS' RIGHTS—SURRENDER OF LICENSES

§ 72.36 Transfer of licenses.

(a) No license issued under this part or any right thereunder, shall be transferred, assigned, or in any manner disposed of, either voluntarily or involuntarily, directly or indirectly, through transfer of control of the license to any person, unless the Commission shall give its consent in writing.

a brief description of such changes, tests, and experiments, including a summary of the safety evaluation of each. Any report submitted by a licensee pursuant to this paragraph will be made a part of the public record pertaining to this license.

(c) The holder of a license issued under this Part who desires (1) to change the license conditions, (2) to change the ISFSI or the procedures described in the Safety Analysis Report, or (3) to conduct tests or experiments not described in the Safety Analysis Report that involve an unreviewed safety question, a significant increase in occupational exposure, or significant unreviewed environmental impact, shall submit an application for amendment of the license, pursuant to § 72.39 of this Part.

§ 72.36 Transfer of Licenses.

(a) No license or any right included in a license issued under this Part shall be transferred, assigned, or in any manner disposed of, either voluntarily or involuntarily, directly or indirectly, through transfer of control of the license to any person, unless the Commission gives its consent in writing.

(d) Moved to § 72.33. Staff.

(b)(1) An application for transfer of a license shall include as much of the information described in §§ 72.14, 72.15 and 72.16 with respect to the identity and technical and financial qualifications of the proposed transferee as would be required by those sections if the applications were for an initial license. One signed original of the application executed under oath or affirmation plus 25 copies shall be submitted.

(2) The Commission may require additional information such as data respecting proposed protection from radioactive materials and the applicant's qualifications in this technology. The application shall include also a statement of the purposes for which the transfer of the license is requested and the nature of the transaction necessitating or making desirable the transfer of the license.

(3) The Commission may require any person who submits an application for license pursuant to the provisions of this section to file a written consent from the existing licensee or a certified copy of an order or judgment of a court of competent jurisdiction attesting to the person's right subject to the licensing requirements of the Act and these regulations to possession of the spent fuel and the storage installation involved.

(c) After appropriate notice to interested persons, including the existing licensee, and observance of such procedures as may be required by the act or regulations or orders of the Commission, the Commission will approve an application for the transfer of a license, if the Commission determines:

(1) That the proposed transferee is qualified to be the holder of the license; and

(2) That transfer of the license is otherwise consistent with applicable provisions of law, regulations, and orders issued by the Commission pursuant thereto.

(b)(1) An application for transfer of a license shall include as much of the information described in §§ 72.14 and 72.17 of this Part with respect to the identity and the technical and financial qualifications of the proposed transferee as would be required by those sections if the application were for an initial license. The application shall also include a statement of the purposes for which the transfer of the license is requested and the nature of the transaction necessitating or making desirable the transfer of the license.

(2) The Commission may require any person who submits an application for the transfer of a license pursuant to the provisions of this section to file a written consent from the existing licensee, or a certified copy of an order or judgment of a court of competent jurisdiction, attesting to the person's right - subject to the licensing requirements of the Act and these regulations - to possession of the spent fuel and the ISFS involved.

(c) After appropriate notice to interested persons, including the existing licensee, and observance of such procedures as may be required by the Act or regulations or orders of the Commission, the Commission will approve an application for the transfer of a license, if the Commission determines:

(1) That the proposed transferee is qualified to be the holder of the license; and

(2) That transfer of the license is consistent with applicable provisions of the law, and the regulations and orders issued by the Commission pursuant thereto.

Old (2) First sentence deleted as redundant to requirements in §§ 72.16 & 72.31. Second sentence incorporated in paragraph (b)(1). Staff

§ 72.37 Creditor regulations.

(a) Pursuant to section 184 of the act, the Commission consents, without individual application, to the creation of any mortgage, pledge, or other lien upon special nuclear material contained in spent fuel not owned by the United States which is the subject of a license or upon any interest in such special nuclear material in spent fuel: *Provided:*

(1) That the rights of any creditor so secured may be exercised only in compliance with and subject to the same requirements and restrictions as would apply to the licensee pursuant to the provisions of the license, the Atomic Energy Act of 1954, as amended, and regulations issued by the Commission pursuant to said act; and

(2) That no creditor so secured may take possession of the spent fuel pursuant to the provisions of this section prior to either the issuance of a license from the Commission authorizing such possession or the transfer of the license.

(b) Any creditor so secured may apply for transfer of the license covering such spent fuel by filing an application for transfer of the license pursuant to § 72.36(b). The Commission will act upon such application pursuant to § 72.36(c).

(c) Nothing contained in this regulation shall be deemed to affect the means of acquiring, or the priority of, any tax lien or other lien provided by law.

(d) As used in this section, "Creditor" includes, without implied limitation, the trustee under any mortgage, pledge or lien on spent fuel in storage made to secure any creditor, any trustee or receiver of such spent fuel appointed by a court of competent jurisdiction in any action brought for the benefit of any creditor secured by such mortgage, pledge or lien, any purchaser of such spent fuel at the sale thereof upon foreclosure of such mortgage, pledge, or lien or upon exercise of any power of sale contained therein, or any assignee of any such purchaser.

§ 72.37 Creditor Regulations.

(a) Pursuant to section 184 of the Act, the Commission consents, without individual application, to the creation of any mortgage, pledge, or other lien on special nuclear material contained in spent fuel not owned by the United States that is the subject of a license or on any interest in such special nuclear material in spent fuel: Provided:

(1) That the rights of any creditor so secured may be exercised only in compliance with and subject to the same requirements and restrictions as would apply to the licensee pursuant to the provisions of the license, the Atomic Energy Act of 1954, as amended, and regulations issued by the Commission pursuant to said Act; and

(2) That no creditor so secured may take possession of the spent fuel pursuant to the provisions of this section prior to either the issuance of a license from the Commission authorizing such possession or the transfer of the license.

(b) Any creditor so secured may apply for transfer of the license covering such spent fuel by filing an application for transfer of the license pursuant to § 72.36(b). The Commission will act upon such application pursuant to § 72.36(c).

(c) Nothing contained in this regulation shall be deemed to affect the means of acquiring, or the priority of, any tax lien or other lien provided by law.

(d) As used in this section, "creditor" includes, without implied limitation, the trustee under any mortgage, pledge, or lien on spent fuel in storage made to secure any creditor; any trustee or receiver of such spent fuel appointed by a court of competent jurisdiction in any action brought for the benefit of any creditor secured by such mortgage, pledge or lien; any purchaser of such spent fuel at the sale thereof upon foreclosure of such mortgage, pledge, or lien or upon exercise of any power of sale contained therein; or any assignee of any such purchaser.

§ 72.38 Applications for termination of licenses.

(a) Any licensee may apply to the Commission for authority to surrender a license voluntarily and to dismantle the installation and dispose of the materials stored therein. The Commission may require information, including information as to proposed procedures for the disposal of radioactive material, decontamination of the site, to provide reasonable assurance that the decommissioning and disposal will be performed in accordance with the regulations in this chapter and will not be inimical to the common defense and security or to the health and safety of the public. The application for termination of a license issued under this part shall be submitted as one signed original plus 25 copies.

(b) If the application demonstrates that the decommissioning of the installation and disposal of the materials stored therein will be performed in accordance with the regulations in this chapter and will not be inimical to the common defense and security or to the health and safety of the public, and after notice to interested persons, the Commission may issue an order authorizing such decommissioning and disposal, 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.

§ 72.38 Applications for Termination of Licenses

(a) The licensee shall apply to the Commission for authority to surrender a license voluntarily and to decommission the ISFSI and dispose of the materials stored therein. The Commission may require information, including information as to proposed procedures for the disposal of radioactive material and decontamination of the site, to determine whether there is reasonable assurance that the decommissioning and disposal will be performed in accordance with the regulations in this chapter and will not be inimical to the common defense and security or to the health and safety of the public.

(a) Reworded to improve clarity.

(b) Upon a finding of reasonable assurance that the decommissioning of the ISFSI and disposal of the materials stored therein will be performed in accordance with the regulations in this chapter and will provide adequate protection to the health and safety of the public, and after notice to interested persons, the Commission will authorize such decommissioning and disposal and terminate the license upon completion of such procedures in accordance with any conditions specified in the authorization.

(b) Reworded to improve clarity.

§ 72.39 Application for Amendment of 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 that govern the issuance of initial licenses.

§ 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.

§ 72.41 Modification, Revocation, and Suspension 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 modified, revoked, or suspended in whole or in part for any of the following: (i) for any material false statement in the application or in any statement of fact required under Section 182 of the Act; (ii) conditions revealed by such application or statement of fact or any report, record, inspection or other means which would warrant the Commission to refuse to grant a license on an original application; (iii) failure to operate an ISFSI in accordance with the terms of the license; (iv) violation of, or failure to observe any of, the terms and conditions of the Act, or of any applicable regulation, license, or order of the Commission.

(c) Upon revocation 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 prior to following any of the procedures provided under sections 551-558 of title 5 of the United States Code, may cause the taking of possession of any special nuclear material contained in spent fuel held by the licensee.

(c) Reworded to broaden scope of requirement. Staff.

§ 72.42 Backfitting.

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

(a) Reworded to include the environment. Staff.

(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

(b) 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 ISFSI as it deems appropriate.

Old (c) Deleted, redundant.

Subpart D - Records, Reports, Inspections, and Enforcement

§72.50 Safety Analysis Report Updating

§ 72.50 was formerly 72.15(b).

(a) The design, description of planned operations, and other information submitted in the Safety Analysis Report shall be updated by the licensee and submitted to the Commission at least once every six months after issuance of the license during final design and construction, until preocupational testing is completed, with final completion and submittal to the Commission at least 90 days prior to the planned receipt of spent fuel. This final submittal shall include a final analysis and evaluation of the design and performance of structures, systems, and components that are important to safety taking into account any pertinent information developed since the submittal of the license application. Changes affecting safety margins will require Commission approval prior to the receipt of spent fuel.

(b) After the first receipt of spent fuel for storage, the Safety Analysis Report shall be updated annually and submitted to the Commission by the licensee. This submittal shall include the following:

(b) Reworded to improve clarity.

(1) New or revised 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 ISFSI, with emphasis upon (i) performance requirements, (ii) the bases, with technical justification therefor, upon which such requirements have been established, and (iii) evaluations showing that safety functions will be accomplished.

(3) An analysis of the significance of any changes to codes, standards, regulations, or regulatory guides which the licensee has committed to meeting the requirements that are applicable to the design, construction, or operation of the ISFSI.

(3) Add new paragraph concerning compliance to applicable documents. Staff.

§ 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

§ 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.

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

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

(d) Records of spent fuel in storage shall be kept in duplicate. The duplicate set of records shall be kept at a separate location sufficiently remote from the original records 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 five 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 appropriate NRC regional Office specified in Appendix D of Part 20 of this chapter by telephone and telegram or teletype, any case of accidental criticality and any loss of special nuclear material.

§ 72.52 Clarification of reference.

§ 72.53 Material Status Reports.

Each licensee shall complete and submit Material Status Reports to the Commission on Form NRC-742, in accordance with printed instructions for completing the form. The reports shall provide information concerning the special nuclear material contained in spent fuel possessed, received, transferred, disposed of, or lost by the licensee. All such reports shall

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.

§ 72.56 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, regulations, and orders of the Commission in effectuating the purposes of the Act.

(b) Each licensee shall, upon each issuance of its annual financial report, including the certified financial statements, file a copy thereof with the Commission.

(c) Records which are required by the regulations in this part or by the license conditions shall be maintained for a period specified by the appropriate regulation or license condition. If a retention period is not otherwise specified, such records shall be maintained until the Commission authorizes their disposition.

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 30 days after the end of the period covered by the report. The Commission may, when good cause is shown, permit a licensee to submit Material Status Reports at other times.

§ 72.54 Nuclear Material Transfer Reports.

Whenever the licensee transfers or receives spent fuel, the licensee shall complete and distribute a Nuclear Material Transaction Report on Form NRC-741. 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 and unloaded and its identity is verified.

§ 72.54 Reworded to improve clarity. Public & Staff.

§ 72.55 Other Records and Reports.

(a) Each licensee shall maintain any records and make any reports that may be required by the conditions of the license or by the rules, regulations, and orders of the Commission in effectuating the purposes of the Act.

(b) Each licensee shall furnish a copy of its annual financial report, including the certified financial statements, to the Commission.

(c) Records that are required by the regulations in this part or by the license conditions shall be maintained for the period specified by the appropriate regulation or license condition. If a retention period is not otherwise specified, such records shall be maintained until the Commission authorizes their disposition.

Order of §§ 72.55 & 52.56 reversed to improve continuity.

(d) Records which must be maintained pursuant to this part may be the original or a reproduced copy or microform if such reproduced copy or microform is duly authenticated by authorized personnel and the microform is capable of producing a clear and legible copy after storage for the period specified by Commission regulations.

(e) If there is a conflict between the Commission's regulations in this part, license condition, or other written Commission approval or authorization pertaining to the retention period for the same type of record, the retention period specified in the regulations in this part for such records shall apply unless the Commission, pursuant to § 72.8, has granted a specific exemption from the record retention requirements specified in the regulations in this part.

§ 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

(d) Any record that must be maintained pursuant to this Part may be either the original or a reproduced copy or microform provided that any reproduced copy or microform is duly authenticated by authorized personnel and that the microform is capable of producing a clear and legible copy after storage for the period specified by Commission regulations.

Old (e) deleted as unnecessary. Staff.

§ 72.56 Inspections and Tests.

§ 72.56 expanded per request of staff.

(a) Each licensee under this part shall permit inspection by duly authorized representatives of the Commission of his records, premises, activities and of spent fuel in possession related to the specific license as may be necessary to effectuate the purposes of the Act, including Section 105 of the Act.

(b) Each licensee under this Part 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)(1) Each licensee under this Part shall upon request by the Director, Office of Inspection and Enforcement provide rent-free office space for the exclusive use of the Commission inspection personnel. Heat, air conditioning, light, electrical outlets and janitorial services shall be furnished by each licensee. The office shall be convenient to and have full access to the installation and shall provide the inspector both visual and acoustic privacy.

(2) For a site with a single storage installation the space provided shall be adequate to accommodate a full-time inspector, a part-time

secretary and transient NRC personnel and will be generally commensurate with other office facilities at the site. A space of 250 sq. ft., either within the site's office complex or in an office trailer, or other on site space, is suggested as a guide. For sites containing multiple facilities additional space may be requested to accommodate additional full-time inspectors. The office space that is provided shall be subject to the approval of the Director, Office of Inspection and Enforcement. All furniture, supplies and Commission equipment shall be furnished by the Commission.

(3) Each licensee under this Part shall afford any NRC resident inspector assigned to that site, or other NRC inspectors identified by the Regional Director as likely to inspect the installation, immediate unfettered access, equivalent to access provided regular plant employees, following proper identification and compliance with applicable access control measures for security, radiological protection and personal safety.

(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.

(d) 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.

(e) A report of the preoperational test acceptance criteria and test results shall be submitted to the appropriate regional office specified in Appendix D of Part 20 of this chapter with a copy to the Director, Office of Nuclear Material Safety and Safeguards at least 30 days prior to the receipt of spent fuel.

§ 72.57 Violation.

An injunction or other court order may be obtained prohibiting any violation of any provision of the Atomic Energy Act of 1954, as amended, or Title II of the Energy Reorganization Act of 1974, as amended, or any regulation or order issued thereunder. A court order may be obtained for the payment of a civil penalty imposed pursuant to section 234 of the Atomic Energy Act for violation of section 53, 57, 62, 63, 81 or 82 of the Atomic

§ 72.57 Violation.

An injunction or other court order may be obtained prohibiting any violation of any provision of the Atomic Energy Act of 1954, as amended, or Title II of the Energy Reorganization Act of 1974, as amended, or any regulation or order issued thereunder. A court order may be obtained for the payment of a civil penalty imposed pursuant to section 234 of the Atomic Energy Act for violation of §§ 53, 57, 62, 63, 81, or 82

Energy Act, or section 206 of the Energy Reorganization Act of 1974, or any rule, regulation, or order issued thereunder, or any term, condition, or limitation of any license issued thereunder, or for any violation for which a license may be revoked under section 186 of the Atomic Energy Act. Any person who willfully violates any provision of the Atomic Energy Act, or any regulation or order issued thereunder, may be guilty of a crime and, upon conviction, may be punished by fine or imprisonment or both, as provided by law.

Subpart E—Siting criteria

§ 72.61 General Criteria.

(a) Site characteristics which may directly affect the safety of the ISFSI shall be investigated and assessed.

(b) Proposed sites for the ISFSI shall be examined with respect to the frequency and the severity of external natural and man-induced events that could affect the safe operation of the installation.

(c) Design basis external events shall be determined for each combination of proposed site and proposed installation design.

(d) Proposed sites with design basis external events for which adequate protection cannot be provided through installation design shall be deemed unsuitable for the location of the ISFSI.

(e) For each proposed site, the potential for radiological consequences in the region shall be evaluated with due consideration of the characteristics of the population, including its distribution.

(f) For each proposed site, pursuant to Part 51 of this chapter, the potential for environmental impact to the region shall be evaluated with due consideration of the characteristics of the regional environs, including its historical and aesthetic value.

of the Atomic Energy Act, or section 206 of the Energy Reorganization Act of 1974, or any rule, regulation, or order issued thereunder, or any term, condition, or limitation of any license issued thereunder, or for any violation for which a license may be revoked under section 186 of the Atomic Energy Act. Any person who willfully violates any provision of the Atomic Energy Act, or any regulation or order issued thereunder, may be guilty of a crime and, upon conviction, may be punished by fine or imprisonment or both, as provided by law.

Subpart E - Siting Evaluation Factors

§ 72.61 General Considerations.

(a) Site characteristics that may directly affect the safety or environmental impact of the ISFSI shall be investigated and assessed.

(b) Proposed sites for the ISFSI shall be examined with respect to the frequency and the severity of external natural and man-induced events that could affect the safe operation of the ISFSI.

(c) Design basis external events shall be determined for each combination of proposed site and proposed ISFSI design.

(d) Proposed sites with design basis external events for which adequate protection cannot be provided through ISFSI design shall be deemed unsuitable for the location of the ISFSI.

(e) For each proposed site, pursuant to Part 51 of this chapter, the potential for radiological and other environmental impacts on the region shall be evaluated with due consideration of the characteristics of the population, including its distribution, and of the regional environs, including its historical and esthetic values.

(f) The facility shall be sited so as to avoid to the extent possible the long-term and short-term adverse impacts associated with the occupancy and modification of floodplains.

(a) Environmental impact added, as NRC mandate covers both safety & environmental protection. Staff.

Old (f) incorporated in § 72.64; new (f) in response to comment from Dept. of Interior.

§ 72.62 Criteria for design basis external natural events.

(a) Natural phenomena which may exist or can occur in the region of a proposed site shall be identified and assessed according to their potential effects on the safe operation of the installation. The important natural phenomena for which design basis should be derived shall be identified.

(b) Historical records of the occurrence and severity of those important natural phenomena shall be collected for the region and evaluated for reliability, accuracy and completeness.

(c) Appropriate methods shall be adopted for establishing the design basis natural events for important natural phenomena. The methods should be justified as being compatible with the characteristics of the region and the current state of knowledge.

§ 72.63 Criteria for design basis external man-induced events.

(a) The region shall be examined for man-made facilities and activities that might endanger the proposed ISFSI. The important man-induced phenomena for which design basis external man-induced events should be derived shall be identified.

(b) Information concerning the occurrences and severity of those important man-induced phenomena shall be collected and analyzed for reliability, accuracy and completeness.

(c) Appropriate methods shall be adopted for establishing the design basis external man-induced events for those phenomena. The methods should be justified as being compatible with the characteristics of the region and the current state of knowledge.

§ 72.64 Criteria for defining potential effects of the ISFSI on the region.

(a) The proposed site shall be examined with respect to the effects on people in the region resulting from the release of radioactive materials under normal and accident conditions. In this evaluation unusual regional and site characteristics shall be taken into account.

(b) Each site shall be examined with respect to the effects on the regional

§ 72.62 Design Basis External Natural Events.

(a) Natural phenomena that may exist or that can occur in the region of a proposed site shall be identified and assessed according to their potential effects on the safe operation of the ISFSI. The important natural phenomena that affect the ISFSI design shall be identified.

(b) Records of the occurrence and severity of those important natural phenomena shall be collected for the region and evaluated for reliability, accuracy, and completeness.

(c) Appropriate methods shall be adopted for evaluating the design basis natural events based on the characteristics of the region and the current state of knowledge about such events.

§ 72.63 Design Basis External Man-Induced Events.

(a) The region shall be examined for both past and present man-made facilities and activities that might endanger the proposed ISFSI. The important potential man-induced events that affect the ISFSI design shall be identified.

(b) Information concerning the potential occurrence and severity of such events shall be collected and evaluated for reliability, accuracy, and completeness.

(c) Appropriate methods shall be adopted for evaluating the design basis external man-induced events, based on the current state of knowledge about such events.

§ 72.64 Identifying Regions Around an ISFSI Site

(a) The regional extent of external phenomena, man-made or natural, that are used as a basis for the design of the ISFSI shall be defined.

(b) The potential regional impact due to the construction, operation or decommissioning of the ISFSI shall be identified. The extent of such regional impacts shall be determined on the basis of potential measurable effects on the population or the environment, from ISFSI activities.

(c) Those regions identified pursuant to paragraphs (a) and (b) of this section shall be investigated as appropriate with respect to (i) the

§ 72.64. This is a new section incorporating some of the requirements of § 72.65 of the proposed rule. Other criteria were added to better define how a region is determined. More definitive requirements were deemed necessary for clarification. Public & Staff.

environment resulting from construction, operation and decommissioning of the ISFSI, in this evaluation unusual regional and site characteristics shall be taken into account.

(c) Effects which would otherwise be unacceptable shall be compensated for by the ISFSI design or the site shall be deemed unsuitable.

§ 72.65 Criteria for regional distribution of population.

(a) The proposed site shall be evaluated with respect to the present and future character and distribution of the human population of the region. Such evaluation, which should include consideration of present and projected future uses of land and water within the region, shall also take into account any special characteristics which may influence the potential consequences of a release of radioactive material during the operational lifetime of the ISFSI.

(b) A controlled area and a neighboring area shall be established for each site.

(c) The licensee shall have authority within the controlled area to determine all activities including exclusion or removal of personnel and property from the area.

(d) The neighboring area of a proposed site shall be evaluated from the perspective of the potential for adverse consequences to the human population or environment and of the capability of implementing protective measures as may be necessary to mitigate the immediate effects of a release of radioactive material.

(e) The distribution of the human population in the region surrounding the site shall be evaluated with respect to both the potential for adverse consequences to regional populations from normal and potential accidental releases of radioactive material during operations and decommissioning of the ISFSI.

(f) Effects which would otherwise be unacceptable shall be compensated for by the ISFSI design or the site shall be deemed unsuitable.

present and future character and the distribution of population, (ii) consideration of present and projected future uses of land and water within the region, and (iii) any special characteristics that may influence the potential consequences of a release of radioactive material during the operational lifetime of the ISFSI.

(d) If the distribution of population in any defined region is such that adequate protective action cannot be provided through emergency planning the proposed site shall be unsuitable for the location of an ISFSI.

§ 72.65 Defining Potential Effects of the ISFSI on the Region.

(a) The proposed site shall be evaluated with respect to the effects on populations in the region resulting from the release of radioactive materials under normal and accident conditions during operation and decommissioning of the ISFSI; in this evaluation both usual and unusual regional and site characteristics shall be taken into account.

(b) Each site shall be evaluated with respect to the effects on the regional environment resulting from construction, operation and decommissioning of the ISFSI; in this evaluation both usual and unusual regional and site characteristics shall be taken into account.

§ 72.65 These requirements were covered in § 72.64 in the proposed rule. The wording has been modified to improve clarity & for consistency of terminology. Public & Staff.

§ 72.66 Criteria for defining acceptable seismic characteristics.

(a) A peak horizontal ground acceleration of not greater than 0.25 g with a recurrence interval of at least 500 years (equivalent to a 90 percent probability of not being exceeded in 50 years) shall be deemed suitable for an ISFSI site and require only the foundation engineering and geologic hazards investigations covered in the following paragraph (b). However, as an alternative approach the applicant has the optionof establishing a site specific "g value" by the procedures of Part 100 of this chapter.

(b) An ISFSI founded on bedrock and (and meeting criterion "a") is acceptable, and no detailed site-specific earthquake analysis is required unless some unusual geologic characteristic is identified (e.g., active faulting, mass wasting, cavernous or karst terrain, subsidence collapse or uplift potential, etc.). If not founded on bedrock and where a potential exists for soil liquefaction or other soil instability due to vibratory ground motion or other anomaly, it must be shown by site-specific investigations and laboratory analysis that soil failure could not occur in the foundation materials during the operating life of the installation.

(c) For ISFSI designs other than the water basin type proposed sites will be evaluated on the basis of a site-specific investigation and analysis.

§ 72.66 Geological and Seismological Characteristics.

(a) Massive Water Basin and Air-Cooled Canyon Types of ISFSI Structures:

(1) East of the Rocky Mountain Front (east of approximately 104° west longitude), except in areas of known seismic activity including but not limited to the regions around New Madrid, Mo., Charleston, S.C., and Attica, N.Y., sites will be acceptable if the results from onsite foundation and geological investigation, literature review, and regional geological reconnaissance show no unstable geological characteristics, soil stability problems, or potential for vibratory ground motion at the site in excess of an appropriate response spectrum anchored at 0.2 g.

(2) West of the Rocky Mountain Front (west of approximately 104° west longitude), and in other areas of known potential seismic activity, seismicity will be evaluated by the techniques of Appendix A of Part 100 of this chapter. Sites that lie within the range of strong near-field ground motion from historical earthquakes on large capable faults should be avoided.

(3) Sites other than bedrock sites shall be evaluated for their liquefaction potential or other soil instability due to vibratory ground motion.

(4) Site-specific investigations and laboratory analyses must show that soil conditions are adequate for the proposed foundation loading.

(5) In an evaluation of alternative sites, those which require a minimum of engineered provisions to correct site deficiencies are preferred. Sites with unstable geologic characteristics should be avoided.

(6) The ISFSI design earthquake (ISFSI-DE) for use in the design of structures shall be determined as follows:

(a) For sites that have been evaluated under the criteria of Appendix A of 10 CFR Part 100, the ISFSI-DE shall be equivalent to the safe shutdown earthquake (SSE) for a nuclear power plant.

(a) This section was rewritten to differentiate between sites east and west of the Rocky Mountains and areas of low versus known seismic activity or surface offset potential. Public & Staff.

(b) For those sites that have not been evaluated under the criteria of Appendix A of 10 CFR Part 100, that are east of the Rocky Mountain Front, and that are not in areas of known seismic activity, a standardized ISFSI-DE described by an appropriate response spectrum anchored at 0.25 g may be used. Alternatively, a site-specific ISFSI-DE may be determined by using the criteria and level of investigations required by Appendix A of Part 100 of this chapter.

(c) Regardless of the results of the investigations anywhere in the continental U.S., the ISFSI-DE shall have a value for the horizontal ground motion of no less than 0.10 g with the appropriate response spectrum.

(b) Other types of ISFSI Designs.

For ISFSI designs that do not use massive water basins or air-cooled canyons, such as canisters, casks, or silos, a site specific investigation is required to establish site suitability commensurate with the specific requirements of the proposed ISFSI.

(b) Moved from § 72.72. This is a more logical section to define the design earthquake. Section has been rewritten and expanded to improve clarity.

§ 72.67 Criteria for defining potential radiological consequences.

(a) During normal operations and anticipated occurrences, the annual dose equivalent shall not exceed 25 mrem to the whole body, 75 mrem to the thyroid and 25 mrem to any other organ of an actual individual located outside the controlled area as a result of planned discharges of radioactive materials in the general environment.[2] In this evaluation unusual regional and site characteristics shall be taken into account.

(b) Under accident conditions, the calculated exposure from the controlling design basis accident shall not exceed 5 Rem in 2 hours at the outside boundary of the controlled area.

[2] 40 CFR 190.11.

§ 72.67 Criteria for Radioactive Materials in Effluents and Direct Radiation from an ISFSI.

(a) During normal operations and anticipated occurrences, the annual dose equivalent to any real individual who is located beyond the controlled area shall not exceed 25 mrem to the whole body, 75 mrem to the thyroid and 25 mrem to any other organ as a result of exposure to (1) planned discharges of radioactive materials, radon and its daughters excepted, to the general environment, (2) direct radiation from ISFSI operations and (3) any other radiation from uranium fuel cycle operations within the region.

(b) Operational restrictions shall be established to meet as low as is reasonably achievable objectives for radioactive materials in effluents and direct radiation levels associated with ISFSI operations.

(c) Operational limits shall be established for radioactive materials in effluents and direct radiation levels associated with ISFSI operations to meet the limits given in paragraph (a) of this section.

This section was rewritten to better clarity the requirements on effluents and direct radiation during normal operations and anticipated occurrences Accident criteria have been placed in a new section, 72.68. The requirement for an evaluation of direct radiation as a contributor to the exposure of individuals beyond the controlled area is an added requirement. ALARA objectitves shall be established in the Tech Specs for an ISFSI. Minor changes in wording have been made for clarification and consistency. Public & Staff.

Subpart F--General Design Criteria

§72.71 General design criteria.

Pursuant to the provisions of § 72.15, an application to store spent fuel in an ISFSI must include the principal design criteria for the proposed storage installation. The principal design criteria establish the design, fabrication, construction, testing, and performance requirements for structures, systems, and components important to safety, as defined in § 72.3. The general design criteria identified in this section establish minimum requirements for the principal safety-related design criteria for an ISFSI. Any omissions in these general design criteria do not relieve the applicant from the requirement of providing the necessary safety features in the design of this installation.

§ 72.68 Controlled Area of an ISFSI.

(a) For each ISFSI site, a controlled area shall be established.

(b) Any individual located on or beyond the nearest boundary of the controlled area shall not receive a dose greater than 5 rem to the whole body or any organ from any design basis accident. The minimum distance from the spent fuel handling and storage facilities to the nearest boundary of the controlled area shall be at least 100 meters.

(c) The controlled area may be traversed by a highway, railroad or waterway, so long as appropriate and effective arrangements are made to control traffic and to protect the public health and safety.

§ 72.69 ISFSI Emergency Planning Zone

(a) For each ISFSI site, an ISFSI Emergency Planning Zone (ISFSI-EPZ) shall be established. The ISFSI-EPZ shall provide reasonable assurance that protective actions beyond its outer boundary would not be necessary.

(b) The boundaries of an ISFSI-EPZ for a particular ISFSI will be determined on a case-by-case basis taking into account both the characteristics of the specific facility and local conditions such as demography, topography, land characteristics, access routes and local jurisdictional boundaries.

§72.70 Spent Fuel Transportation

The proposed ISFSI shall be evaluated with respect to the potential impact on the environment of spent fuel being transported into the area.

Subpart F - General Design Criteria

§ 72.71 General Considerations.

Pursuant to the provisions of § 72.15 of this Part, an application to store spent fuel in an ISFSI must include the design criteria for the proposed storage complex. These design criteria establish the design, fabrication, construction, testing, and performance requirements for structures, systems, and components important to safety as defined in § 72.3. The general design criteria identified in this section establish minimum requirements for the design criteria for an ISFSI. Any omissions in these general design criteria do not relieve the applicant from the requirement of providing the necessary safety features in the design of the ISFSI.

This is a new section. Some of these requirements were stated in §§ 72.65 & 72.67. Other criteria were added to better define how a controlled area is to be determined for the siting of an ISFSI. With the re-definition of controlled area, more definitive requirements were deemed necessary. Public & Staff.

This is a new section. The term ISFSI-EPZ replaces the term neighboring area used in the proposed rule. Some of these requirements are stated in the former § 72.65 but more definitive requirements were deemed necessary. Public & Staff.

This is a new section added in response to comment. Public

OVERALL REQUIREMENTS

(1) *Quality standards.* Structures, systems, and components important to safety shall be designed, fabricated, erected, and tested to quality standards commensurate with the importance of the function to be performed.

(2) Protection against Environmental Conditions and Natural Phenomena.

(i) Structures, systems, and components important to safety shall be designed to accommodate the effects of and to be compatible with site characteristics and environmental conditions associated with normal operation, maintenance and testing of the ISFSI, and with postulated accidents.

(ii) Structures, systems, and components important to safety shall be designed to withstand the effects of natural phenomena such as earthquakes (with a horizontal ground motion acceleration of at least 0.25g), tornadoes (excluding tornado missiles), lightning, hurricanes, floods, tsunami, and seiches without impairing their capability to perform safety functions. The design bases for these structures, systems, and components shall reflect: (A) Appropriate consideration of the most severe of the natural phenomena reported for the site and surrounding area, with appropriate margins to take into account the limitations in the quantity of the historical data and the period of time in which the data have been accumulated; and (B) appropriate combinations of the effects of normal and accident conditions and the effects of natural phenomena.

(iii) Capability for determining the intensity of natural phenomena which may occur for comparison with design bases of structures, systems, and components important to safety shall be provided.

(iv) If an ISFSI is located over an aquifer, measures must be taken to preclude the transport of radioactive materials to man and the environs through this potential pathway.

§ 72.72 Overall Requirements.

(a) Quality Standards.

Structures, systems, and components important to safety shall be designed, fabricated, erected, and tested to quality standards commensurate with the importance to safety of the function to be performed.

(b) Protection Against Environmental Conditions and Natural Phenomena.

(1) Structures, systems, and components important to safety shall be designed to accommodate the effects of, and to be compatible with, site characteristics and environmental conditions associated with normal operation, maintenance, and testing of the ISFSI; and to withstand postulated accidents.

(2) Structures, systems, and components important to safety shall be designed to withstand the effects of natural phenomena such as earthquakes, tornadoes, lightning, hurricanes, floods, tsunami, and seiches, without impairing their capability to perform safety functions. The design bases for these structures, systems, and components shall reflect (i) appropriate consideration of the most severe of the natural phenomena reported for the site and surrounding area, with appropriate margins to take into account the limitations of the data and the period of time in which the data have accumulated, and (ii) appropriate combinations of the effects of normal and accident conditions and the effects of natural phenomena. An ISFSI need not be protected from tornado missiles but should be designed to prevent massive collapse of building structures or the dropping of heavy objects onto the stored spent fuel as a result of building structural failures.

(3) Capability shall be provided for determining the intensity of natural phenomena that may occur for comparison with design bases of structures, systems, and components important to safety.

(4) If the ISFSI is located over an aquifer which is a major water resource, measures shall be taken to preclude the transport of radioactive materials to the environment through this potential pathway.

Old (ii) The design earthquake is now covered in § 72.66.

(2)(ii) Statement added concerning tornado missile protection. Staff.

(3) *Protection against fires and explosions.* Structures, systems, and components important to safety shall be designed and located so as to continue to perform their safety functions effectively under fire and explosion exposure conditions. Noncombustible and heat-resistant materials shall be used wherever practical throughout the installation, particularly in locations vital to the control of radioactive materials, and to the maintenance of safety control functions. Explosion and fire detection, alarm, and suppression systems shall be designed and provided with sufficient capacity and capability to minimize the adverse effects of fires and explosions on structures, systems, and components important to safety. The design of the facility shall include provisions to protect against adverse effects which might result from either the operation or the failure of the fire suppression system.

(c) Protection Against Fires and Explosions.

Structures, systems, and components important to safety shall be designed and located so that they can continue to perform their safety functions effectively under credible fire and explosion exposure conditions. Noncombustible and heat-resistant materials shall be used wherever practical throughout the ISFSI, particularly in locations vital to the control of radioactive materials and to the maintenance of safety control functions. Explosion and fire detection, alarm, and suppression systems shall be designed and provided with sufficient capacity and capability to minimize the adverse effects of fires and explosions on structures, systems, and components important to safety. The design of the ISFSI shall include provisions to protect against adverse effects that might result from either the operation or the failure of the fire suppression system.

(4) *Sharing of structures, systems, and components.* Structures, systems, and components important to safety shall not be shared between an ISFSI and other plants unless it is shown that such sharing will not impair the capability of the ISFSI to perform its safety functions, including the capability for return to a safe condition in the event of an accident or incident.

(d) Sharing of Structures, Systems, and Components

Structures, systems, and components important to safety shall not be shared between an ISFSI and other facilities unless it is shown that such sharing will not impair the capability of either facility to perform its safety functions, including the ability to return to a safe condition in the event of an accident.

(5) *Proximity of sites.* An ISFSI located near other nuclear facilities shall be designed and operated to ensure that the cumulative effects of their combined operations will not result in a significant additional risk to the health and safety of the public.

(e) Proximity of Sites.

An ISFSI located near other nuclear facilities shall be designed and operated to ensure that the cumulative effects of their combined operations will not constitute an unreasonable risk to the health and safety of the public.

(6) *Testing and maintenance of systems and components.* Systems and components that have safety-related functions shall be designed to permit inspection, maintenance, and testing to ensure their continued functioning to meet their design objectives.

(f) Testing and Maintenance of Systems and Components.

Systems and components that are important to safety shall be designed to permit inspection, maintenance, and testing.

(7) *Emergency capability.* Structure, systems, and components important to safety shall be designed to assure capability of continuity of operations and handling of the emergency. The design shall ensure capability for use, as necessary, of onsite facilities and available offsite facilities and services such as hospitals, fire and police departments, ambulance service, and other emergency agencies.

(g) Emergency Capability.

Structures, systems, and components important to safety shall be designed for emergencies. The design shall provide for accessibility to the equipment of onsite and available offsite emergency facilities and services such as hospitals, fire and police departments, ambulance service, and other emergency agencies.

(8) *Confinement barriers and systems.* (i) The fuel cladding shall be protected against degradation and gross ruptures.

(ii) For underwater storage of spent fuel in which the pool water serves as a shield and a confinement medium for radioactive materials, systems designed for maintaining water purity and the pool water level shall be designed so that any maloperation or failure in those systems from any cause will not cause the water level to fall below safe limits. Drains, permanently connected systems and other features that by maloperation or failure could cause a significant loss of water shall not be installed or included in the design. Pool water level monitoring equipment shall be provided to alarm both locally and in a continuously manned location if the water level in the fuel storage pools falls below a predetermined level.

(iii) Ventilation systems shall be provided where necessary, e.g., for the cask venting station, to assure the confinement of airborne radioactive particulate materials during normal or off-normal conditions.

(9) *Instrumentation and control systems.* Instrumentation and control systems shall be provided to monitor safety-related systems over anticipated ranges for normal operation and off-normal operation. Those instruments and control systems which must remain operational under accident conditions must be identified and designed to remain operable.

(10) *Control room or control areas.* A control room or control areas shall be designed to permit occupancy and actions to be taken to operate and monitor the ISFSI safely under normal conditions and to maintain the ISFSI in a safe condition under off-normal or accident conditions.

(11) *Utility services.* (i) The design of each utility service system required for emergency conditions shall provide for the meeting of safety demands under normal and off-normal conditions. The design of safety-related utility services and distribution shall include redundant systems to the extent necessary to maintain, with adequate capacity, the ability to perform safety functions assuming a single failure.

(h) Confinement Barriers and Systems.

(1) The fuel cladding shall be protected against degradation and gross ruptures.

(2) For underwater storage of spent fuel in which the pool water serves as a shield and a confinement medium for radioactive materials, systems designed for maintaining water purity and the pool water level shall be designed so that any abnormal operations or failure in those systems from any cause will not cause the water level to fall below safe limits. The design shall preclude installations of drains, permanently connected systems, and other features that could by abnormal operations or failure cause a significant loss of water. Pool water level equipment shall be provided to alarm in a continuously manned location if the water level in the fuel storage pools falls below a predetermined level.

(3) Ventilation and off-gas systems shall be provided where necessary to ensure the confinement of airborne radioactive particulate materials during normal or off-normal conditions.

(i) Instrumentation and Control Systems.

Instrumentation and control systems shall be provided to monitor systems that are important to safety over anticipated ranges for normal operation and off-normal operation. Those instruments and control systems that must remain operational under accident conditions shall be identified in the Safety Analysis Report.

(j) Control Room or Control Areas.

A control room or control areas shall be designed to permit occupancy and actions to be taken to monitor the ISFSI safely under normal conditions, and to provide safe control of the ISFSI under off-normal or accident conditions.

(j) Revised to accentuate monitoring and safe controls. Public & Staff.

(k) Utility Services.

(1) Each utility service system shall be designed to meet emergency conditions. The design of utility services and distribution systems that are important to safety shall include redundant systems to the extent necessary to maintain, with adequate capacity, the ability to perform safety functions assuming a single failure.

(ii) Emergency utility services shall be designed to permit testing of the functional operability and capacity, including the full operational sequence, of each system for transfer between normal and emergency supply sources, and the operation of associated safety systems.

(iii) Provisions shall be made so that, in the event of a loss of the primary electric power source or circuit, reliable and timely emergency power will be provided to instruments, utility service systems, and operating systems including the security central alarm station, in amounts sufficient to allow safe storage conditions to be maintained with all safety devices essential to safe storage functioning.

(2) Emergency utility services shall be designed to permit testing of the functional operability and capacity, including the full operational sequence, of each system for transfer between normal and emergency supply sources; and to permit the operation of associated safety systems.

(3) Provisions shall be made so that, in the event of a loss of the primary electric power source or circuit, reliable and timely emergency power will be provided to instruments, utility service systems, the central security alarm station, and operating systems, in amounts sufficient to allow safe storage conditions to be maintained and to permit continued functioning of all systems essential to safe storage.

NUCLEAR CRITICALITY SAFETY

(12) *Design for criticality safety.* All handling, transfer and storage systems shall be designed to be maintained subcritical and to insure that no nuclear criticality accident can occur unless at least two unlikely (i.e., very low probability), independent, and concurrent or sequential changes have occurred in the conditions essential to nuclear criticality safety. The design of handling, transfer and storage systems shall include margins of safety for the nuclear criticality parameters that are commensurate with the uncertainties in the handling, transfer, and storage conditions, in the data and methods used in calculations, and in the nature of the immediate environment under accident conditions.

(13) *Acceptable methods of control.* (i) Favorable geometry (spacing) is the standard method of nuclear criticality control. Subcriticality is assured by limiting the reactivity through the control of spacing of the individual storage unit (one or more fuel assemblies), and for underwater storage, by the neutron absorption by the water between storage units. Storage racks must be structurally compatible with seismic design criteria.

(ii) The use of permanently fixed neutron-absorbing materials (poisons) is an alternative method of criticality control. Where solid neutron-absorbing materials are used for the prevention of nuclear criticality, the design shall provide for positive means to verify their continued efficacy.

§ 72.)3 Criteria for Nuclear Criticality Safety

(a) Design for Criticality Safety.

Spent fuel handling, transfer, and storage systems shall be designed to be maintained subcritical and to prevent a nuclear criticality accident. The design of handling, transfer, and storage systems shall include margins of safety for the nuclear criticality parameters that are commensurate with the uncertainties in the handling, transfer and storage conditions, in the data and methods used in calculations, and in the nature of the immediate environment under accident conditions.

(b) Methods of Criticality Control.

The design of an ISFSI shall be based on either favorable geometry (spacing) or permanently fixed neutron absorbing materials (poisons). Where solid neutron absorbing materials are used, the design shall provide for positive means to verify their continued efficacy. In criticality design analyses for underwater storage systems, credit can be taken for the neutron absorption of rack structures and the water within the storage unit.

(b) Rewritten to improve clarity Staff.

RADIOLOGICAL PROTECTION

(14) *Exposure control.* Appropriate radiation protection systems and programs shall be provided for all areas and operations where plant personnel may be exposed to levels of radiation or airborne radioactive materials significantly above background levels to insure that exposures are within the limits of Part 20 and are as low as is reasonably achievable. Structures, systems, and components for which operation, maintenance, and required inspections may involve such exposure shall be designed, fabricated, located, shielded, controlled and tested so as to control external and internal radiation exposures to personnel. This shall include means to:

(i) Prevent the accumulation of or provide for decreasing the content of radioactive material in those systems to which access by personnel is required;

(ii) Provide for control of access to areas of potential contamination or high radiation within the ISFSI;

(iii) Assure that contamination can be monitored and controlled;

(iv) Minimize the time required to perform work in the vicinity of radioactive components, such as by providing sufficient space for ease of operation and designing equipment for ease of repair and replacement; and

(v) Provide shielding to assure that exposures to personnel in accessible areas are within the limits of Part 20 and are as low as is reasonably achievable.

(15) *Radiation alarm systems.* Radiation alarm systems shall be provided to warn operating personnel of significant increases in radiation levels in accessible work areas and of excessive concentrations of radioactive material in effluents. Such systems shall be designed with capability to permit testing of their operability.

(16) *Effluent monitoring.* Effluent systems shall be designed to include means for measuring the amount of radionuclides in any effluent. In order that the data thus measured and recorded can be used, a means of measuring the flow of environmental diluting media, either air or water, shall be provided.

§ 72.74 Criteria for Radiological Protection

(a) Exposure Control.

Radiation protection systems shall be provided for all areas and operations where onsite personnel may be exposed to radiation or airborne radioactive materials. Structures, systems, and components for which operation, maintenance, and required inspections may involve such exposure shall be designed, fabricated, located, shielded, controlled, and tested so as to control external and internal radiation exposures to personnel. The design shall include means to:

(1) prevent the accumulation of radioactive material in those systems requiring access;

(2) decontaminate those systems to which access is required;

(3) control access to areas of potential contamination or high radiation within the ISFSI;

(4) measure and control contamination of areas requiring access;

(5) minimize the time required to perform work in the vicinity of radioactive components; for example, by providing sufficient space for ease of operation and designing equipment for ease of repair and replacement; and

(6) shield personnel from radiation exposure.

(b) Radiological Alarm Systems.

Radiological alarm systems shall be provided in accessible work areas to warn operating personnel of radiation and airborne radioactivity levels above a given setpoint and of concentrations of radioactive material in effluents above control limits. Such systems shall be designed with provisions for calibration and testing their operability.

(b) Rewritten to include requirements for airborne radioactivity alarm systems and calibration.

(c) Effluent and Direct Radiation Monitoring.

(1) Effluent systems shall be provided with means for measuring the amount of radionuclides in effluents during normal operations and under accident conditions. A means of measuring the flow of the diluting media, either air or water, shall also be provided.

(1) Broadened scope of section.

(2) Areas containing radioactive materials shall be provided with systems for measuring the direct radiation levels in and around these areas.

(2) Added requirement for direct radiation level monitoring.

(17) *Effluent control.* The design of the ISFSI shall include means to minimize the release in effluents of radioactive materials in any form, during normal operations and under accident conditions. Systems provided to guard against the release of radioactive materials shall be designed to be monitored and tested, and shall be provided with alarms. Capability shall be provided for prompt cessation of the flow of contaminated effluents or for retention of such effluents as is necessary to ensure that the concentrations and total quantities of radioactive materials in effluents are maintained within the limits of Part 20 and are as low as is reasonably achievable.

(d) Effluent Control.

The ISFSI shall be designed to provide means to limit to levels as low as is reasonably achievable the release of radioactive materials in effluents during normal operations; and control the release of radioactive materials under accident conditions. Analyses shall be made to show that releases to the general environment during normal operations and anticipated occurrences will be within the exposure limits given in § 72.67. Analyses of design basis accidents shall be made, to show that releases to the general environment will be within the exposure limits given in § 72.68. Systems designed to monitor the release of radioactive materials shall have means for calibration and testing their operability.

(d) Rewritten to improve clarity and update reference.

SPENT FUEL AND RADIOACTIVE WASTE STORAGE AND HANDLING

(18) *Spent fuel and radioactive waste storage and handling systems.* Spent fuel storage, radioactive waste storage, and other systems that might contain or handle radioactive materials shall be designed to assure adequate safety under normal and accident conditions. These systems shall be designed (i) with a capability to test and monitor components important to safety, (ii) with suitable shielding for radiation protection under normal and accident conditions, (iii) with confinement systems, (iv) with a heat removal capability having testability and reliability consistent with the importance to safety, and (v) to minimize the quantity of radioactive wastes generated.

(19) *Waste treatment.* Radioactive waste treatment facilities shall be provided. These facilities shall be designed to concentrate all site generated wastes and convert them into a form suitable for interim storage and ultimate final disposal.

§ 72.75 Criteria for Spent Fuel and Radioactive Waste Storage and Handling

(a) Spent Fuel and Radioactive Waste Storage and Handling Systems.

Spent fuel storage, radioactive waste storage, and other systems that might contain or handle radioactive materials associated with spent fuel, shall be designed to ensure adequate safety under normal and accident conditions. These systems shall be designed with (1) a capability to test and monitor components important to safety, (2) suitable shielding for radiation protection under normal and accident conditions, (3) confinement structures and systems, (4) a heat-removal capability having testability and reliability consistent with its importance to safety, and (5) means to minimize the quantity of radioactive wastes generated.

(b) Waste Treatment.

Radioactive waste treatment facilities shall be provided. Provisions shall be made for the packaging of site-generated low level wastes in a form suitable for transfer to disposal sites.

(b) Rewritten to be consistent with other NRC regulations. Staff.

DECOMMISSIONING

(20) *Decommissioning.* An ISFSI shall be designed to facilitate decontamination of structures and equipment and to minimize the quantity and facilitate the removal of radioactive wastes and contaminated equipment at the time the installation is permanently decommissioned.

Subpart G—Quality Assurance

§ 72.75 Quality assurance program; records.

(a) A quality assurance program based on the criteria in Appendix B of Part 50 of this chapter shall be established and implemented to provide assurance that the safety-related structures, systems and components of an ISFSI will perform their safety functions. The application of the quality assurance program should be commensurate with the importance of individual structures, systems and components to safety. The quality assurance program should cover the activities of designing, purchasing, fabricating, handling, shipping, storing, cleaning, erecting, installing, inspecting, testing, operating, maintaining, repairing, and modifying.

(b) As used in this section, "quality assurance" means all those planned and systematic actions necessary to provide confidence that a structure, system, or component will perform satisfactorily in service. Quality assurance includes quality control, which comprises those quality assurance actions related to the physical characteristics of a material, structure, component, or system which provide a means to control the quality of the material, structure, component, or system to predetermined requirements.

(c) Appropriate records of the design, fabrication, erection, and testing of structures, systems, and components important to safety shall be maintained by or under the control of the licensee throughout the life of the installation.

§ 72.76 Criteria for Decommissioning

The ISFSI shall be designed for decommissioning. Provisions shall be made to facilitate decontamination of structures and equipment, minimize the quantity of radioactive wastes and contaminated equipment, and facilitate the removal of radioactive wastes and contaminated materials at the time the ISFSI is permanently decommissioned.

Subpart G - Quality Assurance

§ 72.80 Quality Assurance Program; Records.

(a) A quality assurance program based on the criteria in Appendix B to Part 50 of this chapter shall be established and implemented for the structures, systems, and components of an ISFSI that are important to safety. The application of the quality assurance program should be commensurate with the importance to safety of identified activities and individual structures, systems, and components.

(b) The quality assurance program shall cover all activities identified as being important to safety throughout the life of the licensed activity - from site selection through decommissioning prior to termination of the license.

(b) Rewritten to improve clarity.

(c) Appropriate records of the design, fabrication, erection, testing, maintenance and ocupation of structures, systems, and components important to safety shall be maintained by or under the control of the licensee throughout the life of the ISFSI.

(c) Rewritten to include maintenance function. Staff.

Subpart H—Plant Protection

§ 72.81 Physical security plan.

(a) The plan for detailed security measures for physical protection shall consist of two parts. Part I shall demonstrate how the applicant plans to comply with the applicable requirements of Part 73 of this chapter at the proposed installation. Part II shall list tests, inspections, audits, and other means to be used to demonstrate compliance with such requirements. Ten copies are required.

(b) A description of the design for physical protection shall show the site layout and ISFSI design features which will make the installation less vulnerable to sabotage, and shall include:

(1) The principal design criteria for the physical protection of the proposed installation.

(2) The design bases and the relation of the design bases to the principal design criteria submitted pursuant to paragraph (a) of this section; and

(3) Information relative to materials of construction, equipment, general arrangement, and proposed quality assurance program sufficient to provide reasonable assurance that the final installation will conform to the design bases for the principal design criteria submitted pursuant to paragraph (a) of this section.

(c) The licensee safeguards contingency plan for dealing with threats and industrial sabotage are defined in Part 73 relating to nuclear facilities licensed under Part 50 of this chapter. This plan shall include the first four categories of information contained in the applicant's safeguards contingency plan. (The first four categories of information, as set forth in Appendix C to Part 73 of this chapter are Background, Generic Planning Base, Licensee Planning Base, and Responsibility Matrix. The fifth category of information, Procedures, does not have to be submitted for approval.)

Subpart H - Physical Protection

§ 72.81 Physical Security Plan.

A plan for detailed security measures for physical protection shall be established. This plan shall consist of two parts. Part I shall demonstrate how the applicant plans to comply with the applicable requirements of Part 73 of this chapter and during transporation to and from the proposed ISFSI and shall include the design for physical protection and the licensee's safeguards contingency plan and guard training plan. Part II shall list tests, inspections, audits, and other means to be used to demonstrate compliance with such requirements.

§ 72.82 Design for Physical Protection

The design for physical protection shall show the site layout and ISFSI design features provided to protect the ISFSI from sabotage. It shall include:

(a) The design criteria for the physical protection of the proposed ISFSI;

(b) The design bases and the relation of the design bases to the design criteria submitted pursuant to paragraph (a) of this section; and

(c) Information relative to materials of construction, equipment, general arrangement, and proposed quality assurance program sufficient to provide reasonable assurance that the final security system will conform to the design bases for the principal design criteria submitted pursuant to paragraph (a) of this section.

§ 72.83 Safeguards Contingency Plan

(a) The requirements of the licensee's safeguards contingency plan for dealing with threats and industrial sabotage shall be as defined in § 73.40(b) of this Chapter. This plan shall include Background, Generic Planning Base, Licensee Planning Base, and Responsibility Matrix, the first four categories of information relating to nuclear facilities licensed under Part 50 of this chapter. (The fifth category of information, Procedures, does not have to be submitted for approval.)

§ 72.81 Added statement concerning physical protection during transportation. Staff.

(d) The licensee shall prepare and maintain safeguards contingency plan Procedures in accordance with Appendix C of 10 CFR Part 73 for effecting the actions and decisions contained in the Responsibility Matrix of his safeguards contingency plan. The licensee shall make no change that would decrease the safeguards effectiveness of the first four categories of information (Background, Generic Planning Base, Licensee Planning Base, and Responsibility Matrix) contained in any licensee safeguards contingency plan prepared pursuant to §§ 72.81(c) and 70.22(g), 70.22(j), 73.30(g), or 73.40 of this chapter without the prior approval of the Commission. A licensee desiring to make such a change shall submit an application for an amendment to his license pursuant to § 72.39 of this chapter. The licensee may make changes to the licensee safeguards contingency plan without prior Commission approval if the changes do not decrease the safeguards effectiveness of the plan. The licensee shall maintain records of changes to any such plan made without prior approval for a period of 2 years from the date of the change a id shall furnish to the Director of Nuclear Material Safety and Safeguards, U.S. Nuclear Regulatory Commission, Washington, D.C. 20555, with a copy to the appropriate NRC Regional Office specified in Appendix A of Part 73 of this chapter, a report containing a description of each change within 2 months after the change is made.

Subpart I—Training and Certification of ISFSI Personnel

§ 72.91 Scope of training program.

Manipulation of equipment and controls which have been identified as safety-related in the safety analysis report shall be limited to trained personnel, or in an emergency situation, under the direct supervision of an individual with adequate training in such operation. Supervisory personnel who direct the manipulation of safety-related equipment and controls must have a level of training in such operations comparable to that of trained operating personnel.

(b) The licensee shall prepare and maintain safeguards contingency plan procedures in accordance with Appendix C to 10 CFR Part 73 for effecting the actions and decisions contained in the Responsibility Matrix of the licensee's safeguards contingency plan.

§ 72.84 Change to Physical Security and Safeguards Contingency Plans

(a) The licensee shall make no change that would decrease the safeguards effectiveness of the physical security plan or the first four categories of information (Background, Generic Planning Base, Licensee Planning Base, and Responsibility Matrix) contained in the licensee safeguards contingency plan without the prior approval of the Commission. A licensee desiring to make such a change shall submit an application for an amendment to his license pursuant to § 72.39.

(b) The licensee may, without prior Commission approval, make changes to the physical security plan or the safeguards contingency plan, if the changes do not decrease the safeguards effectiveness of these plans. The licensee shall maintain records of changes to any such plan made without prior approval for a period of 2 years from the date of the change and shall furnish to the Director of Nuclear Material Safety and Safeguards, U.S. Nuclear Regulatory Commission, Washington, D.C. 20555, with a copy to the appropriate NRC Regional Office specified in Appendix A to Part 73 of this chapter, a report containing a description of each change within 2 months after the change is made.

Subpart I - Training and Certification of ISFSI Personnel

§ 72.91 Operator Requirements.

Operation of equipment and controls that have been identified as important to safety in the Safety Analysis Report and in the license shall be limited to trained and certified personnel or be under the direct visual supervision of an individual with training and certification in such operation. Supervisory personnel who personally direct the operation of equipment and controls that are important to safety must also be certified in such operations.

§ 72.92 Responsibility for training program.

The training and proficiency certification of operating personnel is the responsibility of the licensee under this part.

§ 72.93 Physical requirements.

(a) The physical condition and the general health of personnel certified for the manipulation of safety-related equipment and controls must not be such as might cause operational error endangering other in-plant personnel or the public health and safety. Any physical or mental condition which might cause impaired judgment or motor coordination must be considered in the selection of personnel for safety-related activities. Such conditions need not categorically disqualify a person provided appropriate provisions are made to accommodate such defect.

§ 72.94 Submission for approval.

The applicant for a license under this part must submit his program for training, proficiency testing and certification of ISFSI personnel to the Commission for approval at least 6 months prior to the scheduled receipt of the first materials for storage.

§ 72.92 Operator Training and Certification Program.

The applicant for a license under this part shall establish a program for training, proficiency testing, and certification of ISFSI personnel. This program shall be submitted to the Commission for approval with the license application.

§ 72.93 Physical Requirements.

The physical condition and the general health of personnel certified for the operation of equipment and controls that are important to safety shall not be such as might cause operational errors that could endanger other in-plant personnel or the public health and safety. Any condition which might cause impaired judgment or motor coordination must be considered in the selection of personnel for activities that are important to safety. Such conditions need not categorically disqualify a person, so long as appropriate provisions are made to accommodate such defect.

APPENDIX B

COMMENT LETTERS

Women's International League for Peace and Freedom
FOUNDED IN 1915 / First President: JANE ADDAMS
1116 West Fifth
Topeka, Kans. 66606

DOCKET NUMBER (1)
PROPOSED RULE PR-72(43FR46309)

November 4, 1978

Secretary of the Commission
U. S. Nuclear Regulatory Commission
Washington, D. C. 20555

Attention: Docketing and Service Branch

We have received your Proposed Regulation 10 CFR part 72 STORAGE OF SPENT FUEL IN AN INDEPENDENT SPENT FUEL STORAGE INSTALLATION, and after reading its nine pages of small print with special attention--at your suggestion-- to Subpart E, "Siting Criteria" and Subpart F, "Genaral Design Criteria", we feel no assurance that your Independent Spent Fuel Storage Installation will protect the population from the deadly wastes that the nuclear reactors now in use have produced and are constantly producing. True, moving the waste from the reactor site may be of some benefit to the people in that neighborhood, but what about those living near the storage site and those exposed to the deadly poisons while they are in transit?

You devote considerable space to plans for licensing officials to select storage sites and take care of the deadly wastes, but where are you going to find people who can qualify for such a responsibility when, according to the Union of Concerned Scientists--with its 2,000 membership, which includes some Nobel prize winners-- "No method for long-term storage or disposal of these radioactive wastes has been developed and proven reliable"?

Maude Skillman, Corresponding Secretary, Topeka Branch, WILPF

Maude Skillman

Dupe of Acknowledged by card 11/20

7812040240

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL REGULATION
2600 BLAIR STONE ROAD
TWIN TOWERS OFFICE BUILDING
TALLAHASSEE, FLORIDA 32301

November 29, 1978

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

Dear Mr. Stanford:

Re: Proposed spent fuel storage regulation, 10 CFR Part 72

It would appear that the ISFSI facility and its large associated costs of construction, operation, decommissioning, and concomitant transportation, public health, and environmental costs cannot be adequately justified at this time. The ISFSI proposal constitutes at best a very short term strategy which in the longer run would create more problems for the nuclear industry than it would solve. Creation of the facility would add both to the likelihood of environmental hazards and the proliferating inventory of nuclear wastes. As it is, spent fuel is distributed over a relatively large number of sites which minimizes the danger of catastrophic accidents.

If nuclear wastes are as dangerous as the following implies, "The large inventory of radionuclides in an ISFSI represents a potential hazard to public health and safety", then perhaps the nuclear industry should consider stopping the generation of wastes altogether pending final development of a viable mode of permanent waste disposal. Another "temporary storage" facility would only further remove the responsibility for wastes being generated from those entities generating them. "Storage for an idefinite (sic) period of time, and its ultimate disposition unknown" represents yet another step in divorcing waste generation from the consequences of same. "To accomodate some light water. . . plant fuel which has at least one year's decay" is patently transparent. The clause, the "Commission consents. . . to the creation of any. . . pledge or. . . lien upon. . . nuclear material. . . not owned by the US. . ." would provide industry with a means of circumventing President Carter's nuclear nonproliferation policy which prevents the sale or lease of fuel, technology, and hardware abroad to non-nuclear nations. By reason of this clause, nuclear wastes could be received at the proposed U.S.-ISFSI from proliferating sources worldwide, in anticipation of the resumption of spent fuel reprocessing and creation of mixed oxide fuels for resale or lease again abroad. That wastes are a valuable commodity is demonstrated by the consistent placement of "common defense and security"

before "human health and safety" throughout the text. The ISFSI obviously would be a valuable concession, to be built at public expense and operated privately for the benefit of the operators and those utility corporations using the facility -- another example of the seemingly endless line of subsidies required to keep the nuclear fission industry "viable". (The cost of storing spent fuel temporarily would exceed $500.00/lb. more than 10 times the cost of new enriched fuel.)

The ISFSI, furthermore, would add to the national burden of inflation, and to the increasing uncertainty regarding the future role of the U.S. dollar abroad, both in foreign trade and as an international reserve currency. It would also render the belt-tightening implied in President Carter's anti-inflation program less palatable for those who would not be in a position to "pass on" the increased costs of operation or of living.

Inherent in the ISFSI concept is the potential for grave environmental and public health hazards, including the possibility of criticality. Frequent references to "emergencies", "accidents", "malfunctions", "margin of safety as defined", and "retrofitting" inspire little confidence in systems-analysis design capability, especially in the light of past and current efforts at "temporary" waste storage. Nor do the following apologies inspire much confidence: "taking into account (the) state of technology. . . economics, severity of events selected (and) postulated events", "costs", "wherever practical", "costs", during normal operation", "expected operational occurances," "costs", "calculated exposure", "maximum degree reasonable," "costs", and "within the limits of EPA regulation". We have been asked to accept as articles of faith that, "the cooling system need not be designed to withstand the extremes of natural phenomena. Likewise, the emergency water supply system need not be permanently installed", that "A peak horizontal ground acceleration of not greater than 0.25g. . . . shall be deemed suitable", and that, "no detailed site-specific. . . analysis is required unless some unusual geologic characteristic is identified". In truth, the added "costs" to the public and the environment from "controlled" liquid and gaseous releases, accidental releases of every kind, millions of ton-miles of transportation, sabotage and theft, and the defacto creation of additional wastes from the operation and decommissioning of the ISFSI, would clearly stand in opposition not only to the public's best interest, but in the longer term, to the interests of the industry as well.

Therefore, because the ISFSI concept cannot under any reasonable standards of conscience or economics be credibly justified, rule 10 CFR Part 72 would appear to be entirely superfluous -- a product of the agencies of haste and ad hoc reasoning that have brought upon this planet the current crisis

in nuclear wates. 10 CFR Part 72 is a bad regulation. It should be withdrawn entirely and scrapped.

Sincerely,

Don Kell

Don Kell, Engineer

DK/js

cc: Senator Gary Hart

Nebraska Department of Environmental Control

J. James Exon, *Governor* Dan T. Drain, *Director*

(3)

DOCKET NUMBER
PROPOSED RULE PR-72 (43FR46309)

November 29, 1978

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

Dear Mr. Stanford:

We have reviewed the proposed spent fuel storage regulations published in the Federal Register on October 6, 1978, and offer the following comments:

1. Subpart C, Issuance and Conditions of Licenses. The proposal to issue the license at a very early stage and then re-examine it and add conditions before the facility can receive waste could result in the construction of an ISFSI which would not be allowed to receive spent fuel. This could result in wasting millions of dollars either by reason of the facility standing as a white elephant or in spending large sums to rebuild selected parts. One license should be issued after receipt of sufficient data to indicate the facility will be able to receive spent fuel. In an effort to save time by the method proposed, delays could result which would defeat the purpose of the regulation.

2. Seismic Characteristics. The seismic requirements should include the option of construction to meet the 0.259 acceleration or of performing the seismic analysis to justify a lower acceleration. The design of the basin to meet 0.259 is primarily a matter of additional concrete and construction material. However, the auxiliary systems designs become much more involved for increased seismic acceleration. If 0.259 is required and a facility is located at the site of an operating reactor designed to 0.159, the lack of logic is obvious. Also, such location would obviate the possible use of existing rad waste systems in the existing nuclear facility for processing the new storage facility liquids.

I hope these comments will be useful to you. Should you have any questions, please feel free to call.

Sincerely,

Dupe of
7812270001

Richard H. Hansen
Senior Legal Counsel

RHH:ck

cc: Eric Sloth
George J. Dworak
Marvin Carlson

Mail, Box 94877 Statehouse Station Office, 301 Centennial Mall South Lincoln, Nebraska 68509 (402) 471-2186

STATE OF CONNECTICUT
DEPARTMENT OF ENVIRONMENTAL PROTECTION

STATE OFFICE BUILDING HARTFORD, CONNECTICUT 06115

(7)
DOCKET NUMBER
PROPOSED RULE PR-72(43FR46309)

November 27, 1978

DOCKETED USNRC
DEC 1 3 1978
Office of the Secretary
Docketing & Service Section

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

Dear Mr. Stanford:

This is in reply to your letter of November 2, 1978, regarding the proposed spent fuel storage regulation 10 CFR Part 72.

Members of the staff in our Radiation Control Unit have reviewed the document containing the proposed regulation which you sent to us.

In general the proposed regulation appears to be adequate to protect the public health and safety.

We would like to recommend, however, that Section 72.67 be revised downward to at least include the numerical guides that are used to meet the ALARA objectives for Light Water Reactors. A spent fuel storage installation at a reactor site must meet these numerical guides and it seems reasonable to apply them to all storage installations.

It is also suggested that Section 72.51b be revised to have the physical inventory coincide with the semi-annual Commission Material Status Reports.

We also feel that the regulation should contain specific requirements relating to financial protection and responsibility for public liability.

Sincerely,

Stanley J. Pac

Stanley J. Pac
Commissioner

SJP/mm

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

NOV 22 1978 (5)

DOCKET NUMBER
PROPOSED RULE PR-72(43FR46309)

MEMORANDUM FOR: Russell Stanford
Fuel Process Systems Standards Branch
Office of Standard Development

FROM: Arnold Abriss
Low-Level Waste Branch
Office of Nuclear Material Safety
and Safeguards

SUBJECT: PROPOSED 10 CFR PART 72

I would like to submit a comment on Proposed 10 CFR Part 72, Section 72.18 "Decommissioning Plan, including its Financing".

Proposed Section 72.18 of 10 CFR requests information to be included in the Decommissioning Plan for an ISFSI. However, there is no requirement for providing cost estimates for the various decommissioning operations. Estimated costs are necessary to properly select a funding mechanism to pay for decommissioning. I would therefore, suggest the following changes:

(a) Insert the following statement after the first sentence, "The plan shall include cost estimates for implementing the decommissioning procedures, for decontaminating the site and for disposing of radioactive materials, including transportation and burial changes."

(b) Add after "execution" based upon the cost estimates of part (a) above.

Arnold Abriss
Low-Level Waste Branch
Office of Nuclear Material Safety
and Safeguards

SAINT LOUIS UNIVERSITY

DEPARTMENT OF EARTH AND ATMOSPHERIC SCIENCES

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MAILING ADDRESS:
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SAINT LOUIS, MISSOURI 63156

November 17, 1978

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DOCKET NUMBER
PROPOSED RULE PR-72(43FR46309)

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

Dear Mr. Stanford:

Thank you for giving me an opportunity to review the proposed spent fuel storage regulation, 10CFR Part 72, before its final drafting. I have not been in my office enough to assure prompt delivery of my mail, so I hope my comments reach you in time to be useful.

In general, the proposed regualtion reads smoothly, and it is immediately apparent that the authors were aware of the current ideas concerning siting and design of Independent Spent Fuel Storage Installations. I was impressed with the message presented under Supplementary Information. Subpart F-General Design Criteria also appears to be exceptionally well written; I hope that John Nevshemal, Science Applications, Englewood, Colorado, also had a chance to read this.

I hesitate to endorse any statement in the regulation which requires ISFSI's to be designed to withstand a 0.25g acceleration or requires the sites to have a ground motion potential of no more than 0.25g. Philosophically, I have no quarrel with the concept of using exsiting seismic risk maps, choosing sites with earthquake ground motion potential of no more than 0.25g with recurrence interval of 500 years, and building the ISFSI without costly site-specific investigations. It is an excellent alternative.

The other alternatives should be defined as clearly as the one just discussed. Transportation may become a more serious problem than would be the designing of an ISFSI for a site where horizontal acceleration may be expected to exceed 0.25g. In a few years this option may be extremely important and the option should be clearly available.

The psychology of requiring an ISFSI to be designed to withstand 0.25g acceleration becomes bothersome when the ISFSI is to be located near the site of a nuclear power plant that was constructed to withstand 0.15g acceleration. Whether the reasons be psychological or economic, there should be a clear option of

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performing a site specific seismic investigation and of negotiating a design value of less than 0.25g.

The latter ctpions should be readily available rather than being presented as an acquiescence. We are currently workig on a new seismic risk maps, and the options are apt to become more important in the future.

Than you again for permitting me to ext-ess my opinion.

Sincerely yours,

T. C. Buschbach
Research Professor of Geology

PR72

NRC PUBLIC DOCUMENT ROOM

DAMES & MOORE

(7)

PROPOSED RULE PR-72(43FR46309)

November 16, 1978

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

Dear Mr. Stanford:

I have reviewed the proposed spent Fuel Storage Regulation 10 CFR Part 72 as you requested. I believe the proposed Regulation fully covers all aspects of Independent Spent Fuel Storage Facility, and I cannot add any further useful comments to this document.

Very truly yours,

DAMES & MOORE

George W. Nicholas
Partner
Certified Consulting Meteorologist

GWN:jmj

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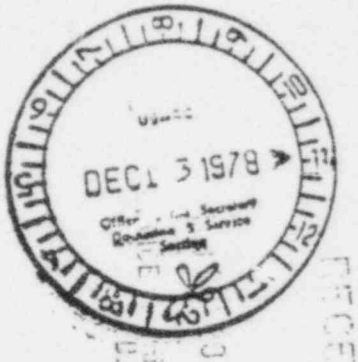
DOCKET NUMBER
PROPOSED RULE PR - 72 (43FR46309)

(8)

November 29, 1978



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

Dear Mr. Stanford:

Re: Proposed spent fuel storage regulation, 10 CFR Part 72

It would appear that the ISFSI facility and its large associated costs of construction, operation, decommissioning, and concomitant transportation, public health, and environmental costs cannot be adequately justified at this time. The ISFSI proposal constitutes at best a very short term strategy which in the longer run would create more problems for the nuclear industry than it would solve. Creation of the facility would add both to the likelihood of environmental hazards and the proliferating inventory of nuclear wastes. As it is, spent fuel is distributed over a relatively large number of sites which minimizes the danger of catastrophic accidents.

If nuclear wastes are as dangerous as the following implies, "The large inventory of radionuclides in an ISFSI represents a potential hazard to public health and safety", then perhaps the nuclear industry should consider stopping the generation of wastes altogether pending final development of a viable mode of permanent waste disposal. Another "temporary storage" facility would only further remove the responsibility for wastes being generated from those entities generating them. "Storage for an idefinite (sic) period of time, and its ultimate disposition unknown" represents yet another step in divorcing waste generation from the consequences of same. "To accomodate some light water. . . plant fuel which has at least one year's decay" is patently transparent. The clause, the "Commission consents. . . to the creation of any. . . pledge or. . . lien upon. . . nuclear material. . . not owned by the US. . ." would provide industry with a means of circumventing President Carter's nuclear nonproliferation policy which prevents the sale or lease of fuel, technology, and hardware abroad to non-nuclear nations. By reason of this clause, nuclear wastes could be received at the proposed U.S.-ISFSI from proliferating sources worldwide, in anticipation of the resumption of spent fuel reprocessing and creation of mixed oxide fuels for resale or lease again abroad. That wastes are a valuable commodity is demonstrated by the consistent placement of "common defense and security"

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Engineers

ALHAMBRA CALIFORNIA 91802

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DOCKET NO.
PROPOSED RULE 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

LWK NH

(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	[1]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	[2]25
72.38	Application for termination of license	[2]25
72.39	Amendment to license	[2]25
72.75	Quality assurance program	25
72.81(a)	Physical security plan [3]	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 the activity is to be perform general plan for carrying out tivity 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, decontamination 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 capacity [1] 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 nd 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 exposures 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 chaper. 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 quant 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-

[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).

What is NRC estimate of planned life since this depends on DOE & NRC approval of permanent storage facilities B-13 (7)

ment of gaseous and liquid effleunts 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 infomation required in paragraph (a)(12)(ii)(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-related 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 C—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 appropropriate 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

B-14 (3)

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 occurences 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

posal, 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-

AGNS
Allied-General Nuclear Services

November 29, 1978

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

Dear Mr. Stanford:

Thank you for the opportunity of commenting on the proposed spent fuel storage regulation, 10CFR Part 72. I am very much interested in fuel storage and trust that the implementation of the ISFSI concept occurs soon.

I feel you have simplified the process of licensing an ISFSI, which fills a recognized need in the industry.

Please feel free to contact me by phone (803-259-1711) on any questions you may have concerning any of the attached comments.

Sincerely,

M. Young

M. Young
Area Supervisor - FRSS
Allied-General Nuclear Services

Post Office Box 847 Barnwell South Carolina 29812 (803)259-1711

COMMENTS ON PROPOSED 10 CFR PART 72

Section 72.3 (S) "Structures, systems, components important to safety" as defined in 10 CFR Part 50, "are those safety related items that prevent or mitigate the consequences of postulated accidents that could cause undue risk to the health and safety of the public". It seems appropriate that definitions in Part 72 should be consistent with these used in other Federal Regulations to avoid confusion. It is recommended that the change be made.

Section 72.3 (g) and 72.3 (k) defined "controlled" and "neighboring" areas respectively. 10CFR100, paragraph 100.3 (a) defines an "exclusion" area; the definition of which is similar to the Part 72 definition of a "controlled" area. The definition of "low population zone" in 10CFR100 is similar to the definition of "neighboring" area in Part 72. The definitions of the various "areas" discussed in Part 72 should be consistent to the definition used in other parts including 10CFR20, 10CFR73 and 10CTR100 to avoid confusion and misuse of terminology.

Section 72.18 - Decommissioning plan. Including its financing. This section addresses "dismantling and disposal of an ISFSI"; it is our understanding that once the installation is decontaminated, the final disposition of the remaining structures are the purview of the owners and state and local zoning regulations. If this is the case, this info should be incorporated into this section.

Section 72.31 (a) (10) specifically states that initiation of construction by an applicant prior to a finding that the action called for, following review by the Director of the Office of Nuclear Materials Safety and Safeguards, is issuance of the proposed license may be grounds for denial of a license. In 10CFR70, paragraph 70.21 (f), the requirement is established that an application must be filed "at least 9 months prior to commencement of construction". It is recommended that a similar provision be included in 10CFR72 to allow an applicant to proceed with construction, after a suitable period has elapsed from the date an application was filed, without jeopardizing a favorable ruling on the application.

Section 72.33 License Conditions (1) Functional and operating limits and monitoring instruments and limiting control settings. It appears that "Functional and operating limits" are equivalent to "safety limits" in a part 50 license. It is suggested that the title be changed to Safety Limits to be consistent with part 50.

Section 72.42 (a) states that the Commission may require backfitting if such action will provide substantial additional protection. This paragraph should be modified to include a provision that backfitting can be required only after a suitable cost-benefit analysis has shown that backfitting is justified.

Section 72.51 (b) What is intended by "a physical inventory"? Does this mean physically verifying each fuel assembly stored in the ISFSI?

A piece count and selected small quantity audit of randamly selected fuel assemblies for verification would be adequate.

Section 72.55 (c) This section as written would allow any and all tests that could be conceived and "deemed appropriate or necessary" to be required. It also appears that if the licensee does not choose to perform the test, that the Commission would perform it. The statement appears to be too broad and all encompassing. More definitive information should be given to clarify this requirement.

Specific requirements should be stated that limit the time (say 48 hours) that a test would impact receiving operations.

Section 72.54 Last sentence - Does "received" mean when the cask is received at the ISFSI? Should clarify, verification of the fuel assembly must be made before the NRC-741 can be completed and returned to DOE and the shipper. Should say "..received, verified and stored."

Section 72.71 Overall Requirements 3 - Would suggest that "credible" be inserted between "under fire" (5th line) for clarification. Also what type explosion was projected? Is ion exchange resin the only one to be considered? What was intended?

Section 72.71 (8) (i) would suggest adding "mechanical" between gross ruptures. Isn't this what we want to protect them from?

Section 72.71 (8) (ii) lines 16 thru 20. It should not be a requirement to have water level monitoring equipment alarm "both locally and in a continuously manned location", if the local area is continuously manned, the licensee may choose to have a second alarm location but this should be his choice. Remove the words "both locally and" replace with "locally if not continuously manned or in...".

Section 72.71 (10) - Clarification of this section as to what is meant by action to be taken to "operate the ISFSI safely under normal conditions" is needed. The intent should be to monitor under normal conditions not to operate. Suggest that "if required" be inserted in line 2 so it reads - "A control room or control areas, if required, shall be designed to permit occupancy and action to be taken to monitor the ISFSI safely under normal condition and to maintain the ISFSI in a safe condition under off normal or accident conditions".

Section 72.71 (19) - It is recommended that this paragraph be amended to eliminate the requirement that on-site facilities be provided to concentrate all site generated wastes. Concentration and conversion into a form suitable for interim storage and ultimate disposal might be best accomplished at a location other than where the waste is generated. The following is a suggested rewording of this paragraph.

(19) Waste Treatment - Waste treatment facilities shall be provided. Provisions shall be made for the conversion of site generated wastes into a form suitable for interim storage or ultimate final disposal.

STATE OF OHIO

GOVERNOR JAMES A. RHODES

Power Siting Commission

DOCKET NUMBER
PROPOSED RULE PR-72 (43FR46309)

(11)

361 E. BROAD ST. P.O. BOX 1735 COLUMBUS, OHIO 43216 614/466-EXEC 7560

December 8, 1978

Secretary, Nuclear Regulatory Commission
Washington, D.C. 20555
Attention: Docketing and Service Branch:

Dear Sirs:

A copy of the proposed regulation 10CFR part 72, "Storage of Spent Fuel in an Independent Spent Fuel Storage Installation", has been sent to the Ohio Power Siting Commission for review. The Secretary of the Commission has been asked that I prepare comments on this regulation for his review and subsequent transmittal to you.

We find overall that the proposed regulation is satisfactory and is indeed an important step towards resolution of the spent fuel problem. We feel, further, that this is an urgent problem which should be resolved as expeditiously as possible.

We are somewhat puzzled by the criticality requirements [p. 46313, (13) and 46320 (12,13)]. The wording is consistent with 10 CFR 50, criterion 62. However, the Regulatory Guides 3.24 for an independent fuel storage pool simply states that criticality shall be prevented, and Regulatory Guide 1.13 for storage pools at reactors makes no mention of criticality at all.

You may wish to note the requirements of the Standard Review Plans for Safety Analysis Reports, section 9.1.2-4, item 2a which requires Seismic Category I, K_{eff} of 0.95 or less with an infinite array of fuel elements of highest probable enrichment and demineralized water. It might be helpful if proposed new regulations were accompanied by a covering letter which refers the reviewer to the appropriate Regulatory Guides.

Thank you for the opportunity to review these proposed new regulations. I hope these comments will be helpful to you.

Sincerely,

Harold W. Kohn

Harold W. Kohn, PhD
Staff Scientist
Ohio Power Siting Commission

HWK/sb

(12)

PR-72(43FR46309)

To: Secretary of the Commission
U.S. Nuclear Regulatory Commission
Wash., D.C. 20555

From: Louise Sorenflo
Tennessee Valley Clean Energy Alliance
314 S. Webb Ave.
Crossville, TN 38555

Re: Comments on 10 CFR Part 72 - Storage of Spent Fuel in an ISFSI

Date: 12/1/78

In general the licensing of ISFSI's is premature and should hinge upon the completion of a national nuclear waste policy. No discussion of the interrelationship of an ISFSI to permanent waste disposal is mentioned which means that reprocessing at a possible later date is left open. It is mandatory to consider away from reactor storage within some larger perspective, and until such a perspective has been developed, an ISFSI becomes a technhological "quick fix". Such a fix could be better provided by individual reactors expanding their storage capacity.

Away from reactor storage necessitates the transportation of wastes from the reactor site to the storage site. Again, I found no mention of whose responsibility transportation is. If an owner gains control of the spent fuel at the reactor site, then those spent fuel rods are the owner's responsibility and so are accidents which may occur. It is mandatory to clearly determine at the onset whose responsibility transportation of spent fuel assemblies is.

Another question which I found unanswered was what if the legal entity operating the AFR goes bankrupt? Does the NRC take over responsibility? If so, the public is left with the possibility of multiple "West Valleys" across the country.

In light of the proceedings at the Calloway plant, it seems advisable to include within the licensing requirements protection of any possible "whistleblowers" who may discover violations of licensing agreements. This is especially important for the low level of monitoring the NRC indtends to do for ISFSI's.

I essentially question the whole premise that away from reactor storage facilities are needed or should be encouraged by the NRC. If it is as technically feasible and easy to accomplish as these proposed requirements imply, then operating reactors should be instructed to build their own. This eliminates the whole need for transportation prior to ultimate permanent disposal. The dangers of transportation of these wastes, which are the essential problem of AFR's, is inadequately addressed by these requirements and by the NUREG-0404. The convergence of waste from across a region to an ISFSI endangers the biosphere from intolerable radioactive emmissions.

I urge you to consider these comments and postpone licensing requirement considerations until DOE, NRC and the public have all consented to a national nuclear waste policy. (See the Task Force Report on Waste Management.)

STATE OF FLORIDA

Department of Administration

State Energy Office
301 Bryant Building
TALLAHASSEE
32304

Reubin O'D. Askew
GOVERNOR

Dr. Carlos S. Warren
STATE ENERGY DIRECTOR

Wallace W. Henderson
SECRETARY OF ADMINISTRATION

November 30, 1978

(13)

DOCKET NUMBER
PROPOSED RULE PR-72(43FR45309)

DOCKETED USNRC DEC 13 1978 Office of the Secretary Docketing & Service Section

Secretary of the Commission
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

ATTENTION: Docketing and Service Branch

Dear Sir:

We have reviewed Storage of Spent Fuel in an Independent Spent Fuel Storage Installation (ISFSI) (10 CFR, Part 72), Proposed Licensing Requirements.

The implications of the proposed rule are, perhaps, more portentious than the rule itself. We have seen the problem of waste disposal essentially ignored until recent years mainly because the accumulation was hidden away. Now that the emmensity of the past years' procrastination has finally become evident, the NRC would address the situation with "out of 'site', out of mind". If a lasting solution to the problem is to be found, it will require the impetus of those most directly impacted, that is the utility companies which generate the wastes.

Until an acceptable means for permanent disposal is developed, the wastes should remain where they are generated.

Sincerely,

Robert Grace

Robert Grace
Energy Analyst

RG/ecc

Acknowledged by card 12/13/78

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Michigan

December 5, 1978

(14)

DOCKET NUMBER
PROPOSED RULE PR-72(43FR46309)

Secretary of the Commission
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

Attention: Docketing and Service Branch

Gentlemen:

At the request of Governor William G. Milliken, Proposed Regulation 10 CFR 72, Storage of Spent Fuel in an Independent Spent Fuel Storage Installation, has been reviewed by agencies of the State of Michigan. Comments of the State on the proposed regulation follow.

In general, the State supports the away-from-reactor storage concept as a means to address the growing shortage of sufficient spent fuel storage capability at commercial reactor sites throughout the country. The State is also supportive of the single license concept embodied in the proposed regulation.

It is also the view of the State of Michigan that no Independent Spent Fuel Storage Site should be licensed without early consultation with and concurrence of the State in which the repository is proposed. Michigan recommends that proposed 10 CFR 72 be revised to incorporate this requirement.

This opportunity to comment is appreciated.

Sincerely,

Jonathan T. Cain
Special Assistant
to the Governor

Dupe of

78122701 04

STATE OF WASHINGTON

Dixy Lee Ray
Governor

WASHINGTON STATE ENERGY OFFICE
400 E. Union-1st floor, Olympia, Washington 98504 206/754-1350

Lawrence B. Bradley, Director

December 1, 1978

(15)

DOCKET NUMBER
PROPOSED RULE PR-72(43FR46309)

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

Dear Mr. Chilk:

Reference is made to the recent announcement of the Commission's plans to issue a new regulation to provide for the issuance of licenses to store spent fuel from nuclear power plants in Independent Spent Fuel Storage Installations (ISFSI).

The proposed new Part 74 regulations are of important national significance. Establishing these regulations would make possible taking a giant step forward in overcoming the immensely harmful controversy surrounding the management of radioactive waste from nuclear power plants. Accordingly, these regulations should be processed and placed into effect just as soon as possible.

ISFSI's will represent a safe means for interim storage of spent nuclear fuel or separated fission products and transuranic waste. Waste could be stored in such facilities safely for many decades.

The proposed measure constitutes a welcome alternative to the Administration's earlier-expressed policy of interim storage which required utilities to give up possession of unreprocessed fuel, something which they did not wish to do.

The plans for issuing a single license rather than the two which are customary for power plants is a good one. It will enable construction to start sooner but still provides for an adequate review process. Other features, as outlined in the supplementary information, are conccurred in.

Sincerely,

Frederick S. Adair
Acting Director

Dupe of
7812220021

FSA/dmc
cc:Governor Dixy Lee Ray
Robert Ryan, Nuclear Regulatory Commission
Andy Robart, Nuclear Regulatory Commission, Region V (Walnut Creed)
Russell E. L. Stanford, Nuclear Regulatory Commission (SD)
John Deutch, U.S. Department of Energy
Ed Helminski, National Governor's Association, Washington, D.C.
John Watson, Western Interstate Energy Board/WINB
Nicholas D. Lewis, Washington State Energy Facility Site Eval. Council
Lawrence B. Bradley

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

(72-43FR46309) (16)
July 31, 1978

MEMORANDUM FOR: R. Stanford, FPSSB, SD

FROM: H. Ashar, SCSB, SD

SUBJECT: DISCUSSION AND COMMENTS ON 10 CFR PART 72, "LICENSING REQUIREMENTS FOR THE STORAGE OF SPENT FUEL IN AN INDEPENDENT SPENT FUEL STORAGE INSTALLATION (ISFSI)

72.31(a)(1) The site suitability criteria from Seismic Design point of view are described in 72.66. It appears that a reference to 72.66 (Subpart 3) will preclude any confusion, and will be consistent with the subsequent [72.31(a)(2), (3), (4) etc.] conditions of licenses.

72.66 Criteria For Defining Acceptable Seismic Design

It should be recognized that the peak acceleration associated with a "horizontial ground motion potential" is not necessarily the same as the maximum design ground acceleration. Also, the phrase "up to a 500 year reccurrence interval" gives me an impression that we would accept an earthquake having less than 500 year reccurrence interval. I do not believe this is the intent. Recognizing the purpose of this section of the Regulation, I suggest the following changes.

(a) Design Earthquake (DE) is defined as an earthquake having an reccurrence interval of no less than 500 years.

*(b) Any site, having design maximum ground acceleration (corresponding to DE) at an ISFSI foundation level of greater than 0.25g, shall be deemed unsuitable for an ISFSI.

(c) For soil sites, where DE could potentially cause soil failure, it must be shown by a site specific investigation and analysis that soil failure will not occur due to the expected vibratory ground motion at the site. Sites with potentially unstable soils may be made suitable by remedial action.

*For the purpose of precluding certain sites from consideration, the use of maps such as those developed by Algermissen and Perkins and further developed as peak acceleration contours are acceptable. (See Reference

(d) For ISFSI designs other than the water basin type proposed sites will be evaluated on the basis of a site specific investigation and analysis.

(e) Sites which do not meet the suitability requirements of (a) above may be evaluated and accepted in accordance with Section 72.9.

72.71(2)
(ii) It appears that we want applicants to design structures, systems, and components for a horizontal ground motion acceleration >0.25g (sky is the limit).

Philosophically, if we have determined that ISFSI can be designed for an earthquake of 500 year reccurrence interval, it is conceivable that we would accept the same recurrence interval for other natural phenomena such as tornadoes, floods and seiches. In that case it is not understandable why the safety related structures, systems, and components should not be designed for corresponding tornado missiles.

H. Ashar

H. Ashar
Structures and Components Standards Branch
Office of Standards Development

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

DOCKET NUMBER
PROPOSED RULE PR - 72 (43FR46309) (17)

JUL 26 1978

MEMORANDUM FOR: R. E. L. Stanford, Fuel Process Systems Standards Branch, Division of Engineering Standards, SD

FROM: F. D. Anderson, Site Designation Standards Branch, Division of Siting, Health and Safeguards Standards, SD

SUBJECT: CORRECTIONS AND ADDITIONS FOR DRAFT 10 CFR PART 72, "LICENSING REQUIREMENTS FOR THE STORAGE OF SPENT FUEL IN AN INDEPENDENT SPENT FUEL STORAGE INSTALLATION"

At the recent Commission meeting which discussed the subject proposed regulation, Chairman Hendrie requested that the novel approaches used in the regulation be addressed in the Statement of Consideration with the viable alternatives. The attached enclosure provides such a discussion for the siting criteria approach in which either the proposed approach or a minimum distance with subsequent accident evaluation could be used. Also included in the attached enclosure are corrections that must be made in Subpart E, "Siting Criteria", which I prepared. These corrections are clarification of definitions (Subpart A) for terms which are used in Subpart E and some corrections in the criteria. All of these corrections are necessary for clarification and consistency. Corrections for other subparts are given which you may use or not as you determine.

Unless the corrections and additional discussion regarding the siting criteria approach are incorporated into the proposed regulation for public release, I do not believe that I will have satisfied my implied commitment to Chairman Hendrie.

Fredric D. Anderson
Site Designation Standards Branch
Office of Standards Development

Enclosure:
As stated

Enclosure A

Corrections and Additions to 10 CFR Part 72

A. Site Criteria Changes

1. Rewrite page 6 of the Federal Register notice for public comment as follows:

"shipping casks before theseare unloaded, hence cask unloading must be handled under controlled conditions.

The proposed Part 72 includes an annual dose limit for normal operations and anticipated occurrences of 25 mRem to the whole body, 75 mRem to the thyroid and 25 mRem to any other organ of any member of the public from the uranium fuel cycle in accordance with the regulations of the Environmental Protection Agency (40 CFR Part 190). Since the EPA regulations were prepared with a reprocessing fuel cycle in mind, the Commission considers it reasonable to apply such dose limits to the ISFSI operations. The storage of fresh spent fuel at nuclear reactor facilities and at reprocessing plants was considered in the establishment of the EPA regulations. The storage of aged spent fuel at an ISFSI, which entails a much lower radioactive material release potential, is an extension of such spent fuel storage operations. In addition to the specific numerical dose limits, the proposed Part 72 requires that the levels of radioactive material in effluents be kept as low as is reasonably achievable.

Proposed Part 72 also establishes an accident dose limit of 5 Rem in 2 hours for the calculated dose from the controlling design basis accident at the site (controlled area) boundary of an ISFSI. With such a dose limit, an ISFSI, if located on a nuclear power reactor site, would not contribute substantially to the predicted risk from the nuclear operations on the site to the public health and safety. Accident analyses for an ISFSI presented in the GEIS and in previous licensing cases of spent fuel storage installations indicate that such a dose limit can be met through site selection and facility design for ISFSI design basis accidents.

An alternative approach to the proposed Part 72 accident dose limit is the use of a minimum distance limit for the nearest boundary of the controlled area. The controlling accident, i.e., largest radiological consequences, resulting from a design basis event would be evaluated by a conservative but realistic analysis of the potential exposure of an individual at this minimum distance. If the realistically calculated exposure from the controlling accident exceeded the annual dose limits within two hours, an increased controlled area distance would be required. The stated dose criteria

would be applied to any potential accident at ISFSI which is considered credible, can be mechanistically described and can be realistically evaluated.

Comments regarding the site criteria stated in Subpart E of the proposed Part 72 should address the possible alternative approach as well as the stated approach for ISFSI accident evaluations.

With spent fuel committed to storage for an indefinite period of time, and its ultimate ....."

2. Rewrite the following definitions in Section 72.3, page 11 - 13, as given:

"(g) "Controlled area" is that area immediately surrounding the ISFSI complex, the use of which is controlled by the licensee for the duration of the license and within which the ISFSI operations are performed.

(h) "Design basis" contains the parameter values associated with that level of severity of an external or internal event or combination of such events selected for design of all or any part of an ISFSI. The use of the design basis ensures that the structures, systems and components important to safety (in relation to that event or combination of events) will maintain their integrity and will not suffer loss of function during or after the event or before completing its design function. These parameter values may be restraints derived from generally accepted "state-of-the-art" practices for achieving functional goals, or requirements derived from analysis (based on calculations and/or experiments) of the effects of a postulated event under which a structure, system, or component must meet its functional goals.

(1) "Design basis for external events" includes (i) estimates of severe natural events to be used for deriving design basis and such estimates will be based on consideration of historical data of the associated parameters, physical data or analysis of upper limits of the physical processes involved; and (ii) estimates of severe external man-induced events to be used for deriving design basis and such estimates will be based on analysis of human activity in the region taking into account the site characteristics and the risks associated with the event.

(2) "Design basis for internal events" includes (i) estimates of severe internal events to be used for deriving design basis and such estimates will be based on consideration of available data on failure rates of process, control and engineered safety equipment and systems, and (ii) estimates of

failures due to random events, operating conditions, fires, explosions and identified operator error conditions or other potential sources of inadvertent man-caused failures.

(n) "Population" is all the important organisms living in a given area. The important organisms are those ecological systems, including people, that may be adversely affected by the change in conditions due to the construction, operation or decommissioning of ISFSI.

(o) "Region" is a geographical area surrounding and including the site sufficiently large to contain (1) all features related to a phenomenon or to the effects from a particular event, and (2) all measurable effects of environmental impact, both radiological and non-radiological due to the ISFSI complex.

(p) "Site" is the real property (area) on which the ISFSI is located. The site may extend beyond the controlled area.

(q) "Source material" .....

(r) "Special nuclear material".....

(s) "Spent fuel" .....

(t) "Structures, systems and components important to 'safety'".....

3. In paragraph (12) on page 21, second sentence to read:

"The description ..... in effluents to the environs as low as is reasonably achievable and within the dose limits stated in the EPA regulations of 40 CFR Part 190."

4. In Section 72.61 of Subpart E, make the following changes:

"(a) Site characteristics .... the safety or environmental aspects of the .....

(b) No changes.

(c) Design basis ..... and proposed ISFSI design.

(d) No changes

(e) For each ..... for radiological and non-radiological consequences .....

(f) No changes."

5. In Section 72.62 (b) change "evaluated" to "analyzed".

6. In Section 72.64 (b) change "Each" to "The proposed".

7. In Section 72.65 of Subpart E, make the following changes:

"(a) The proposed site ..... and distribution of people in the region. Such a study shall include evaluation of present and future uses of land and water within the region and shall take into account any special .....

(b) A controlled .....for the proposed site.

(c) The licensee ..... from the controlled area.

(d) The neighboring area ..... evaluated with respect to both the potential for adverse consequences to people or to the environment from a release of radioactive material and the capability of implementing protective measures as may be necessary to mitigate the immediate effects of such a release.

(e) The distribution of people in the region ..... from normal and potential accidental releases of radioactive material or other toxic materials and the potential impact from construction, operation and decommissioning of the ISFSI during its lifetime."

(f) No changes "

8. Replace Section 72.66 with the following:

"72.66 Criteria for Defining Acceptable Seismic Design

(a) Sites with a horizontal ground motion potential of greater than 0.25 g with a 500 year recurrence interval (equivalent to a 90% probability of not being exceeded in 50 years) shall be deemed unsuitable for an ISFSI.

(b) Sites which meet the criterion of "a" above and which are founded on bedrock are suitable for an ISFSI. Unless some unusual geological characteristic is identified, no detailed site specific earthquake analysis is required. For soil sites, where vibratory ground motion could potentially cause failure, it must be shown by a site specific investigation and analysis that soil failure will not occur due to the expected vibratory ground motion at the site during the projected operating lifetime of the installation

and that horizontal ground acceleration at the ISFSI foundation does not exceed 0.25 g. Sites with potentially unstable soils may be made suitable by remedial action.

(c) For ISFSI designs other than the water basin type, proposed sites shall be evaluated on the basis of a site specific investigation and analysis.

(d) Sites which do not meet the site suitability requirements of the above criteria may be evaluated and determined acceptable in accordance with Section 72.8 of this Part."

9. In Section 72.67 of Subpart E, make the following changes:

"(a) During normal operations ..... shall not exceed 25 mRem ....., 75 MRem ....., and 25 MRem to any other organ of any member of the public located ..... as a result of exposures to planned ..... materials, radon and its daughters excepted, to the general environment and to radiation from the ISFSI operations.* Unusual regional and site characteristics shall be taken into account in the evaluation of planned discharges of radioactive materials.

(b) No changes

* 40 CFR §190.10"

B. Other Suggested Changes In Section 72.71

1. In Paragraph (2) (ii) Change"(A)" and "(B)" to "(a)" and "(b)".

2. In Paragraph (4) change to read: "Structures ..... will not impair the capability to operate the ISFSI safely or the capability to return and maintain the ISFSI in a safe condition following a design basis event."

3. In Paragraph (5) change to read: An ISFSI ..... nuclear operations shall be designed to ensure that ..... not result in undue risk to the public health and safety. The ISFSI operations will not contribute significantly to the potential cumulative risk of the combined operations."

4. In Paragraph (9) last sentence change "must be identified" to "shall be identified".

5. In Paragraph (17) last sentence to read: "Capability ..... to ensure that the concentrations of radioactive materials in effluents are maintained within the limits of 10 CFR Part 20 and the resulting doses

are within the limits of 40 CFR Part 190. The total quantities of radioactive material released in effluents shall be kept as low as is reasonably achievable."

6. In Paragraph (18) (iii) to read: "with appropriate confinement, ventilation and filtration systems","

USNRC DEC 27 1978 Office of the Secretary Docketing & Service Section

Public Utility Commission of Texas

George M. Cowden
Chairman

Garrett Morris
Commissioner

Alan R. Erwin
Commissioner

(18) December 7, 1978

DOCKET NUMBER PROPOSED RULE PR-72(43FR46309)

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

Acknowledged by card. 12-28 ymR

Dear Mr. Stanford:

We have reviewed the proposed spent fuel storage regulation, 10 CFR Part 72, as requested in your letter of November 6.

From the State's standpoint, the only comment we have on the proposed regulations is that sufficient provision for notice to affected parties be included. Specifically, it should be a requirement that when an application for an independent spent fuel storage facility is filed with the NRC, a copy should also be sent to the appropriate State agencies such as the State Health Department and/or Public Utility Commission. Notice should also be required to be printed in newspapers with general circulation in the area of the proposed site.

We appreciate the opportunity for input into the final drafting of the regulation.

Sincerely,

George M. Cowden

GMC:HKS:eb

7800 Shoal Creek Boulevard • Suite 400N • Austin, Texas 78757 • 512/458-0100

Commissioner

JOAN K. LEAVITT, M.D.

Oklahoma
State Department of Health

Northeast 10th Street & Stonewall
Post Office Box 53551
Oklahoma City, Oklahoma 73152

(19)

December 4, 1978

DOCKET NUMBER
PROPOSED RULE PR-72(43FR46309)

Russell E.L. Stanford
Fuel Process Systems Standards Branch
Office of Standards Development
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

Dear Mr. Stanford:

This is in response to your letter inviting my comments on the proposed 10 CFR Part 72 relating to spent fuel storage at independent installations.

Following review, my only comment is that I see nothing in the proposed regulations which would require the notification of the affected state(s) at an early date of the proposed construction of an ISFSI. It may be that such notification would be handled through internal NRC policies and procedures or by a requirement in some other Part of the CFR. However, if not, I would suggest the inclusion of a requirement of notification of the Governor and the radiation control office of the affected state(s) of the potential licensee's intentions to construct and operate an ISFSI at a time coincidental with the filing of the license application.

Very truly yours,

Dale McHard, Chief
Occupational and Radiological
Health Service

DMC/kc

(20)

SUPPLEMENTAL PROPOSED RULE PR-72 (43FR46309) (20)

Dec. 10, 78

Sec, U.S. NRC
Washington, D.C. 20555

Acknowledged by card. 12-28 GMK

Att; Docketing and Service Branch

I am opposed for many reasons to licensing 'temporary' waste sites. First there needs to be found a long term solution to the waste problem and despite claims to the contrary WIPP isn't that. These 'temporary' waste sites could easily become permanent. Thirty years ago solutions to the waste problem were promised and still no solution.

Stop creating the wastes — that's the solution. We don't need more plants — there are good alternatives.

Sue Berg — 1556 W. 100th Pl
Chicago 60643

Dupe of

KAISER ENGINEERS

KAISER ENGINEERS POWER CORPORATION
300 LAKESIDE DRIVE
POST OFFICE BOX 23210
OAKLAND, CALIFORNIA 94623

December 15, 1978

Secretary of the Commission
U.S. Nuclear Regulatory Commission
Washington, D. C. 20555

Attn: Docketing and Service Branch

Subject: Comments on Proposed Rule 10CFR72, "Licensing Requirements for the Storage of Spent Fuel in an Independent Spent Fuel Storage Installation (ISFSI)"

Gentlemen:

We are pleased the Commission is considering the issuance of guidance for the design of independent spent fuel storage installations. We have reviewed the proposed rule (10CFR72) and have the following comments and suggested changes which we believe will help clarify the proposed criteria and provide consistency with other regulatory philosophy.

Paragraph 72.3(s)

The inclusion of "... those items whose function is to (3) protect plant personnel from exposure to radiation in excess of design objectives" as structures, systems and components important to safety, seems inappropriate as in many instances radiation exposure limitations are a function of administrative actions, such as a limitation on the time personnel spend in defined areas. It is suggested that this definition be deleted from the final regulations pertaining to ISFSI.

Paragraph 72.15(12)(v)

Suggest this paragraph be deleted as it is not consistent with the "as low as is reasonably achievable" philosophy related to radioactivity released from the site to unrestricted areas. There have been no guidelines promulgated for radioactive wastes sent offsite for disposal (e.g., burial grounds, deep geologic storage, etc.) with respect to ALARA.

Paragraph 72.51

It is suggested that when using the term "inventory" it is made completely clear that physical inventory is the requirement and no chemical or isotopic assay is required.

Acknowledged by card 12-28...ypk

Secretary of the Commission Dec. 15, 1978

Paragraph 72.71(14)(v)

This paragraph implies that shielding alone can provide personnel exposures ALARA. If this premise was taken in the design of an ISFSI, the facility would not be cost effective with respect to benefit-cost aspects of ALARA. Suggest that, for ALARA and Part 20 limits, the concept of dose rate and the duration of required occupancy by personnel be stressed rather than shielding alone. Suggest wording such as the following:

"Shielding for the ISFSI shall be such that when considering the magnitude of dose rates from radioactive sources (i.e., spent fuel, equipment, radwaste, etc.) in conjunction with facility layout and time for operations (i.e., maintenance, surveillance, testing, etc.), the exposures to personnel are maintained as low as is reasonably achievable. In addition, the radiation shielding shall be designed to ensure that personnel exposure does not exceed the limits of Part 20 of this chapter considering personnel occupancy time during normal operation or during anticipated operational occurrences."

Paragraph 72.81(b)(3)

The following statement should be added to the end of the referenced paragraph to make clear the extent of the proposed quality assurance program:

"The quality assurance program established for use related to structures and components that comprise the physical protection system shall not be required to comply with Appendix B to Part 50 of this chapter."

Very truly yours,

KAISER ENGINEERS POWER CORPORATION

Charles O. Coffer

Charles O. Coffer
Manager, Licensing,
Quality Assurance and
Environmental Affairs

COC/aeg

EXXON NUCLEAR COMPANY, Inc.
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December 1, 1978

(22)

DOCKET NUMBER
PROPOSED RULE PR-72 (43FR46309)

Secretary of the Commission
U.S. Nuclear Regulatory Commission
Washington, D. C. 20555

Acknowledged by card. 12-28 YNR

Gentlemen:

We want to thank you for the opportunity to comment on the proposed regulation 10 CFR Part 72, "Storage of Spent Fuel in an Independent Spent Fuel Storage Installation". Our comments are given below.

General

Single License Concept

The provision for issuance of a single license as early as possible in the licensing process is a practical forward step which should materially assist in solving the imminent spent fuel storage problem without sacrificing consideration of public health and safety or environmental protection.

Seismic Criterion

The recognition that the single static nature of an ISFSI makes the seismic risk less serious than for a reactor and that substantial resources can be expended both in site investigation work and debate on exact site specific design values is indeed correct. The seismic criteria proposed, therefore, represents a reasonable approach for these types of facilities.

Dry Storage

The subject of wet storage appears to be more fully addressed than dry storage. It is suggested that a single statement be inserted that this regulation is designed to address primarily water pool storage, but the limits for design and radiological effluents are applicable also to dry storage and that any specific questions related to dry storage will be handled on a case-by-case basis.

Price-Anderson Coverage

Our estimate of the potential offsite impacts of accidents at an ISFSI indicates that such consequences are not of a magnitude requiring Price-Anderson coverage. It is also our understanding that the existing coverage provided at power reactors under 10 CFR 110 extends to the

transport of nuclear materials to and from those facilities until those materials are placed into storage at their destination. Therefore, participation in Price-Anderson coverage is not considered necessary for an ISFSI except during future transfers to another ISFSI or to a final depository. In such a case, mandatory Price-Anderson coverage of one of the facilities should be required, which would extend the insurance to the transportation phase of the transfer.

Issuance of Licenses

In Sections 72.31 and 72.33 on license issuance and license conditions, it would be more helpful if the minimum conditions could be more clearly defined prior to construction as compared to the conditions required to begin operation. Hopefully, the requirements at the construction stage would be only those essential to determining the safety of the design. Detailed operating procedures, detailed limiting control settings and detailed operating information could be provided during the construction period as amendments to the original application. This timing feature of the application process should be clarified.

Specific Comments

The following specific comments are indexed according to section number.

1. Supplementary Information:

   Although the fuel is aged one year and the short half-lived radionuclides have decayed, we believe that the fuel does need protection from weather extremes since the more hazardous radionuclides still remain. The words "need not have a high degree of protection from weather extremes, tornadoes, or tornado generated missiles" should be better defined with this idea in mind.

2. On Page FR 46310, the first full paragraph, in the last sentence, we suggest that the words "containment" be replaced with "confinement".

3. 72.3(i) Does "human history" mean "recorded history"?

4. 72.11(c) Table I would be better put into Section 72.11.

5. 72.15(a) (7), 72.16 and 72.33 The depth and type of information required by these three Sections is not indicated and 72.15(a) (7) and 72.16 appear to conflict. Is it correct to assume that 72.15 applies to the initial SAR submittal and 72.16 applies to the final SAR update which is to be submitted prior to initiating operation of the facility? This should be made clear, if true. Does the Staff plan to issue a regulatory guide for SAR preparation?

6. 72.15(a) (13) The type of analysis and its purpose is not entirely clear. If the gamma exposure to an offsite individual due to the loss of pool water is being used to determine the site boundary distance, it should be so stated. (See the transcript of the Commissioners' meeting of 19 July 1978, Page 20. Presentation made by Mr. R. M. Bernero.) In our opinion, loss of pool water is a Class 9 type accident and is usually not considered in safety analyses for these types of facilities.

7. 72.18(a) The decommissioning mode to be used should be the prerogative of the owner. The word "decommissioning" should be substituted for the words "dismantling and disposal" in the first sentence.

8. 72.19 References to appendices of other Parts of Title 10 creates a risk that those references will be amended in the future in a manner inappropriate to an ISFSI. Therefore, it is recommended that such material be incorporated directly into Part 72 as appropriate.

9. 72.20 It is assumed that the reference should be Subpart C to Part 51 (Materials Licensing and Other Action).

10. 72.31(a) (10) The language dealing with environmental findings is common to that in Part 70, and we have found it acceptable in the past. However, it is clear that the scheduled need for an ISFSI in the United States is approaching a point where the regulatory process could interfere with timely completion of construction. To minimize this probability it is recommended that the following be inserted before the last sentence of this paragraph:

> "The Director may, based on an initial review of information filed, issue a letter authorizing initiation of construction activities, provided that he explicitly finds that any potential adverse environmental impacts resulting from operation of the facility can be adequately abated by adjustments in the final design of the facility, and that the applicant agrees to conduct the construction activities so that such adjustments are not precluded."

11. 72.33 (c) (5) The term "safety-related equipment" should be defined in this regulation.

12. 72.33 (d) (1) This paragraph has some typos; delete the first "by" and make the second "by" into a "be".

13. 72.61 It is suggested the probability criteria be added to indicate a threshold for the occurence of external natural events, external man-induced events, and natural phenomena, below which design protection against such events is not required.

14. 72.66 A design earthquake is suggested with a recurrence interval of at least 500 years. Could a probability threshold derived from this recurrence interval also be used as the criteria suggested in the preceeding comment for other events which could impact the safety of ISFSI?

15. 72.71(2) (ii) (B) The use of the word "appropriate" could use clarification. It is assumed that it is not necessary to look at all possible combinations of man-caused and natural phenomena type accidents, but only combinations where one accident can directly lead to the other. If this is so, it should be clearly stated.

16. 72.71 (2) (iii) The natural phenomena for which this capability is required should be listed; presumably it is only earthquake.

Sincerely,

for R. Nilson, Manager
Licensing

(23)

R-72(43FR46309)

190

OAK RIDGE NATIONAL LABORATORY
OPERATED BY
UNION CARBIDE CORPORATION
NUCLEAR DIVISION

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OAK RIDGE, TENNESSEE 37830

December 14, 1978

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

Acknowledged by card. 12/28. YMR

Dear Mr. Stanford:

This will acknowledge receipt of your letter requesting my comments on proposed regulation 10 CFR Part 72, Storage of Spent Fuel in an Independent Spent Fuel Storage Installation. I have read this document intently and I believe it is satisfactory for drafting into final form. I agree with your requirements for a quality assurance program as described in par. 72.75 and your statements regarding quality standards in par. 72.71, especially with respect to the wording "commensurate with the importance of the function to be performed." I agree with your requirements under (6) of par. 72.71 relative to testing and maintenance of systems and components that have safety-related functions. I would interpret this to mean that not all of the safety-related functions must have this capability. . . only those important to the function to be performed.

I appreciated our conversation relative to the application of the latest revision of ANSI N46.2 to the low level waste program, and look forward to talking with you again. . . perhaps in the next ANSI N46.2 subcommittee meeting.

Sincerely yours,

R. J. Beaver
Metals and Ceramics Division

RJB:pw

(24)

DOCKET NUMBER
PROPOSED RULE PR-72 (43FR46309)

12-28 Ymk

Mr. Daniel D. Wilt
666 Euclid Building - Suite 850
Cleveland, Ohio 44114

NRC PUBLIC DOCUMENT ROOM

Acknowledged by card.

December 19, 1978

The Secretary
United States Nuclear
Regulatory Commission
Washington, D.C. 20555

Attention: Docketing and Service Branch

Gentlemen:

I would like to comment on your proposed rules dealing with the storage of spent fuel in an independent spent fuel storage installation.

Subpart A - General Provisions

I believe the proposed rule in Subpart A is deficient in two material respects. Initially, I do not believe an applicant for a license to operate an Independent Spent Fuel Storage Installation (hereinafter referred to ISFSI) ought be an individual. The length of time such a facility will be in existence is such that it would be unwise to permit an individual to own the license. The frailties of human existence require a more stable form of ownership of such a facility. While an individual may be perfectly capable of operating such a facility, his heirs may not. To require the Commission to relicense facilities because of the death of the owner seems to me to be improper. Thus, I think the Commission must limit ownership of such facilities to entities which have unlimited life. For all practical purposes, much of the spent fuel will have an unlimited life.

The second deficiency deals with the financial information required of an applicant. The rule does not specify what form or type of financial information is required nor does the rule set forth any specific requirements concerning the financial stability of an applicant. This facility by its very nature will be in existence for more than one (1) human generation. In order to insure that such a facility will be properly operated, it is mandatory that the most conservative form of financial stability be required. Thus, an applicant should be required to post a bond in favor of the government in an amount not to exceed

double that of the amount needed to maintain decommission procedures and decontaminate the facility. It is true, of course, that bonding companies will not issue such a bond unless there is sufficient assets to protect the bonding company. The people of this country are entitled to the same protection. In my judgment, not to require such financial stability is wrong and no licence should be granted without the strongest financial protection available.

Subpart C - Issuance and Conditions of Licenses

Proposed rules sections 72.33 is deficient in that should any radionuclides be released to the atmosphere or to ground water or for any reason escape the confinement area a report must be made to the Commission immediately. In my judgment, prompt action must be required to prevent any potential danger to the public.

Subpart E - Siting Criteria

I believe this subpart of the proposed rule is deficient. Provision is made for examination of the proposed site for a large number of variables but no provision is made for a review of the sociological implications of such a facility. It is an elementary proposition that the citizens of this country have free choice. Free choice implies the right to say no. There is nothing in this regulation which permits the public to be involved in the application process. There is no requirement that a representative of the public review each and every part of the application to determine for the benefit of the public that all of the requirements are met. A provision for public hearing after the application has been filed is not sufficient. An ombudsman ought to be appointed to participate in the initial stages of the application process.

Furthermore, there ought to be a requirement that a proposed applicant obtain the approval of the population who live around the facility. The sociological and emotional health of the population is every bit as important as acceptable seismic characteristics. Since the facility is going to be in the area for an incredible period of time, the consent of those who will be its neighbors must be solicited. Since the proposed rule is completely deficient in this respect, it should not be adopted.

Your comments on these suggestions contained in this letter is solicited.

Very truly yours,

Daniel D. Wilt

DDW/kgb

CC: Senator John Glenn
Mr. Dick Sering

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PHONE: (509) 943-7100

110

December 27, 1978

(25)

DOCKET NUMBER
PROPOSED RULE PR - 72 (43FR46309)

Acknowledged by card 12/28 ymk

Secretary of the Commission
U.S. Nuclear Regulatory Commission
Washington, D. C. 20555

Gentlemen:

We want to thank you for the opportunity to comment on the proposed regulation 10 CFR Part 72, "Storage of Spent Fuel in an Independent Spent Fuel Storage Installation". Our comments are given below.

General

Single License Concept

The provision for issuance of a single license as early as possible in the licensing process is a practical forward step which should materially assist in solving the imminent spent fuel storage problem without sacrificing consideration of public health and safety or environmental protection.

Seismic Criterion

The recognition that the single static nature of an ISFSI makes the seismic risk less serious than for a reactor and that substantial resources can be expended both in site investigation work and debate on exact site specific design values is indeed correct. The seismic criteria proposed, therefore, represents a reasonable approach for these types of facilities.

Dry Storage

The subject of wet storage appears to be more fully addressed than dry storage. It is suggested that a single statement be inserted that this regulation is designed to address primarily water pool storage, but the limits for design and radiological effluents are applicable also to dry storage and that any specific questions related to dry storage will be handled on a case-by-case basis.

Price-Anderson Coverage

Our estimate of the potential offsite impacts of accidents at an ISFSI indicates that such consequences are not of a magnitude requiring Price-Anderson coverage assuming that an extended, total loss of pool water cannot cause fuel melting. It is also our understanding that the existing coverage provided at power reactors under 10 CFR 110 extends to the

DUPLICATE OF LETTER No. 22

Acknowledged by card. 12/28 YMR

Wisconsin Electric POWER COMPANY
231 WEST MICHIGAN, MILWAUKEE, WISCONSIN 53201

(26)

PROPOSED RULE PR - 72(43FR46309)

December 19, 1978

Mr. Samuel J. Chilk
Secretary of the Commission
U. S. NUCLEAR REGULATORY COMMISSION
Washington, D. C. 20555

Attention: Docketing and Service Branch

Gentlemen:

PROPOSED 10 CFR PART 72

The Federal Register dated October 6, 1978 published a proposed change to the Nuclear Regulatory Commission regulations. This proposed change specifies licensing requirements for the storage of spent fuel in an Independent Spent Fuel Storage Installation (ISFSI) and has been designated 10 CFR Part 72. We have reviewed these proposed regulations, and have a number of comments for your consideration. These comments are enclosed herewith.

As the Commission knows, construction permits and operating licenses have been issued for nuclear power facilities under 10 CFR Part 50, which included the construction and operation of spent fuel storage facilities at each of these power plants. We are disturbed to note that the provisions of 10 CFR Part 72 go far beyond the existing licensing requirements for spent fuel storage installations at operating power plants. We believe there is substantially no difference in the construction and operation requirements of such facilities whether they are combined with a power plant or whether they are independent of other facilities. We would, therefore, urge that the requirements for 10 CFR Part 72 be consistent with, and not exceed, those requirements for spent fuel storage installations at nuclear power facilities. In any event, to the extent the requirements will be more rigorous than such installations at nuclear power facilities, specific reasons therefor should be set out.

Very truly yours,

Sol Burstein
Executive Vice President

Sol Burstein

B-50

Enclosure

COMMENTS ON PROPOSED 10 CFR PART 72 LICENSING REQUIREMENTS FOR THE STORAGE OF SPENT FUEL IN AN ISFSI

	Paragraph	Comment
1.	72.15(b)	The requirement for an annual update of the safety analysis report (SAR) after the facility has been licensed is excessive. Likewise, submittal of these changes to the NRC for other than information purposes is not necessary. Per the provision of Section 72.34, a licensee may make certain changes to the facility without prior NRC approval. There should be no reason to submit these same changes to the NRC in the form of an SAR amendment for approval after the changes have been made. This section should specify a periodic update of the SAR when significant changes have occurred.
2.	72.32	The maximum duration of license permitted by the regulation should be 40 years. The equipment in such facilities will be designed to have a lifetime well in excess of the proposed 20 year limit. This relatively short license period may result in more frequent, and needless, licensing and legal delays.
3.	72.33(c)(5)	This paragraph would prohibit on-the-job training of non-certified personnel. A reasonable training program should allow an individual in training to operate equipment under the supervision of certified personnel.
4.	72.42	This backfitting requirement is very one sided. There is no cost/benefit criteria imposed on the NRC to justify backfitting requirements. There also is no apparent redress available to the licensee to question such backfit decisions.
5.	72.81(a)	No more than three copies of a facility security plan should be forwarded to the NRC. The security plan contains confidential material which should be disseminated on a need-to-know basis only.
6.	72.7	It is not clear whether the owner/operator of the facility must take title to the fuel stored therein or whether he can store fuel owned by someone else.
7.	72.71(13)(ii)	The requirement that neutron absorbing materials (poisons) be permanently fixed is unnecessary. The use of removeable poisons which are locked into position should be satisfactory. A third paragraph should be added to this design requirement which would allow credit for the use of a soluble poison material in the storage pool cooling medium.

8.	72.71(12)	Stating that handling, transfer, and storage systems shall be designed to be maintained subcritical is vague. A K_{eff_∞} value equal to or less than 0.95 should be specified.
9.		There appears to be no mention in the regulation that a license granted in accordance with this part would permit shipment of spent fuel assemblies.

Allied-General Nuclear Services
Post Office Box 847
Barnwell, South Carolina 29812

R. C. Baxter
President

(803) 259-1711

December 21, 1978

(27)

DOCKET NUMBER
PROPOSED RULE PR -72(43FR46309)

Acknowledged by card 12-28-78

Secretary of the Commission
U.S. Nuclear Regulatory Commission
Washington, DC 20555

Attention: Docketing and Service Branch

Subject: Comments on Proposed 10 CFR Part 72

Dear Sir:

In response to your request for comment on proposed regulation covering Storage of Spent Fuel in an Independent Spent Fuel Storage Installation (ISFSI), published in the Federal Register Vol. 43, No. 195 on October 6, 1978, Allied-General Nuclear Services (AGNS) is pleased to submit the following.

In a Sunshine Act meeting held in Washington, D.C. on July 19, 1978 the Commission discussed the licensing of spent fuel storage in an ISFSI. From the transcript of such discussion, it is our understanding that the Commission felt that 10 CFR 70 was inadequate for this purpose, basically because an ISFSI is not a production or utilization facility. Conversely, the Commission appeared to feel that 10 CFR 50 could be needlessly overly restrictive in view of the "much reduced risk potential" of an ISFSI. Because amendments to either Part 70 or Part 50, to make them applicable to ISFSI's, were felt to be a cumbersome and confusing method of approach, the Commission decided to publish, for comment, the proposed new 10 CFR 72 with requirements tailored specifically to an ISFSI.

Based on the foregoing understanding of the Commission's reasoning, it would appear clear that a new 10 CFR 72, if adopted, should not create confusion relative to other NRC regulations and should not needlessly be more restrictive than the present 10 CFR 50. The following comments are offered for the Commission's consideration in achieving these objectives.

A major source of possible future confusion would be eliminated if terminology and definitions used in proposed 10 CFR 72 were reviewed carefully, and revised as appropriate, for conformity with terms use in other NRC regulations. For example, "controlled area" and "neighboring area" (Sections 72.3(g) and (k) respectively) do not appear to differ sufficiently from "exclusion area" and

"low population zone", as defined in 10 CFR 100, to warrant the introduction of new terminology. Similarly, in Section 72.33(b)(1), "Functional and operating limits" are equivalent to the "safety limits" of 10 CFR 50 and would benefit from being so designated. We urge that a thorough comparison of all terminology in the proposed 10 CFR 72 be made with that in 10 CFR 20, 10 CFR 50, 10 CFR 70, and 10 CFR 100 with the objective of restricting new terminology to a minimum.

At least one such new definition in the proposed 10 CFR 72 could result in unfortunate and unintended results quite apart from the general confusion arising from inconsistent terminology. Section 72.3(s) provides a definition of "Structures, systems and components important to safety" which not only needlessly differs from that of 10 CFR 50 but which might be construed as requiring an unwarranted expansion of the number of items subject to the quality assurance requirements of 10 CFR 50, Appendix B, as required by Section 72.75. Therefore, we suggest that "Structures, systems and components important to safety" be defined, as in 10 CFR 50, to be "those safety related items that prevent or mitigate the consequences of postulated accidents that could cause undue risk to the health and safety of the public."

One new definition which is required for a new 10 CFR 72 is that of an "ISFSI". As set forth in Section 72.3(j), the definition is both clear and precise. However, even this required new definition is placed in some jeopardy of misunderstanding by the possibly conflicting language used in the second paragraph of the Supplementary Information section (Federal Register page 46309, column 2) which refers to "installations built specifically for this purpose that are not coupled to either a nuclear power plant or a fuel reprocessing plant." If an installation meets the definition of Section 72.3(j) through capability of "independent operation with all necessary supporting services", then the implied restriction in the Supplementary Information section appears both unnecessary and unwarranted. That such implied restriction was not intended seems evident from not only Sections 72.71(4) and (5) but also from the transcript of the Commission's July 19, 1974 discussion concerning the establishment of off-site dose guidelines which permit operation of an ISFSI sited with reactors. Consequently, it is recommended that this conflicting language in the Supplemental Information section be deleted.

Section 72.18 provides a new regulatory requirement relative to decommissioning. The decommissioning plan is therein described as requiring inclusion of assurance related to "the dismantling and disposal of the ISFSI at the end of its useful life." This

Section should be clarified to provide that, after an ISFSI has been decontaminated at the end of its useful life (if complete decontamination is the selected mode in the decommissioning program), any question as to dismantling and disposal of the "cold" structures, systems and components would be a matter for determination by the owners within the scope of state and local regulations and should not be of regulatory concern to the Commission.

Section 72.31(a)(10) introduces a proposed licensing concept which differs substantially from that of 10 CFR 70. Section 70.21(f) of 10 CFR 70 requires that an application must be filed "at least 9 months prior to commencement of construction". In view of the general uncertainties surrounding national nuclear policy, it is unlikely that any private investor would want to initiate construction on any basis substantially different from that proposed by Section 72.31(a)(1). However, the urgency of establishing an ISFSI, as expressed by the Interagency Review Group, suggests that the Commission might wish to consider the inclusion of an option in Section 72.31(a)(10) under which, in the absence of favorable licensing action by 9 months after date of application, the applicant, at its own risk, might be permitted to initiate construction without jeopardizing a favorable ruling on the application.

Section 72.42(a) provides that the Commission may require backfitting "if it finds that such action will provide substantial, additional protection ...". As written, the licensee has no assurance that such required backfitting would be cost effective. This subsection should be modified to provide that backfitting could be required only after the Commission has demonstrated, by suitable cost-benefit analysis, that such backfitting is justified.

Section 72.51(b) requires a "physical inventory" of all spent fuel in storage at intervals not to exceed 12 months or as otherwise directed by the Commission. This provision would benefit from added definition. A physical inspection of each assembly on a periodic basis would appear not only unnecessary but would also involve needless radiation exposure. A system of two-person identification of each assembly upon its initial placement in storage and upon any later movement, coupled with periodic total "piece counts" (without assembly identification) and with random sampling for identification would provide the needed assurance. Consequently, we suggest that Section 72.51(b) be modified to clarify that a procedure such as that outlined above would meet the "physical inventory" requirement.

Section 72.54 (Nuclear Material Transfer Reports) would greatly benefit from clarification of its final sentence which requires submittal of a report within 10 days after the spent fuel is "received". Because of possible delays between the date on which a shipping cask arrives at an ISFSI and the date on which an assembly is removed from such cask, identified and placed in storage, it is recommended that this provision be modified to require such submittal within 10 days after the spent fuel is "placed in storage".

Section 72.55(c) requires performance by licensee, or by the Commission, of tests which the Commission deems appropriate or necessary. As written, the licensee is not protected from arguably unwarranted tests. This subsection should be modified to require that (a) upon request of licensee, the Commission demonstrate that the tests are appropriate or necessary and that (b) such tests be scheduled in a manner which would minimize their impact on ISFSI operations.

Section 72.71(8)(ii) requires, by its final sentence, monitoring both locally and in a continuously manned location. It is suggested that this be modified to clarify that, if the local station is continuously manned, a second alarm station is optional rather than required.

Section 72.71(19) requires that all site-generated wastes be concentrated at the ISFSI. Instances could well arise where, except for this provision, it would be beneficial, both economically and environmentally, that such concentration be performed at another licensed location, particularly if such were nearby. Accordingly, it is suggested that the last sentence of this subsection be replaced by the following: "Provision shall be made for the conversion of site generated wastes into a form suitable for interim storage and ultimate final disposal."

We trust that above comments will be helpful in finalizing the proposed 10 CFR Part 72.

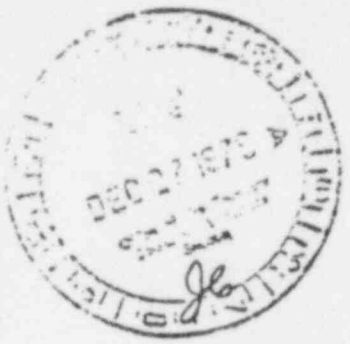
Sincerely yours,

R C Baxter

R. C. Baxter

RCB/gmb

AMERICAN NUCLEAR SOCIETY
STANDARDS COMMITTEE



December 22, 1978

(28)

DOCKET NUMBER
PROPOSED RULE PR -72(43FR46309)

Mr. R. E. L. Stanford
Office of Standards Development
U. S. Nuclear Regulatory Commission
Washington, D. C. 20555

Dear Russ:

Please find enclosed ANS-57.7 committee's comments on 10 CFR, Part 72. I hope these comments prove helpful.

Please feel free to call if you have any questions.

Very truly yours,

John A. Nevshemal

John A. Nevshemal
Chairman, ANS-57.7

JAN:mk
Encl.

Acknowledged by card 12-28-78

Science Applications, Inc.
40 Denver Technological Center West, 7935 East Prentice Avenue, Englewood, Colorado 80111. 303/771-6900
3598 E. GEDDES AVENUE • LITTLETON, COLORADO 80122 • (303) 771-4285

72.1 Last sentence - Delete. Even though the ISFSI is a temporary storage, they are being designed on a 40-year basis. The title of the Regulation does not say anything about the temporary nature of the facility.

72.2 Last sentence - Delete. A grandfather clause should be on a permanent basis rather than say a license of an existing facility will not be renewed unless it meets these new regulations. What happens to an ISFSI if it is full of spent fuel and their license comes up for renewal and their facility does not meet the new regulations? This sentence is too restrictive and should be deleted or modified.

Section 72.3 (S) "Structures, systems, components important to safety" as defined in 10 CFR Part 50, "are those safety related items that prevent or mitigate the consequences of postulated accidents that could cause undue risk to the health and safety of the public". It seems appropriate that definitions in Part 72 should be consistent with these used in other Federal Regulations to avoid confusion. It is recommended that the change be made.

Section 72.3 (g) and 72.3 (k) defined "controlled" and "neighboring" areas respectively. 10CFR100, paragraph 100.3 (a) defines an "exclusion" area; the definition of which is similar to the Part 72 definition of a "controlled" area. The definition of "low population zone" in 10CFR100 is similar to the definition of "neighboring" area in Part 72. The definitions of the various "areas" discussed in Part 72 should be consistent to the definition used in other parts including 10CFR20, 10CFR73 and 10CFR100 to avoid confusion and misuse of terminology.

72.15 (a) Requiring research and development to confirm the design is too restrictive. The paragraph does not say who makes the decision requiring R&D. This could be a very expensive item for the licensee. The paragraph should either be deleted or modified.

72.15 (12) (1) (a&b) Why not combine the two paragraphs by inserting "and gaseous" following "liquid" in paragraph A. In the first paragraph in (12), gaseous and liquid effluents are included together rather than separate.

72.15 (13) (b) I believe the (b) should be an (a). In this paragraph, the requirement to update the SAR annually is unduely restrictive. It appears that the last part of that paragraph should be changed to read "---the SAR will be updated and submitted to the Commission for approval when significant changes are proposed to the ISFSI." If there have been no changes to the facility or components or systems since the SAR, there is no reason to continuously making reports that are the same as previously submitted.

72.15 (13) (i) (3) (c) Delete the last sentence because it is covered by paragraph 72.75. It does not add anything that has not been said.

72.17 (c) "Certified" should be deleted. There are only certifications for reactor and reprocessing operators. Trained plant personnel should be adequate for this operation.

72.18 (b) Delete sentence. This is too restrictive. No one else in the nuclear field have had to comply with financial arrangements for decommissioning. You could make the ISFSI too costly to operate with the burden for decommissioning some 40 years down the road.

Section 72.18 - Decommissioning plan. Including its financing. This section addresses "dismantling and disposal of an ISFSI"; it is our understanding that once the installation is decontaminated, the final disposition of the remaining structures are the purview of the owners and state and local zoning regulations. If this is the case, this info should be incorporated into this section.

Section 72.31 (a) (10) specifically states that initiation of construction by an applicant prior to a finding that the action called for, following review by the Director of the Office of Nuclear Materials Safety and Safeguards, is issuance of the proposed license may be grounds for denial of a license. In 10CFR70, paragraph 70.21 (f), the requirement is established that an application must be filed "at least 9 months prior to commencement of construction". It is recommended that a similar provision be included in 10CFR72 to allow an applicant to proceed with construction, after a suitable period has elapsed from the date an application was filed, without jeopardizing a favorable ruling on the application.

72.31 (a) (a) Same as paragraph 72.18 (b).

72.32 Since the facility is designed for a 40-year life, it seems that the license should be issued for 40 years rather than 20 unless there is some overriding reason for the 20. Another burden placed on the licensee is that upon renewal, he has to comply with the current regulations in force at that time. A license should be issued for the duration of the facility unless a significant design change has been made to the plant. Same comment for paragraph 72.2.

72.33 (5) (c) (4) "And certification" should be deleted. A training program should be efficient to meet the NRC requirements.

Section 72.33 License Conditions (1) Functional and operating limits and monitoring instruments and limiting control settings. It appears that "Functional and operating limits" are equivalent to "safety limits" in a part 50 license. It is suggested that the title be changed to Safety Limits to be consistant with part 50.

72.34 (2) (c) If you enumerate (1) and (2), then you need to number the rest up through (5).

72.36 (b) (1) I do not think that paragraph 72.15 or 72.16 apply in this case. As a matter of fact, not even the limited case stated in this section.

72.36 (b) (2) The first sentence should be deleted. That information is part of the SAR furnished by the original owner and should be current. The second sentence in this paragraph is the information the Commission needs. As a matter of fact, the two sentences in this paragraph are not compatible.

72.42 Delete entire paragraph. Any question of backfitting should be included as a design condition. It is recommended that the storage pool be at ground level. Backfitting should not be spelled out as a separate entry.

Section 72.42 (a) states that the Commission may require backfitting if such action will provide substantial additional protection. This paragraph should be modified to include a provision that backfitting can be required only after a suitable cost-benefit analysis has shown that backfitting is justified.

Section 72.51 (b) What is intended by "a physical inventory"? Does this mean physically verifying each fuel assembly stored in the ISFSI?

A piece count and selected small quantity audit of randomly selected fuel assemblies for verification would be adequate.

72.51 (b) Delete paragraph. With all the other records required by (a), (c) and (d), you have a perpetual inventory system. Conducting a physical inventory should be at the discretion of the licensee.

72.52 Put a period after "material." When you continue by saying "contained in spent fuel," you are implying an accident report should be made if a fuel element ruptures and the pellets fall to the bottom of the pool. Do you really want such a report under that condition? As a matter of fact, you cover any loss of SSNM in paragraph 72.53.

Section 72.54 Last sentence - Does "received" mean when the cask is received at the ISFSI? Should clarify, verification of the fuel assembly must be made before the NRC-741 can be completed and returned to DOE and the shipper. Should say "..received, verified and stored."

72.55 (c) I do not think that you can test items (1) and (2). You could inspect them, however. Item (3) and (4) you can test and inspect this equipment. I believe the entire paragraph should be rewritten. You could put a period after "regulations."

Section 72.55 (c) This section as written would allow any and all tests that could be conceived and "deemed appropriate or necessary" to be required. It also appears that if the licensee does not choose to perform the test, that the Commission would perform it. The statement appears to be too broad and all encompassing. More definitive information should be given to clarify this requirement.

Specific requirements should be stated that limit the time (say 48 hours) that a test would impact receiving operations.

72.61 (b) Delete "and man-induced" because at the time site selection there should not be any man-induced events to be evaluated.

72.63 (a) (b) (c) Delete second sentence in (a) and entire sentence (b) and rewrite (c) as follows: Appropriate methods shall be adapted and justified for the design basis of the ISFSI as being compatible with the characteristics of the region and the current state of knowledge. These paragraphs are talking about phenomena, when all we are talking about are man-made facilities.

72.71 (2) (ii) Delete parenthetical expression because it conflicts with paragraph 72.66 (a). In that paragraph you allow the applicant an option.

Section 72.71 Overall Requirements 3 - Would suggest that "credible" be inserted between "under fire" (5th line) for clarification. Also what type explosion was projected? Is ion exchange resin the only one to be considered? What was intended?

Section 72.71 (8) (i) would suggest adding "mechanical" between gross ruptures. Isn't this what we want to protect them from?

Section 72.71 (8) (ii) lines 16 thru 20. It should not be a requirement to have water level monitoring equipment alarm "both locally and in a continuously manned location", if the local area is continuously manned, the licensee may choose to have a second alarm location but this should be his choice. Remove the words "both locally and" replace with "locally if not continuously manned or in...".

Section 72.71 (10) - Clarification of this section as to what is meant by action to be taken to "operate the ISFSI safely under normal conditions" is needed. The intent should be to monitor under normal conditions not to operate. Suggest that "if required" be inserted in line 2 so it reads - "A control room or control areas, if required, shall be designed to permit occupancy and action to be taken to monitor the ISFSI safely under normal condition and to maintain the ISFSI in a safe condition under off normal or accident conditions".

Section 72.71 (19) - It is recommended that this paragraph be amended to eliminate the requirement that on-site facilities be provided to concentrate all site generated wastes. Concentration and conversion into a form suitable for interim storage and ultimate disposal might be best accomplished at a location other than where the waste is generated. The following is a suggested rewording of this paragraph.

(19) Waste Treatment - Waste treatment facilities shall be provided. Provisions shall be made for the conversion of site generated wastes into a form suitable for interim storage or ultimate final disposal.

72.75 (a) Delete second sentence, delete second sentence in (b), and delete (c) entirely. All of these words are part of Appendix B.

DOCKET NUMBER PR-72(43FR46309) (29)

Environmental Policy Institute
317 Pennsylvania Ave. S.E. Washington, D.C. 20003
202/544-8200

January 3, 1979

Secretary of the Commission
U.S. N uclear Regulatory Commission
Washington, D.C. 20555

Attention: Docketing and Service Branch

The Environmental Policy Institute makes the following comments concerning the Commission's proposed rule concerning the Storage of Spent Fuel in an Independent Spent Fuel Storage Installation(ISFSI) as 10 CFR Part 72 noticed in 43 FR 46309, October 6, 1978:

1) We note that both the GEIS on the Handling and Storage of Spent Light Water Reactor Fuel--NUREG-0404 and the proposed rule on 10 CFR Part 72 fail to consider higher burnup rates and improved LWR Fuel Cycle development. NUREG-0404 is based upon 25,000 MWD/MTU and notes fuel producer expectancies of 33,000 MWD/MTU. DOE(U.S. Department of Energy)'s Draft Environmental Impact Statement on the Storage of U.S. Spent Power Reactor Fuel EIS-0015-D characterizes burnup rates at 33,000MWD/MTU for PWR fuel and 27,000 MWD/MTU for BWR fuel. Recent papers presented by the DOE argue for substantially higher burnup rates of 45,000 MWD/MTU or more. DOE is proposing 50,600 MWD/MTU for PWR's and 47,000 MWD/MTU for BWR's. To accomplish this, DOE is proposing an increase in enrichment to roughly 4.3 % . These higher burnup rates already under development contracts will substantially alter both spent fuel characteristics(fission gases, cladding/fuel interaction, cladding integrity, thermal and radiation output) and discharge rates for spent fuel. While the proposed rule consistently overlooks the need for thorough analysis and record-keeping of specific spent fuel rod and assembly characteristics, we believe that the failure to consider the substantially different characteristics and discharge rates of high-burnup fuel is a significant flaw in bohh the proposed rule and the NUREG-0404 document.

2) The proposed rule notes that the applicability of the rule is to one year old fuel with an option for both wet and dry storage. NUREG-0404 states that dry storage has not been employed by the nuclear industry(section 3.1.4) and that preliminary conceptual studies indicate a feasibility only for five year old fuel or more. The proposed rule makes no such distinction nor does it address the problem of high-burnup fuel characteristics at one year. In fact there seems to be a major discrepancy between the 25,000 MWD/MTU burnup characteristics outlined in the NUREG-0404 and the nominal 33,000MWD/MTU expected of current fuel performance. Spent fuel characteristics and not fuel "age" should be the controlling factors for both facility design and applicability. The proposed rule consistently downplays the necessity to control for specific spent fuel and fuel assembly characteristics. We wish to go on record of opposing the inclusion of the dry storage option given the lack of both industry and NRC experience with dry storage, especially without fuel characterization limitations.

Acknowledged by card 1.115

3) The proposed rule notes that aged fuel "need not have a high degree of protection from weather extremes, tornados, or tornado missiles. Again we must note that the age of the spent fuel per se is not an adequate means of characterizing either design or operating paramet We take exception to the statement that a high degree of protection spent fuel is not required, especially as a regulatory position. W also find the proposal that facility cooling systems and emergency water supply systems may not be capable of withstanding natural phenomenon to be an improper and inadequate regulatory position. Th Commission's contention that corrective action can be taken within an adequate period of time is not defensible. There is no way to a that proper personnel, parts, and radiological conditions will coop to assure containment and acceptable occupational exposures. In ad tion the Commission assumes here that the phenomenon affecting the does not similarly affect the surrounding geographical area which be relied upon to provide corrective services.

4) The provision that the technical information to be submitted by the licensee concerning potential doses to individuals off site from accidents and natural phenomenon under section 72.15(13) calls for exexposures to be calculated only for the first 24 hours following th event. If a release of radioactive material does occur, the exposu of individuals will extend beyond a 24 hour period in all probabilit especially given the radionuclides involved. Exposure to off-site individuals should be calculated over the expected hazardous period not merely for a twenty four hour period. Furthermore, the calculat is to be made only for direct exposure and not environmental pathway doses over time. The Commission's position on accident exposures wi improperly underestimate the potential consequences of postulated ev by restricting the period of time persons may be directly exposed an neglecting exposure via environmental pathways over time.

5) The criteria for defining potential radiological consequences unde accident conditions in section 72.67 establishes a criterion of 5 Re in two hours at the outside boundry of the controlled area. The reg lation is vague as to whether this is a maximum dose, an average exposure potential, or an exposure to the maximum individual or some o measurement. The basis for this criterion must be specifically defi We also note that a 5 Rem exposure in two hours to an individual is an insignificant dose. In fact, it is a dose presenting significant and should be reduced by at least an order of magnitude.

6) The requirement that the licensee supply technical information under section 72.15 concerning the safety analysis report(SAR) through a p up to 90 days prior to receipt of spent fuel is questionable. While case can be made for a single construction/operating type license an for updating the SAR, we have serious reservations about the "trickle in" approach outlined in this requirement. Given the Commission's e perience with reactor licenses, we believe that minimum requirements should be established for the SAR prior to licensing. Supplemental formation may be added after the license is issued but it must not be information substantially affecting the approved design. One stop licensing requires that ths issues be resolved to the fullest possible extent before the facility is licensed and is acceptable only on such a basis. We support the Commission's need for full information prior

to the receipt of spent fuel, but we object to the concept that the design and safety analysis can be substantially changed after licensing. In the same vein, we support the ability of the Commission to backfit the facility as outlined in section 72.42, but we do not believe that the combination of SAR updating and backfitting should substitute for a full licensing review. The Commission must establish clear criteria for the scope of this review and the scope of the SAR, Environmental report and other reports required under section 72.31 prior to the issuance of a license.

7) We commend the Commission for its requirements concerning the decommissioning of the facility provided in section 72.18. We are concerned about the financial requirement, however, and note that the Commission is exploring the various options for financial assurance for decommissioning for a variety of facilities under its regulatory authority. We caution the Commission with regard to this type of facility over user-fees because of the uncertainty of demand and fuel discharge requirements. In addition, higher burn-up rates and waste disposal plans may also substantially affect the long-term economic viability of such a facility. Reliance upon user-fees to be assessed over the life of the facility is not a realistic fiancial assurance mechanism.

8) The license conditions proposed under section 72.33 have two flaws. No specific requirement is made for the cataloging of the spent fuel assembly characteristics by assembly either for criticality control, in-facility handling information, or additionally for disposal characteristics. The Administrative requirements outlined in subsection(5) should specifically establish such procedures. The second flaw is the biannual reporting requirement for radioactive effluents under subsection(d). The subsection allows effluents "significantly above design objectives" to unreported for long periods of time and potentially in excess of eight months. In addition, the reporting periods should be matched to the operating date of the facility rather than a calender period to assure consistency in reporting.

9) The provision outlined in section 72.34 which allows the licensee to change procedures, conduct tests, and modify the installation without prior Commission approval allows the licensee to make the determination as to the significance of these alterations. At a minimum, the licensee should be required to consult with the Commission staff and file a notice of such a change prior to implementation rather than after the fact on an annual basis as proposed in the section.

10) We have four comments concerning the General Design Criteria proposed in Subpart F:

Requirement(2)(iv) provides for the protection of an aquifer, but it should also provide for the protection of surface waters adjacent to the site from radioactive materials.

Requirement(8)(i) provides for the protection of fuel cladding and gross ruptures but does not specify if physical barriers or procedures are required nor does it establish a level of adequacy.

Requirement(13)(ii) allows for the use of neutron absorbing materials to be used as an alternative method of criticality control While neutron absorbing has been used in fuel pool densification its use as a primary criticality control

mechanism is questionable and experience with this practice over a 20 year period commensurate with the license period is not existent to our knowledge. In addition the use of such material adds to the contaminants in the pool as well as to the volume and hazard of decontamination, decommissioning, and radioactive waste to be disposed of upon termination. We do not believe that neutron absorbing materials should be permitted as an alternative method of criticality control at this time.

Requirement(14) which provides for radiological protection fails to address cask handling, loading, and unloading as well decontamination. In fact, the entire proposed rule ignores the problems associated with these operations.

11) As noted immediately above, the proposed rule does not address the problems, exposures, and potential releases from cask handling procedures. Cask handling and unloading offer the highest routine worker exposures and potential for release of radionuclides. Cask decontamination also results in a major portion of waste treatment problems. The proposed rule does not establish any requirements for design, procedures or transport vehicle/cask storage to reduce occupational exposures, transport vehicle personnel, or releases from these operations. This a major shortcoming of the proposed rule in general and the design objectives and radiological protection requirements in particular.

signed,

David Berick

David Berick
Environmental Policy Institute

(30)

-72(43FR46309)

(700)

4410 F... A...
Greensboro, NC 27410

Dec 30 '78

Dear Sir:

We are writing to suggest alternatives to Away from Reactor Facilities plans, in the interest of safer, cheaper handling of waste. After reading reports, we recommend on-site storage pools at stockholder expense until a fool-proof method of permanent disposal is found.

One accident could damage health and property of many people, we cannot afford the risk.

Sincerely,

Marilyn & Jim Nicholson

Acknowledged by card 1/15

POOR ORIGINAL

(31)
-72(43FR46309)

Marilyn Chase
Route 1 Box 265
Climax, N. C. 27233

December 30, 1978

Dear People,

I would like to comment on your concept of Away from Reactor storage facilities. First, I see little value of a public comment period when so little attempt is made to inform the public of the issue and so little time is given in which to receive public comment. I saw no mention of AFRs in either the DOE or NRC news bulletins.

As for the AFRs themselves, I see their construction and operation as a threat to my health, and an additional burden to my electric bill. I see no need for a half-way house for spent nuclear fuel. If nuclear material can indeed be stored safely permanently, do it.

Thank you.

Love,

Marilyn Chase

1/15

(32)

C. L. Hickerson
Route 1
Franklinville, N. C. 27248

December 30, 1978

Dear People,

I am appalled that the nuclear industry is still taking the problem of nuclear waste so lightly as to propose the construction of Away from Reactor storage facilities. The increased handling and transportation necessary with the operation of AFRs will increase the danger both to my health and my pockerbook. The seriousness of the problem of nuclear waste disposal deserves more than band-aid solutions. There has been ample time since the beginning of the nuclear era to determine a method of permanent waste disposal, if a method really does exist. The public deserves a clear commitment from the nuclear industry to solve this problem.

Thank you.

Sincerely,

C. L. Hickerson

C. L. Hickerson

1/25

(33)

72(43FR46309)

Tom Clayton
Route 1 Box 266
Climax, N. C. 27233

December 30, 1978

Dear NRC,

I am strongly against the proposal to construct Away from Reactor facilities for the storage of nuclear spent fuel. Let the fuel stay where it is created until a one-time method of disposing of it is developed. I see the existence of AFRs as West Valley all over again. There is no reason that I should be required to pay for sloppy, hastily conceived plans for disposing of so dangerous a material as nuclear waste. Please put your time and money into coming up with a safe way to permanently store nuclear waste. It is unwise to cart this waste all around the country looking for an accident to occur. I don't want to pay for either the transportation or the effects of an accident with my money or my health.

Thank you.

Sincerely,

Tom Clayton

Acknowledged by card. 1/15

AMERICAN SOCIETY OF CIVIL ENGINEERS

STRUCTURAL DIVISION

NUCLEAR STRUCTURES AND MATERIALS COMMITTEE

COMMITTEE CORRESPONDENCE

DOCKET NUMBER (34)
PROPOSED RULE PR - 72 (43FR46309)

TO: Robert B. Minogue
Director, Office of Standards Development

FROM: R. G. Domer, Chairman

DATE: December 27, 1978

Address Inquiries To:
Dr. R. G. Domer
Tennessee Valley Authority
W9D224 400 Commerce Avenue
Knoxville, Tennessee 37902
Telephone: (615) 632-2357

Dear Mr. Minogue:

Our Committee on Nuclear Fuel Cycle, D. S. Pesce, Chairman, obtained a copy of the proposed 10 CFR Part 72, Licensing of Spent Fuel Storage in an Independent Spent Fuel Storage Installation (ISFSI), and has reviewed this document. You will find attached for your consideration a copy of these comments. You will note from Mr. Pesce's letter to me that the comments reflect the committee majority and that the committee majority supports the proposed regulation to specifically cover the storage of spent fuel in an ISFSI.

You will note that many of the comments center around a consistent level of risk (or probability of occurrence) for such natural events as earthquakes, tornados, and flooding. I believe that you will find our comments both constructive and reasonable. We would like to commend the Office of Standards Development for their efforts in developing this proposed regulation.

R. G. Domer

RGD:KW
Attachment
cc: D. S. Pesce (Attachment)
J. H. Appleton (Attachment)

Acknowledged by card 1/15

To: R. G. Domer
Chairman, Nuclear Structures & Materials Committee

From: American Society of Civil Engineers
Nuclear Structures & Materials Committee
Committee on Nuclear Fuel Cycle

Subject: Proposed 10 CFR Part 72
Licensing of Spent Fuel Storage in an Independent
Spent Fuel Storage Installation (ISFSI)

The American Society of Civil Engineers has a vital interest in the myriad of technical problems facing our nation in its effort to better the environment and welfare of its people. It is in this spirit of concern that the ASCE Committee on Nuclear Fuel Cycle offers its comments (attached) in reference to the proposed 10 CFR Part 72.

The committee majority supports the recommendation that the Nuclear Regulatory Commission approve publication of the proposed regulation, 10 CFR 72, to specifically cover the storage of spent fuel in an ISFSI. The committee commends the Office of Standards Development for the level of reason that has gone into this recommendation.

D. S. Pesce

SUBJECT: Technical Review of Proposed 10 CFR Part 72
Licensing of Spent Fuel Storage in an Independent Spent Fuel Storage Installation (ISFSI)

FROM: American Society of Civil Engineers
Committee on Nuclear Fuel Cycle

ITEM I -- SEISMIC DESIGN REQUIREMENTS

The following commentary may appear to present some conflicting observations. This is recognized and done intentionally for a primary reason of focusing attention on the hurdles a proposed ISFSI faces when subject to review for compatibility with established technical requirements and at the same time subject to acceptance by the community.

Stating it realistically, the desire to expedite the licensing procedure often conflicts with the demands of selected parties looking for the absolute assurance that the facility/system presents no level of risk. A second interpretation is that the technical considerations must prevail; however, they must be responsive and fit into our political society.

A. The proposed regulation is directed toward new sites for an ISFSI rather than recognizing that the majority of sites may be contiguous to existing licensed reactors. The regulation sets minimum seismic criteria which are in excess of criteria used in the licensing of most reactor facilities in the aseismic Southeast U. S. The regulation attempts to justify such conservative criteria by stating that these criteria will not affect the design of the simple structures involved and by emphasizing - in four separate statements - that the adoption of such conservative criteria will be in lieu of site investigations.

This regulation is written as if it must justify the arbitrary selection of ultra conservative seismic criteria. If such conservative seismic criteria are reasonable, then the cost savings due to omitting site investigations are not relevant.

The regulation infers that site investigation costs will be reduced. Nothing could be further from reality. The regulation still requires the site seismicity to be characterized by showing the probability of seismicity is below stated levels. Furthermore, the site will have to be free of those unusual geologic conditions which are only determined during site investigation.

While it may be appropriate to specify minimum acceptable levels of design, there is no justification for adopting ultra conservative designs just because the proposed structure is supposedly simple.

B. As stated in supplementary information, the ISFSI poses a small potential risk due to the relatively inert nature of aged spent fuel and the simple static nature of an ISFSI makes seismic risk less serious than it is for a reactor, therefore, the severe seismic requirements of at least 0.25g are inconsistent in the Subpart F 72.71 (2) (ii).

It is recognized that the rationale of 0.25g seismic requirement is to avoid expenditure of substantial resources in investigation work to establish site specific seismic data, but here again if ISFSI is located near existing licensed facility, some of this data may already be available and made investigative and review work of site-specific seismic design data a relatively simpler task.

Therefore, it is suggested that seismic criteria state the establishment of a site specific *g value* by the procedure of Part 100 or as an alternative approach, use of at least 0.25g horizontal ground motion acceleration in which case, the integrity of the ISFSI will be considered adequate, without the need for costly seismic site investigations, analyses, and reviews.

C. It is stated in the Supplementary Information, *Aged spent fuel, having lost the short-lived radionuclides by decay, need not have a high degree of protection from weather extremes, tornadoes, or tornado generated missiles.*

1. The rationale for this statement should be given in the text, included in an appendix, or referenced to a supporting document.

2. Section 72.71, *General Design Criteria*, Overall Requirements, section (2) (ii) states, *Structures, systems, and components important to safety shall be designed to withstand the effects of natural phenomena such as earthquakes (with a horizontal ground motion acceleration of at least 0.25g), tornadoes (excluding tornado missiles), lightning, hurricanes, floods, tsunami, and seichs without impairing their capability to perform safety functions.*

The statement from the Supplementary Information lumped all extreme weather events together and implies that consideration for these events is not critical to the design; however, the requirements in the general design criteria specifically name extreme weather events to be considered in the design, except tornado generated missiles. This ambiguity needs to be resolved.

D. Section 72.66 indicates that a peak horizontal ground acceleration of not greater than 0.25g with a recurrence interval of at least 500 years can be used to define the earthquake or that a site specific *g value* can be determined by procedures outlined in 10 CFR 100. Several clarifications are needed for this section as follows:

1. Horizontal ground acceleration is specifically stated; therefore, vertical acceleration should be specified or the word horizontal removed.

2. The ground motion should be specified as free-field surface motion.

3. This section implies that if a site specific *g value* is determined, an earthquake with a return period of 500 years could be used. This should be clearly stated.

4. In the majority of the eastern United States, a 500-year earthquake would result in maximum accelerations less than 0.10g. This is quite a bit smaller than 0.25g which would definitely affect the cost of at least the equipment. This can be handled by the approach suggested in Item 1.

5. Specification of just a peak *g value* is not complete. Additional information should be included concerning ground response spectra and methods of analyses (static and dynamic) or tests for structures, systems, and components. 10 CFR 100, Section VI (a) is an example of what needs to be added. Use of the regulatory guide spectra is applicable for most sites, but some reference or information should be in 10 CFR 72.

ITEM 2 -- USE OF EXISTING STORAGE CAPACITY

Spent fuel storage capacity at reactor and at existing used or unused reprocessing plants should be increased as much as possible by modification of racks with closer spacing of fuel assemblies and utilizing previously unused floor area but keeping a fuel core reserve capacity in spent fuel pool for a reactor core unloading.

A consideration to above, should be given during licensing of an ISFSI so that unnecessary ISFSI need not be licensed as acknowledged purpose of ISFSI is temporary storage of spent fuel for a period during which, a decision to reprocess or permanently dispose the spent fuel is made, such facilities are constructed and put in operation.

ITEM 3 -- REFERENCE: SUBPART G - QUALITY ASSURANCE
72.75 QUALITY ASSURANCE PROGRAM; RECORDS

As stated in the reference, the Quality Assurance Program is based on the Criteria in Appendix B of 10 CFR 50. *The Quality Assurance Program shall be established and implemented to provide assurance that the safety related structures, systems, and components of an ISFSI will perform their safety functions. The application of the Quality Assurance Program should be commensurate with the importance of individual structures, systems and components to safety.*

It is recognized that safety is the number one concern when assessing the risks associated with the operation of an ISFSI facility. However; for the reason of maintaining credibility with the public in that all elements of the spent fuel storage facilities will continue to perform satisfactorily in service, it is essential that the non-safety related structure, systems, or components receive their due quality assurance assessments. In this way, the national interests will be better served.

It is suggested that 72.75 by restructured as follows:

72.75 Quality Assurance Program

A. A Quality Assurance Program shall be established and implemented to provide assurance that systems, components, and structures of an ISFSI will perform safely and reliably. The requirements of 10 CFR 50 shall apply to non-safety related items as well as to safety items.

B. The application of the Quality Assurance Program shall be commensurate with the importance of individual systems relative to safety, the environment, reliability, availability, cost, and schedule.

C. The Quality Assurance program shall be applied during the design, procurement, fabrication, installation, inspection, test, operation, maintenance, repair and modification phases of the project.

D. Appropriate records of the design, fabrication, erection, and testing of structures, systems, and components important to safety shall be maintained by or under the control of the licensee throughout the life of the installation.

E. Quality Assurance means all those planned and systematic actions necessary to provide confidence that a structure, system, or component will perform satisfactorily in service. Quality Assurance includes quality control, which comprises those quality assurance actions related to the physical characteristics of a material, structure, component, or system which provide a means to control the quality of the product.

ITEM 4 -- REGULATORY GUIDES

A. Regulatory Guide 1.76, Design Basis Tornado for Nuclear Power Plants. We take exception to the 360 mph (290 mph rotational, 70 mph translational) velocity requirement for structural design. The probability of occurrence for this tornado is approximately 10^{-7}.

B. Regulatory Guide 1.102, Flood Protection for Nuclear Power Plants, and Regulatory Guide 3.40, Design Basis Floods for Fuel Reprocessing, Plutonium Processing, and Fuel Fabricating Plants. Guidance needs to be given relative to design basis floods for ISFSI's. Here again it would seem that the design basis floods for an ISFSI should be consistent with the earthquake design basis given in 10CFR part 72; that is, a recurrence interval on the order of 500 years. In any event, some guidance as to what the NRC expects should be given.

C. Regulatory Guide 3.17, Earthquake Instrumentation for Fuel Reprocessing Plants, should not be applicable to an ISFSI. The main reason for the requirements at a fuel reprocessing plant is to determine if plant operation should be curtailed after an earthquake. An ISFSI is a static facility. There is nothing to stop, the fuel is stored. Seismic instrumentation should not be required at an ISFSI, but should be a choice of the utility. Recorded information could be helpful in evaluating the facility after the earthquake, but it is not related to the safe operation of the facility. Visual inspection could ascertain the safety of the facility.

D. Use of the following Regulatory Guides for applicable portions of an ISFSI is proper.

1.10	3.3
1.15	3.9
1.31	3.27
1.55	

DOCKET NUMBER
PROPOSED RULE PR-72(43FR46309) (35)

NORTH SHORE COALITION FOR SAFE ENERGY
P. O. BOX 18
GREAT NECK, N. Y. 11021

(910)

COMMENTS ON PROPOSED REGULATION 10 CFR PART 72: LICENSING REQUIREMENTS FOR THE STORAGE OF SPENT FUEL IN AN INDEPENDENT SPENT FUEL STORAGE INSTALLATION (ISFSI)

The North Shore Coalition for Safe Energy represents concerned individuals and community organizations on the north shore of Long Island. We are strongly opposed to the concept of independent spent fuel storage installations, since this would be a de-facto acceptance of the continued production of nuclear wastes without an acceptable solution for their permanent disposal in sight.

Since the same types of protective barriers that are necessary for safe permanent disposal of nuclear wastes would not be required for temporary storage in an ISFSI, the enormous hazards of such facilities to public safety and health are unacceptable. Besides this unconscionable risk factor, there are the risks of accident, sabotage and greater exposure to radiation from additional transportation and handling of waste (with the creation of new waste caused by contamination of equipment and sites) — all of which increase in geometric progression.

In spite of "quality controls" and Federal regulations, human and mechanical fallibility have resulted in numerous infractions of safety requirements at commercial nuclear facilities, along with "incidents" and accidents, and there is no reason to believe that this would not be true of ISFSIs. Increased spread of radioactivity to workers and the public means increased contamination of the human genetic pool. Since any amount of ionizing radiation can cause cancer, leukemia and genetic defects, setting "acceptable" dose limits of radiation exposure on or off an ISFSI site during normal or abnormal operations is meaningless. The use of the phrase "as low as reasonably achievable" is another instance of the Nuclear Regulatory Commission's refusal to take seriously its public mandate for nuclear safety. The so-called benefits of ISFSIs accrue only to the licensees and the nuclear industry, while the workers and the public are being asked to sustain the costs in life, health and suffering to this and all future generations.

Due to the reasons stated above, we do not concur with the proposed regulation of the N.R.C. for licensing of independent spent fuel storage installations.

Miriam Goodman
Chairperson

1/15

COMMONWEALTH OF PENNSYLVANIA

DEPARTMENT OF ENVIRONMENTAL RESOURCES

BUREAU OF RADIOLOGICAL HEALTH

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December 26, 1978

(36)

DOCKET NUMBER
PROPOSED RULE PR - 72 (43FR 46309)

Secretary of the Commission
U. S. Nuclear Regulatory Commission
Washington, D.C. 20555

Attention: Docketing and Service Branch

Dear Sir:

The Pennsylvania Bureau of Radiation Protection appreciates this opportunity to comment on the proposed 10 CFR Part 72, "Storage of Spent Fuel in an Independent Spent Fuel Storage Installation (ISFSI) ", as announced in the Federal Register, Volume 43, No. 194 - Friday, October 6, 1978. The proposed regulations are generally reasonable and should prove effective in protecting the public's health and safety from independent spent fuel storage installations. We do, however, offer the following comments for your consideration.

The regulations do not appear to directly address the problem of spent fuel transportation which would be associated with an ISFSI. We recognize that this area has been extensively addressed in other NRC generic proceedings, however, there may be interfacing aspects which need to be further considered in these regulations. Specific examples might include siting considerations which take into account transportation corridors and restraints, or further consideration of transportation accidents using site specific parameters.

Price-Anderson liability coverage should be made available to the licensee of an ISFSI due to the fact that a catastrophic accident could result in extensive damage to public property which would not be covered by any other liability insurance.

We trust that our comments will be helpful in developing the final regulations for Independent Spent Fuel Storage Installations.

Sincerely yours,

Thomas M. Gerusky

Thomas M. Gerusky, Director
Bureau of Radiation Protection

TMG:WPD:db

Acknowledged by card 1/15

MIDDLE SOUTH SERVICES, INC./BOX 61000/NEW ORLEANS, LA. 70161/(504) 529-5262

O. CLARK GIBBS
DIRECTOR - NUCLEAR ACTIVITIES

December 28, 1978

RULE PR-72(43FR46309) (37)

Secretary of the Commission
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

Attention: Docketing and Service Branch

Gentlemen:

Middle South Services has reviewed the proposed 10CFR72 and, in general, is of the opinion that it should favorably contribute to the task electric utilities face regarding storage of spent fuel pending the development of a commercial reprocessing industry. In particular, we agree with the proposed seismic approach and site boundary limits and are encouraged by the prospect of single step licensing and the observation that, for this case, the cooling system need not be designed to withstand the extremes of natural phenomena.

Notwithstanding the above, we feel that there are four areas in which the document is deficient and should be improved upon:

1. Section 72.15(12)(v) - This section specifies that the Safety Analysis Report should contain "A description of the measures taken to control the quantities of radioactive wastes for off-site disposal to as low as reasonably achievable levels." This could be speciously construed to apply to the HLW contained in the spent fuel elements themselves. To avoid this possibility, we suggest inserting "other than spent fuel" after the word "wastes."

2. Section 72.15(13) - This section calls for conservative analyses of the potential dose to an individual offsite from accidents or natural phenomenon which result in criticality and the loss of water for water pool type installations. We believe that these analyses are unnecessary and inappropriate and will lead to great difficulties in the design of such a facility. We suggest that the regulatory position adopted in Regulatory Guide 1.25 is sufficient for the establishment of the design basis event for an ISFSI.

1115

3. Section 72.32 - There is no basis for a 20 year limit. If a reactor pool is licensed for 40 years, an ISFSI should also be licensable for 40 years.

4. Section 72.71(10) - The control room should not necessarily be located in the spent fuel area. It should be permitted to be in a separate building. Where an ISFSI is located on a reactor site, the reactor control room could be utilized. For normal operations, local control would be sufficient.

Sincerely,

D. Clark Gibbs

DCG:GEW:mw

File: 041-01
094-60

cc: Messrs. D. B. Lester
L. F. Dale
D. A. Rueter
J. F. Vogt, Jr.
C. K. Mallory

DOCKET NUMBER
PROPOSED RULE PR - 72 (43FR46309)

(38)

Bechtel National, Inc.
Engineers — Constructors

Fifty Beale Street
San Francisco, California
Mail Address: P. O. Box 3965, San Francisco, CA 94119

December 28, 1978

Secretary of the Commission
U.S. Nuclear Regulatory Commission
Washington, D. C. 20555

Attention: Docketing and Service Branch

Subject: Proposed Licensing Requirements 10 CFR Part 72, Storage of Spent Fuel in an Independent Spent Fuel Storage Installation (ISFSI)

Gentlemen:

Reference is made to the subject proposed licensing rule as published in the Federal Register, Volume 43, No. 195 - Friday, October 6, 1978, pages 46309 through 46321. This document has been reviewed by members of Bechtel's technical staff and our consolidated comments are submitted herewith.

We are encouraged by the recognition in the proposed licensing rule of the inherent low-risk characteristics of spent fuel storage installations, in particular those storing fuel which has undergone at least one year's decay since reactor shutdown. It is important, therefore, that this position be consistently represented by the language of the Regulation.

Our specific comments on the proposed licensing rule, Attachment 1 to this letter, identify certain statements within the document which, in our opinion, are somewhat ambiguous and require additional clarification. As in the case of precedent NRC regulations, we understand there will be Regulatory Guides specific to 10 CFR Part 72. In our review and preparation of comments on the proposed licensing rule, we have assumed that the forthcoming Regulatory Guides will include the additional specificity required as part of the interpretation of the licensing requirements.

With regard to the question of whether the Commission should exercise its discretionary authority under the Price-Anderson Act to prescribe financial protection and public liability responsibility requirements, we wish to reserve comment to a later date. We understand that public comment on these matters will be solicited by the NRC in the near future.

Acknowledged by card 145

We trust that the comments presented herein will be given serious consideration in the Commission's finalization and adoption of 10 CFR Part 72.

Very truly yours,

Harry L Browne

for Ashton J. O'Donnell
Vice President

AJO'D:nc
Attachment

SPECIFIC COMMENTS ON NRC-PROPOSED LICENSING REQUIREMENTS 10 CFR PART 72

Storage of Spent Fuel in an Independent Spent Fuel Storage Installation (ISFSI) as published in Federal Register, Vol. 43, No. 195 - Friday, October 6, 1978.

Supplementary Information

This introduction to the proposed rule sets forth a very reasonable approach to the licensing of an ISFSI. However, the specific language in certain sections of actual proposed rules do not carry out the intent expressed and "Supplementary Information". Some of these inconsistencies are identified in the following comments.

Single license - The statement is made that the license will be "reevaluated" by NRC prior to receipt of spent fuel at an ISFSI. We assume that the re-evaluation process will be limited to a "review" of those licensing conditions directly related to the physical facility as constructed and will not require a complete "reevaluation" of the license application. If this is the intent, we suggest that this point be clarified.

Dry storage - This regulation is intended to cover dry as well as pool storage of spent fuel. The body of the document, however, does not address any of the aspects of dry storage requirements. For instance, it is not stated whether or not the safety assessment must consider all degrees of interspersed moderation, including those known to be incredible. Clarification of this and other pertinent dry storage requirements are needed within the regulation. Such clarification would eliminate confusion and go far in promoting dry storage as an economically viable option in storing spent fuel.

Aged fuel - We agree with the concept that "aged fuel ... need not have a high degree of protection from weather extremes, tornadoes, or tornado-generated missiles," and "the cooling system need not be designed to withstand the extremes of natural phenomena"; provided there is an assured source of makeup water and some means of getting it to the storage pool if needed. We suggest the wording of paragraph 72.62 and 72.71(2) of the regulation be modified to recognize the minimal risk associated with the storage of aged fuel and to be consistent with the intent expressed in Supplementary Information statement.

Section 72.3 - Definitions

(g) Controlled area - This regulation introduces the term "controlled area" without a clear definition of its relationship with "off-site" or the extent of the permissible activities within. It is inconsistent with 10 CFR Part 20, to which area does limits must be referenced. We recommend that this definition be removed and replaced with the term "restricted area" as used in 10 CFR Part 20. The text should also be changed to reflect the meanings implied by this new definition.

Off-site (not defined) - A definition explicitly defining "off-site" should be included. We suggest the wording "'off-site' is all areas outside of the ISFSI restricted area."

(k) Neighboring area - The extent of this area should be more specifically defined. We suggest a definition similar to that given for "low population zone" in 10 CFR Part 100.

(o) Site - Replacement of "controlled area" with the term "restricted area" would require the second sentence to be changed to "The site includes the restricted area."

(s) Structures, systems and components important to safety - The definition for this term is too broad and as stated encompasses functions which are not included in the traditional definition set forth in other NRC regulations. We recommend that the definition be worded, "'Structures, systems and components important to safety' means those items that provide reasonable assurance that the spent fuel can be received, handled and stored without undue risk to the health and safety of the public." (draft language in proposed NRC regulation 10 CFR Part 60)

Section 72.15 - Contents of application: technical information

Paragraph (4) - The applicant is required to assess the risk to public health resulting from operation of the facility. The use of the word "risk" implies that some sort of probability-consequence analysis is required. This paragraph should be reworded to read " ...with the objective of assessing the impact on public health and safety ...".

Paragraph (13) - This paragraph requires that doses be analyzed out to 24 hours following the event, whereas the dose limit for accidental exposure specified in Section 72.67 paragraph (b) is based on a two-hour limit. The time interval for the analysis and the dose limit should be consistent and justifiable.

Section 72.33 - License conditions

Paragraph (b)(4) design features - At the end of this paragraph, the reference should be to paragraph (b), not (c).

Section 72.41 - Revocation, suspension and modification of licenses

Paragraph (b) - There are many NRC regulations having no relationship to the licensing of an ISFSI; therefore, the last sentence of this paragraph should be changed to "...or any applicable regulation, license or order of the Commission."

Section 72.42 - Backfitting

The proposed discretional authority which would permit the NRC to made decisions regarding backfitting lacks specific guidance and could result in excessive ratcheting by the Commission. We suggest that the backfitting rule set forth in 10 CFR 50.109 be used in order to provide more definitive guidance and also to be consistent with other NRC regulations.

Section 72.51 - Material balance, inventory, and records requirements for stored materials

Paragraph (b) - The requirement for "...a physical inventory of all spent fuel in storage at intervals not to exceed 12 months ..."could be interpreted

to mean the handling of each fuel element for physical inventory verification which would increase the potential for accidents. We recommend that the requirement be further defined to indicate the acceptability of inventorying by such means as statistical sampling.

Section 72.61 - General criteria

Paragraph (c) - This paragraph and Section 72.64 paragraphs (a) and (c) require that the effects of the ISFSI on people in the region be examined and that effects which would otherwise be unacceptable shall be compensated for by the ISFSI design. As such, the proposed regulation does not give any guidance as to what is acceptable and what is not. Specific guidance should be provided in the regulations to avoid confusion in the licensing process and to provide firm guidance to the applicant. Unacceptable effects should be defined in terms of radiological dose limits.

Section 72.65 - Criteria for regional distribution of population

Paragraph (d) - An evaluation of the potential for adverse consequences to people within the neighboring area is required. The definition for neighboring area is the area considered with respect to the possibility of implementing contingency measures. A more specific definition should be provided. (See comment regarding Section 72.3 Definitions - (k) Neighboring area.)

Section 72.66 - Criteria for defining acceptable seismic characteristics

Paragraph (c) - ISFSI designs for dry storage should be evaluated to the same seismic criteria as for water basin-type designs.

Section 72.67 - Criteria for defining potential radiological consequences

Paragraph (a) - Consideration should be given to the possibility of combined dose from multinuclear facilities. We suggest this paragraph be rephrased to be consistent with 40 CFR Part 190.

Paragraph (b) - The regulation should be clarified to indicate that the "5 Rem in 2 hours" limit applies to the whole body, and additional limits for other body organs should be specified. (Also see comment on Section 72.15 paragraph (13).)

Section 72.71 - General design criteria

Paragraph (2) - Protection against environmental conditions and natural phenomena

Subparagraph (ii) - The phrase "appropriate combinations" cannot be defined in realistic terms. We suggest deletion of (B).

Subparagraph (iii) - This requirement needs to be clarified. We assume the intent is to require measuring devices such as accelerometers, wind and rain gauges.

Subparagraph (iv) - The potential for the transport of radioactive materials to man can be reduced by design. It cannot, however, be completely precluded. The paragraph should be reworded to read: "... measures must be taken to reduce the potential for transport of radioactive materials to man and the environs through this pathway."

Paragraph (3) - Protection against fires and explosions - The requirement that "structures, systems, and components important to safety shall be designed and located so as to continue to perform their safety function effectively under fire and explosion exposure conditions" is excessive, especially if the systems or components are in the immediate area of the fire. The wording contained in GDC 3 of 10 CFR 50, Appendix A, would be more appropriate. It is recommended that the wording in the proposed regulation be changed to read: "Structures, systems, and components important to safety shall be designed and located to minimize, consistent with other safety requirements, the probability and effect of fires and explosions."

Paragraph (7) - Emergency capability - We suggest for clarity the second sentence be changed to read "The design shall ensure capability of maintaining the safety functions during an accident, as necessary, of onsite facilities ...".

Paragraph (8) - Confinement barriers and systems

Subparagraph (ii) - Because of the inert nature of an ISFSI, a single failure of a system should be explicitly limited to a single active failure. (This comment also applies to paragraph (11), subparagraph (i).) We also suggest deletion of the sentence starting with "Drains, ..." as the previous sentence is sufficiently inclusive.

Paragraph (17) - Effluent control - We recommend that the word "minimize" be changed to "control," and the phrase, "... and under accident conditions." be deleted. The concept of ALARA should not be imposed on accident releases. The application of the ALARA concept to accident releases could impose excessive design requirements and lead to confusion in the licensing process.

Paragraph (19) - Waste treatment - We suggest deletion of "interim storage and ultimate final" from the second sentence.

Paragraph (20) - Decommissioning - We interpret the phrase "... minimize the quantity of radioactive wastes ... at the time the facility is decommissioned," to mean that the design should include features to minimize the accumulation of materials and equipment which cannot be adequately decontaminated (e.g., pool liners should prevent the concrete from becoming contaminated). We suggest that the word "reduce" be used in place of "minimize" and that the paragraph be expanded to indicate that this design objective should be consistent with safety considerations and functional requirements for the ISFSI.

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Helping Build Mississippi
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DONALD C. LUTKEN
PRESIDENT

DOCKET NUMBER
PROPOSED RULE PR-72(43FR46309) (39)

December 29, 1978

100

Secretary of the Commission
U. S. Nuclear Regulatory Commission
Washington, D. C. 20555

Attention: Docketing and Service Branch

RE: Proposed Licensing Requirements for Storage of Spent Fuel in an Independent Spent Fuel Storage Installation, 10 CFR Part 72

Gentlemen:

On October 6, 1978, the Nuclear Regulatory Commission (NRC) published in the Federal Register, 43 F.R. 46309, proposed licensing requirements, 10 CFR Part 72, for storage of spent nuclear fuel in an Independent Spent Fuel Storage Installation (hereinafter called an Away-From-Reactor (AFR) storage installation). These proposed regulations contain provisions for the siting, general design criteria, and certain operational aspects of an AFR storage installation, as well as general provisions relating to the licensing of such facilities. Because these proposed regulations could have a significant impact on future operations of a nuclear power plant under construction by Mississippi Power & Light Company (MP&L) and on whether MP&L will plan to build additional nuclear power plants in the future, we request that you consider our comments, which follow, on the proposed regulations.

MP&L is an electric utility serving customers in 45 counties of Western Mississippi. It is a member of Middle South Utilities, Inc., a public utility holding company, along with four other operating utilities in the states of Louisiana and Arkansas. MP&L is presently constructing the Grand Gulf Nuclear Station, a two-unit, nuclear power plant, with an expected nominal capacity upon completion for each unit of 1250 MW, which will supply electricity to the operating utilities in the Middle South System. The units are boiling water reactors with an estimated life of 40 years each and are being constructed near Port Gibson, Mississippi. Unit No. 1 is expected to begin commercial operation in 1981 and Unit No. 2 in 1984.

Acknowledged by card. 1/15

7

In 1977, the decision was made by the President of the United States to defer indefinitely the reprocessing of spent nuclear fuel elements. As a result of this decision, spent fuel from commercial nuclear reactors will now have to be stored in temporary facilities until permanent storage can be arranged. However, nuclear reactor sites were not designed for intermediate term storage of spent fuel elements, and there is a critical shortage of such storage space in the United States. MP&L anticipates that by 1993, the Grand Gulf Nuclear Station will no longer have adequate storage space for spent nuclear fuel. At that time, either MP&L must have facilities available away from the reactor to store its spent fuel or it could be forced to shut down because of inadequate storage facilities. Other utilities in the Middle South System will run out of adequate storage space for spent nuclear fuel even sooner. Therefore, MP&L has a vital interest in the adoption of these regulations and in their reasonable implementation.

The lead time to license and construct an AFR storage installation is estimated to be five years. This time could even be longer in light of possible uncertainties surrounding the financing and location of such a facility. Therefore, it is imperative that the NRC implement realistic licensing regulations for AFR storage installations consistent with the technical state of the art in the nuclear industry, protection of the health and safety of the public, and the serious time restraints confronting the utility industry to accommodate spent fuel. Otherwise, operation and future construction of nuclear power plants in the United States could be greatly curtailed within the next few years because of the unavailability of adequate and reliable temporary storage facilities for spent nuclear fuel.

Accordingly, MP&L supports the NRC in its recognition of the need for a single license and a single safety analysis report as early as practical in the licensing process of an AFR storage installation. However, to provide utilities with the certainty needed for them to undertake construction and financing of such a facility, the regulations need to be more specific in certain areas including the following:

1. Section 72.12 - This Section should be expanded to specifically state that in situations where an applicant is a utility licensed to operate a nuclear power plant and is proposing to build an

AFR storage installation near or at an operating reactor site, the NRC will take into consideration the Environmental Report, the Safety Analysis Report, and other information contained in previous NRC applications, including information as to environmental site conditions, financial qualification of the applicant, technical qualifications of the applicant, security, and site safety analysis, and will require only such additional information as is necessary to protect the health and safety of the public in evaluating the application to construct an AFR storage installation.

2. Section 72.31(a) - With regard to the Commission updating a license prior to receipt of spent fuel at an installation, the regulation should provide that the NRC review will be limited to license conditions directly related to the installation "as constructed" and will not be a complete reevaluation of the entire license application and that material changes will be made to a license only in the event significant factors have come to light since a license was issued which could endanger the health and safety of the public. Before financial institutions will finance the construction of an AFR storage installation and before utilities will undertake such a construction program, they must have assurance that barring significant changed conditions at a facility since the time a license was granted, a facility will not have to be significantly modified or reconstructed after its completion and that operations will not be unduly delayed.

3. Section 72.32 - The maximum period of time for which a license may be issued should be 40 years instead of 20 years. A 40 year time period would more nearly reflect the estimated life of a AFR storage installation and would minimize unnecessary license renewals.

4. Section 72.71(20) - The subsection on decommissioning of an AFR storage installation should be more specific. In particular, the subsection should provide that design criteria

relating to reducing the quantity and facilitating the removal of radioactive wastes and equipment at the time of permanent decommissioning of the installation must be established consistent with the safety and functional aspects of the installation. Furthermore, the word "minimize" with reference to the quantity of radioactive wastes in the installation at the time of decommissioning is ambiguous and should be replaced by the word "reduce."

5. Subpart E and Subpart F - In the Preamble to the proposed regulations, the NRC recognizes that the potential risk of an accident affecting the health and safety of the public associated with storage of aged spent fuel is small due to the inherent inert nature of aged spent fuel and that therefore, aged spent fuel does not need "a high degree of protection from weather extremes, tornadoes, or tornado generated missiles" and "the emergency water supply system need not be permanently installed, provided it is available within the time span needed". However, the minimal risk associated with the storage of spent nuclear fuel is not adequately reflected in the body of the regulations, and in particular, Subpart E and Subpart F of the regulation should be modified to specifically incorporate this concept. This is essential to avoid unnecessary delays in the licensing of AFR storage installations and uncertainties in the construction and financing of such facilities.

6. The regulations should specifically address aspects of dry storage of spent fuel. Under some circumstances, dry storage would be an economically viable option in storing spent fuel, and this option should be specifically addressed in the regulation stating under what circumstances dry storage would be allowed and discussing general design criteria for a dry storage installation.

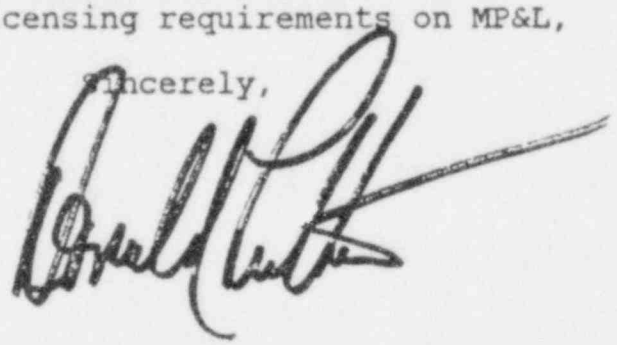
7. To encourage AFR storage installations to be constructed by private industry and financed by private lending institutions, the NRC should exercise its discretionary authority to extend the

protection of the Price-Anderson Act to licensees of AFR storage installations.

In conclusion, MP&L supports the NRC in its efforts to license AFR storage installations in a timely and reasonable manner. The NRC recognized in its recently published Draft Generic Environmental Impact Statement on Handling and Storage of Spent Light Water Reactor Fuel that there is a need for independent spent fuel storage installations in the United States to accommodate accumulating spent nuclear fuel from commercial nuclear power plants. To meet this need, utilities in the United States must begin the licensing process for AFR storage installations within the next year. Therefore, MP&L strongly urges the NRC to change the proposed regulations to avoid duplication of information contained in previous license applications of a utility, to remove uncertainties relating to the updating of the license and Safety Analysis Report prior to the receipt of fuel at a facility, and to impose protection requirements on applicants no more stringent than can be reasonably justified in light of the recognized minimal risk associated with the storage of aged spent nuclear fuel.

If you would like any additional information on the impact of these proposed licensing requirements on MP&L, please let us know.

Sincerely,



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(40)

DOCKET NUMBER
PROPOSED RULE 50-72(43FR46309)

January 2, 1979

IN REPLY REFER TO Northfield OFFICE
78/385 FILE NO.

USNRC
JAN 12 1979
Docketing & Service Branch

Secretary of the Commission
Nuclear Regulatory Commission
Washington, D.C., 20555

Attention: Docketing & Service Branch

Gentlemen:

Attached are comments by the Township of Lower Alloways Creek to the proposed regulations for Independent Spent Fuel Storage Installation.

The comments are divided into Part I - comments prepared by the technical staff of Valore, McAllister, Aron & Westmoreland, Special Nuclear Counsel for the Township of Lower Alloways Creek; and Part II - comments prepared by Dr. John R. Lamarsh, Technical Consultant for the Township of Lower Alloways Creek.

A technical representative from Lower Alloways Creek Township would be willing to attend any work sessions which are scheduled in preparing the proposed regulations for ISFSI's.

Please keep our office advised as to all developments in respect to the NRC's plans for regulations for ISFSI's.

Very truly yours,

CARL VALORE, JR.

1115

January 2, 1979

TO: Secretary of the Commission
Nuclear Regulatory Commission
Washington, D.C., 20555
Attention: Docketing and Service Branch

FROM: CARL VALORE, JR.
VALORE, McALLISTER, ARON & WESTMORELAND, P.A.
535 Tilton Road, Northfield, N.J., 08225
Special Nuclear Counsel for the Township of
Lower Alloways Creek, Salem County, New Jersey

RE: COMMENTS OF TOWNSHIP OF LOWER ALLOWAYS CREEK
TO PROPOSED REGULATIONS FOR INDEPENDENT SPENT FUEL STORAGE
INSTALLATION (ISFSI)

PART I:

Comments on Supplementary Information . . . . . Page 1

Comments on Purpose, Scope and Definitions
(Section 72.1- 3) . . . . . Page 1

Comments on Specific Exemption
(Section 72.8) . . . . . Page 3

Comments on Application Fees
(Section 72.11) . . . . . Page 3

Comments on Duration of License
(Section 72.32) . . . . . Page 4

Comments on Siting and Design Criteria . . . . . Page 5

Comments on Decommissiong
(Section 72.71 - 20) . . . . . Page 6

Comments on Criticality and Dose . . . . . Page 6

PART II:

Comments of Dr. John R. Lamarsh . . . . . Page 8

COMMENTS OF TOWNSHIP OF LOWER ALLOWAYS CREEK
TO PROPOSED REGULATIONS
FOR INDEPENDENT SPENT FUEL STORAGE INSTALLATION
(ISFSI)

PART I

I. COMMENTS ON SUPPLEMENTARY INFORMATION

A. No rules should be promulgated until docketing of the final generic environmental impact statement on handling and storage of spent light water reactor fuel.

B. A total failure to clearly differentiage between temporary storage of spent fuel as part of the nuclear fuel cycle and the permanent storage or disposal of spent fuel as hazardous waste.

C. The rules should not be adopted until the Interagency Nuclear Waste Management Task Force established by the President on March 15, 1978, has made its recommendations on a comprehensive Federal Program for the long term management of nuclear waste.

D. Provisions for financial protection and responsibility to the public should be detailed and are within the authority of the Price Anderson Act. The Commission has discretionary authority to impose financial protection requirements.

II. PURPOSE, SCOPE AND DEFINITIONS
(Section 72.1 - 3)

A. The failure to include a definition of temporary storage as differentiated from permanent storage is arbitrary, capricious and unreasonable and represents administrative neglect of responsibility for preparing specific regulations for the licensing of temporary storage of spent fuel. Normal cool down time should be considered as criterion for a temporary storage.

1. The interagency confusion is manifested by the fact that the Environmental Protection Agency in its criteria for radioactive waste issued November 15, 1978 states:

"The NRC is preparing specific regulations for licensing of storage and waste disposal facilities." (emphasis supplied) Federal Register, Vol. 43 #221, at page 53262, November 15, 1978.

2. The proposed NRC regulations state:

> "No license under this part will be granted for the later permanent storage or disposal of spent fuel." (emphasis supplied)
> Federal Register, Vol. 43, #195 at page 46311, October 6, 1978

The lack of consistency in interagency verbage is primarily responsible for judicial and legislative confusion as to the primary and overlapping responsibilities of the Department of Energy, the Environmental Protection Agency and the Nuclear Regulatory Commission in respect to management of radioactive waste.

The Township of Lower Alloways Creek contends that the NRC has no judicial powers under the Atomic Energy Act to provide for the permanent storage or disposal of spent fuel as a hazardous radioactive waste product.

B. The following definitions should also be included within the regulations:

1. Acute(radiation exposure) - A term used in reference to a single large dose of ionizing radiation or to a series of substantial doses in a short interval of time, as differentiated from chronic exposure;

2. Barrier - Any medium which stops or significantly retards the movement of emplaced radioactive materials, such as a natural geologic medium or a container or solidified waste matrix engineered by humans;

3. Chronic (radiation exposure) - Continuous or intermittent exposure to small amounts of ionizing radiation over a long period of time, as differentiated from acute exposure;

4. Difuse (waste containing naturally occurring radioactivity) - Waste material containing naturally occurring radioactivity in concentrations similar to that of many natural ore bodies;

5. Discrete (waste containing naturally occurring radioactivity) - Waste material containing naturally occurring radioactivity which is substantially concentrated relative to that of the virgin natural material;

6. Disposal - The placement of radioactive waste with no intent of recovery;

7. General environment - The total terrestrial, atmosphere, and aquatic environments outside sites in which any radioactive waste management activities are conducted;

8. Institutional control - Activities, devices, and combinations thereof which involve the performance of functions by human beings to limit contact between the waste and humans or the environment;

9. Isolation - The placement of radioactive waste so that contact between the waste and humans or the environment will be highly unlikely for a chosen period of time;

10. Monitoring - Measuring the quantity and type of discharges or migration or radioactive wastes from a waste management facility, or measuring changes in physical, chemical, or biological characteristics of the site and the surrounding site area;

11. Retrievability - A designed capability to recover waste from an emplaced location within a specified time;

12. Risk - A general concept encompassing both the probability and the severity of adverse effects;

13. Site - Any location under institutional control which has a boundary inside which radioactive wastes are handled, stored, or disposed of;

14. Storage - Retention of radioactive waste at facilities with designed provisions for recovery within a defined time;

15. Waste management - The range of activities for dealing with radioactive waste, including preparation, storage, and disposal.

C. The definition of Independent Spent Fuel Storage Installatic should have added to it the full sentence - "an ISFSI shall be only for the temporary storage of spent fuel and under no circumstances for the permanent storage and disposal of spent fuel."

III. The specific exemption provision (Section 72.8) fails to provide any reasonable administrative guidelines for procedures.

IV. APPLICATION FEES:
(Section 72.11)

A. The applicant should provide a sum of money to the local unit of government in which the "site" is located that equals the cost of preparing environmental reports to be submitted to the regulatory agencies as certified by the applicant. This sum of money should be in

addition to the fees provided in Section 72.11 (d) and should be paid to the NRC. The funds so collected by the NRC should be disbursed exclusively and only to the local unit of government for the following purposes:

1. To further implement the national environmental program as outlined in NEPA;

2. To provide full and complete information and disclosure concerning the environmental effects of major federal actions so that the federal agency responsible for issuing an EIS can make informed decisions in doing so;

3. To eliminate the applicant oriented and unilateral method of supplying information to federal agencies for the purpose of evaluating the environmental effects of a major federal action that exists at the present time;

4. To provide for the proper consideration of the public interest;

5. To provide for and utilize effective participation by effected local and regional units of government as representative of the public interest.

6. To localize and organize informational input while maintaining sole central federal decision making authority;

7. To place the financial burden of the increased study upon those who seek to benefit from the infringement upon our natural environment.

V. DURATION OF LICENSE:
(Section 72.32)

A. The provision for a 20 year license which may be renewed creates a de factor permanent spent fuel and disposal facility. A 20 year license renewable for an indefinite term is in every sense of the term a permanent spent fuel storage and disposal facility. The term of 20 years and indefinite renewal is repugnant to the purpose in Section 72.1.

B. The NRC has no jurisdiction to license the storage of hazardous radioactive waste for an indefinite period of time. Section 72.32 would permit the NRC to assume this jurisdiction.

VI. SITING AND DESIGN CRITERIA

A. The proposed regulations do not address the question of residual risks. There is a failure to comply with the safety standards in the Atomic Energy Act.

B. The regulations do not contain any guidance concerning the type or magnitude of postulated accidents to be considered in evaluating sites and designs.

C. The proposed regulations do not indicate the relevance of accident probabilities.

D. A recent ALAB decision requires an applicant for a manufacturing license for a floating nuclear power plant to study Class 9 accidents. For the same reasons expressed in that opinion, Class 9 accidents should be studied at ISFSI sites, if those sites are in close proximity to nuclear power generating facilities.

E. Under Section 72.31, a license should not be issued if a properly conducted voter's referendum in the locality of the "site" where the ISFSI is located rejects location of the facility at the site. Regulations for establishing the question on the ballot should be prepared by the NRC. This would enhance the nature and extent of public participation in the entire process

F. Tables S-3 and S-4 in 10 CFR, part 51 may require amendments to indicate the addition of a new element and new transportation link in the nuclear fuel cycle - the addition of ISFSI and the transportation of spent fuel from nuclear power reactors to an ISFSI.

G. The regulations should make clear that interested partie are permitted to intervene and that hearings should be held on the licensing procedure.

H. An ISFSI should not be permitted to be located in the same community where any nuclear generating facility is located:

1. Multiple accidents could entirely destroy the community's infrastructure;

2. Risks are compounded;

3. The regulatory effort of the NRC should be to formulate guidelines and regulations on transfer of spent fuel from cooling pools and temporary storage facilities to permanent waste storage and disposal facilities. These latter facilities should be in areas of remote isolation and developed pursuant to a regional plan by the Department of Energy, the Environmental Protection Agency or the Interagency Nuclear Waste Management Task Force.

I. Under no circumstances should an ISFSI be located over or near an aquifer.

VII. The decommissioning (Section 72.71 - 20) fails to provide sufficient guidelines and procedures - this is especially true in respect to public participation.

VIII. COMMENTS ON CRITICALITY AND DOSE

A. The Regulations should provide for procedures to make certain that:

1. Total mass is less than critical mass;

2. Subcritical geometry is maintained;

3. Concentration of fissile material in solution is below a specified level;

4. Sufficient poisons (neutron absorbers) are in with the fissile materials;
   a) A study should be done to determine if a large mass of fissile materials under accident conditions could go supercritical (leading to a nuclear explosion) or would it first go critical and dismantle itself before supercriticality is reached?

B. The certification of the licensee's operators to the effect that they are adequately trained should be done by a separate group to avoid "expediant" certification of inadequately trained personnel. Independent review of the training might be considered.

C. Unreviewed safety questions should be determined by the Commission before an experiment or test not be the licensee after completion of an experiment or test.

D. The record keeping and reporting procedures should be suppelemented by an electronic waste transfer tracking system (ESTTS). Such a system should be maintained at a separate central (computer) facility for all ISFSI's. The facility should track the ISFSI system from initiation of waste transfer (spent fuel) from a nuclear reactor or ISFSI to acceptance at an ISFSI or other depository. The facility could thus maintain a constantly updated record of fissile material inventories at each ISFSI. This could be of use in the event of record loss or emergencies and certainly adds an additional control mechanism over the location and movement of spent fuel for the entire system.

E. An environmental (as well as effluent) monitoring program should be instituted. This should include preoperational characterization of all necessary monitoring stations for at least one (preferably two) years prior to acceptance of spent fuel at the ISFSI.

F. Unannounced inspections by the Commission of an ISFSI should be mandated.

G. Any change in systems or procedures as specified to the Commission in writing, should be submitted to the Commission for review before the change is undertaken.

H. If an ISFSI were co-located with a power reactor, it would seem that:

1. An accident due to the occurence of a natural phenomen is more likely;

2. An accident with the reactor could adversely affect the ISFSI (even close it down) or a problem with the ISFSI could adversely affect the reactor.

PART II

COMMENTS OF DR. JOHN R. LAMARSH
TECHNICAL CONSULTANT
FOR
TOWNSHIP OF LOWER ALLOWAYS CREEK

The Township of Lower Alloways Creek New Jersey hereby respectfully submits the following comments regarding the proposed new Part 72, Storage of Spent Fuel in an Independent Spent Fuel Storage Installation (ISFSI).

General Comments

1. The Township is the site of Salem Units 1 and 2 and Hope Creek Units 1 and 2, which, when completed, will represent a total of over 4000 MWe in nuclear generating capacity. The residents of the Township view with considerable concern the prospect of increasing amounts of spent fuel from these plants being stored on site in expanded and crowded spent fuel pools.

2. For this reason, the Township welcomes the action of the Commission in developing regulations for the licensing of away from reactor ISFSI's. In the view of the Township such facilities should be built and licensed without delay to relieve this community and other similar communities of the burden of excessive amounts of spent fuel stored in facilities not specifically designed for that purpose.

Specific Comments

1. The Township does not believe that the provisions of paragraph 72.18(b) are sufficiently specific to guarantee that the owner of an ISFSI will indeed decommission the facility in a proper manner. To ensure proper decommissioning, it must be established on a continuing basis that the applicant has the financial capacity to decommission his facility throughout the life of the facility, not merely at the time of his application for a license.

To this end, the applicant should also be required to establish a Decommissioning Capital Reserve Fund, segregated and subject to audit, which will accumulate by annual installments over the expected life of the facility to an amount sufficient to carry out the decommissioning based upon cost estimates made and revised at no more than five year intervals over the life of the facility.

2. The specification of "controlled area" and "neighboring area," defined in paragraph 72.3(g) and (k), is not entirely clear in paragraph 72.67(a) and (b). If it is the intent that the radii of these areas be calculated from 72.67(a) and (b), then additional guidance will be necessary as to the meaning of "during normal operations and anticipated occurrences" and "under accident conditions." If the issuance of either a Regulatory Guide

or a report comparable to TID-14844 on this subject is contemplated, it would be helpful to say so.

Also, in paragraph 72.67(a) and (b), it is not clear whether the reference is to the dose accumulated over one year or 2 hours, respectively, or to the dose commitment accumulated over the same periods. Presumably, the latter is the case, but the intent of the paragraph could be made clearer. This confusion, incidentally, also pervades 10CFR 100.

In any event, the word "exposure" in 72.67(b) should be changed to "dose," since rem is a unit of dose, not exposure.

3. The Township shares the concern of the Commission over the possibility of accidental criticality in an ISFSI as evidenced by Criteria (12) and (13) of paragraph 72.71. While the regulations as now written require continued surveillance of the condition of whatever neutron absorbing materials are in the facility, there is no requirement that an actual measurement of the multiplication factor of the system be carried at any time over the entire life of the facility.

It seems reasonable to the Township that the owner/operator of an ISFSI, from time to time, should perform 1/M experiments or in some other manner establish or estimate the multiplication factor of his facility. In the

view of the Township, it is not very reassuring to be told in reply to a question regarding the value of k for a particular facility that "we don't know what it is; we have never measured it."

AMERICAN NUCLEAR SOCIETY
STANDARDS COMMITTEE

(41)

DOCKET NUMBER
RULE PR-72(43FR46309)

Headquarters:
555 North Kensington Avenue
LaGrange Park, Illinois 60525 USA

January 2 9

Secretary of the Commission
U. S. Nuclear Regulatory Commission
Washington, D.C. 20555

Attention: Docketing and Service Branch

From: George E. Heim
Chairman, ANS-2.19 Working Group

Subject: ANS-2.19 Working Group Comments on Proposed Regulation 10CFR Part 72, Storage of Spent Fuel in An Independent Spent Fuel Storage Installation, October 1978

The following comments were submitted to me for transmittal to the U.S. NRC from members of the Working Group for ANS-2.19.

1. The criteria appear quite nebulous in several places.

2. On page 46314(13), dose calculations must be made for loss of water from a pool, but on page 46319, column 3(B) and in ANS-57.7, loss of water is not acceptable and will be prevented by facility design.

3. In several sections - 72.62, 72.63, 72.64, 72.65 - review of the "region" is required for several different reasons. The size of the region is not defined. The area to be examined should vary with the feature or facility of concern. This seems to me to have been handled in ANS-2.19.

4. Concerned about the lack anywhere of a definition of the level to which a facility must be decontaminated to be decommissioned. ANS-N300-1975, Design Criteria for Decommissioning of Nuclear Fuel Reprocessing Plants, lacks a definition of the level of radioactivity acceptable for unrestricted use. According to the proposed EPA Criteria for Radioactive Wastes, dated November 15, 1978, once a material has been designated radioactive, there is no level at which its radioactive contant can be considered neglibible. This problem, lack of definition of or lack of acceptance of, a negligible level of radioactivity, is going to be of considerable difficulty to the industry.

5. In the "Supplementary information", it is mentioned "Aged spent fuel, having lost the short-lived radionuclides by decay, need not have a high degree of protection from weather extremes, tornadoes, or tornado generated missiles". Rule 72.71 General Design Criteria - Overall Requirements - (2) Protection against Environmental Conditions and

Acknowledged by card 1/15

Natural Phenomena states -

"(ii) structures, systems and components important to safety shall be designed to withstand the effects of natural phenomena such as earthquakes (with a horizontal ground motion acceleration of at least 0.25 g), tornadoes (excluding tornado missiles), lighting, hurricanes, floods, tsunami, and seiches without imparring their capability to perform safety functions."

Here we see a discrepancy between the intent as expressed in the "Supplementary Information" and the regulation which calls for protection against tornadoes. A draft regulatory guide (3.24.3 - 5/2/78) goes on to say that the ISFSI should be designed to withstand the effects of the Design Basis Tornado (DBT) defined according to R.G. 1.76.

The ANS Working Groups 2.19 and 57.7 have concluded based on the radiological risk study, that an ISFSI need not be designed to resist the effects of tornadoes.

We recommend that the requirement regarding tornadoes be deleted.

6. The extent of site investigation required in Subpart E-Siting Criteria is not compatible with the potentially low radiological risk from ISFSI as expressed throughout the proposed rules.

7. The proposed rules (72.66,67) require that all ISFSI be designed for 0.25 g peak horizontal ground acceleration and be sited only in places where the 500-year earthquake acceleration is less than 0.25 g. According to the map prepared by Algermissen and Perkins, the 500-year earthquake acceleration is less than 0.20 g in three-fourths of the continental U.S. It may not be economical to design for 0.25 g (even considering the reduced licensing effort) in places where the 500-year earthquake acceleration may be only 0.05 g. Also, for ISFSI located near nuclear power plants in most midwest and Eastern states, the design earthquake of 0.25 g for the ISFSI - a relatively low risk facility - would exceed the SSE for the nuclear power plant. This situation is likely to raise questions in the mind of the public as to the safety of the nuclear power plant. We recommend: the 500-year earthquake acceleration should be selected for the design of ISFSI (see ANS-2.19).

8. The "Supplementary Information" states that the imposition of this site restriction (of 0.25 g with a recurrence interval of 500 years) does raise the possibility that a small amount of additional transportation of spent fuel might be necessary to reach an acceptable ISFSI site from a few reactors in the U.S. Some state and local regulations may not permit the transportation of radioactive material across state borders. This should be recognized when siting an ISFSI which is to be used by several utilities.

9. Regardless what ground acceleration is utilized, documentation must be provided to support the proposed acceleration level. We may someday arrive at the point where there is a published map with which we all agree, but at the present, we have no such document. As an alternative, it is suggested the user of 10 CFR Part 72 be encouraged to select a site where the horizontal ground acceleration is 0.25 g or less.

10. Since this document would be adopted as a Federal Law, it would appear that requiring an ISFSI to be designed for the ground acceleration of 0.25 g or greater may be too restrictive and may haunt us in the long run. It is suggested the document contain wording to permit the designer to use a lower or higher g value if supporting data are provided.

George E. Heim
Chairman, ANS-2.19 Working Group

CC: R. V. Bettinger
M. D. Weber
ANS-2.19 Working Group Members

DOE Form AD-10A
(12-77)
(42)
PR-72(43FR46309)

U.S. DEPARTMENT OF ENERGY

memorandum

DATE: JAN 4 1979

REPLY TO ATTN OF: ET-76

SUBJECT: Proposed Spent Fuel Storage Regulation, 10 CFR Part 72

TO: Russell E. L. Stanford, Fuel Process Standards Branch
Division of Engineering Standards, Office of Standards
Development, NRC

The attached DOE comments are in response to your December memorandum. Note that they range from required changes through observations and noted typographical errors.

As noted in our comment A-1, we are seriously concerned about the proposed regulation on the utilization of existing spent fuel storage facilities (i.e., Barnwell, Morris, West Valley). DOE strongly believes that these existing facilities play an essential role in meeting national spent fuel storage requirements, and will continue to meet critical needs into the middle 1980's. Safe storage has been evidenced at the two licensed and operating facilities (Morris and West Valley). Licensing of the Barnwell fuel storage facility under 10 CFR 70 was completed except for the hearing phase. Therefore, this regulation should neither preclude future use of these facilities nor require substantial facility modifications. This point must be made clear to prevent litigation. Furthermore, we recommend that the presently licensed fuel storage facilities be relicensed under their original regulations when their current license expires.

Francis X. Gavigan

Francis X. Gavigan, Acting Chief
Safety Section
Nuclear Power Development Division

1 Attachment

Comments on the Proposed Regulation

10 CFR 72

A. Required Changes

A-1* (p. 46311, § 72.2) - It is stated that "with respect to licenses covering the storage of spent fuel in an ISFSI issued prior to the effective date of this regulation, such licenses will not be renewed unless the operating requirements of this Part 72 are met." DOE strongly believes that existing storage facilities currently play an essential role in meeting national spent fuel storage requirements and will continue to meet critical needs into the mid 1980's. They have provided safe storage and therefore this regulation should neither preclude their future use nor require substantial facility modifications. This point must be made clear to prevent litigation. In addition, explain what is meant by operating requirements. Does this include the earthquake and tornado requirements listed in sub parts E and F?

A-2 (p. 46312, left, 72.3 (s)) - This definition is in conflict with the well-established principles as espoused in 10 CFR 50, Appendix B, where "structures, systems, and components important to safety" are those "that prevent or mitigate the consequences of postulated accidents that could cause undue risk to the health and safety of the public." Thus, 72.3(s) needs to be redefined, especially to delete the words following "(3)".

A-3 (p. 46314, center, 72.18 (a)) and (p. 46316, right, 72.38 (a)) - In decommissioning an ISFSI, the owner should not be required to "dismantle and dispose" of the facility but should have the option of mothballing or entombing of the radioactive parts of the facility (see Regulatory Guide 1.86). It should be acceptable to remove the fuel and the radioactive material and to decontaminate the structure and site. The design of an ISFSI would favor this approach (e.g., stainless steel lined pool). To dismantle completely represents an unwarranted expense and also, perhaps, an unacceptable commitment of resources to that action. Thus, "dismantle" and "disposal" should be struck from 72.18 (a) and 72.38 (a).

*The reference on each comment is to the page in the Federal Register, the column on that page, and the selection of 10 CFR 72 to which the comment applies.

A-4 (p. 46317, right, 72.54) - Because a cask may be received but not unloaded and its contents not verified within 10 days, it would not be possible in all cases to submit form NRC-741 within the required 10 days. This section should be modified to add at the end words like, "unloaded, and its identity verified."

A-5 (p. 46317, right, 72.55 (c)) - The words, "or permit the Commission to perform," should be deleted. Only the ISFSI operators would perform tests within the facility, including tests proposed and witnessed by the Commission.

A-6 (p. 46320, left, 72.71 (12)) - Significant effort should always be applied to avoid accidental criticality. However, where the consequences of the criticality are significantly lessened (by the interspersing of shielding as in a water storage pool) and where one of the most significant control measures (the absence of a moderator in a fissile array) is denied the facility operator because water is present, the avoidance of criticality should be assured by guarding against the occurrence of one, rather than two, unlikely changes. This approach is used in the draft ISFSI standard ANS 57.7 in sections 6.10.1.1.4 and 6.10.1.1.5 and should be used in section 72.71 (12). Only one mechanism remains in some compacted at-reactor storage basins currently; namely, the presence of a neutron poison. Favorable geometry (the only other control mechanism listed in 72.71 (13)) was removed in the act of compacting the fuel array. Were the neutron poison to be removed, a criticality might occur. The consequences, however, might be no more significant than those coming from the operation of a low power swimming pool reactor.

A-7 (p. 46320, right, § 72.81 (a)) - It is stated that the security plan "shall demonstrate how the applicant plans to comply with the applicable requirements of Part 73 of this chapter at the proposed installation". However, Part 73 does not, to our knowledge, specify requirements for an ISFSI. Therefore, either this regulation or Part 73 would have to be revised to include ISFSI security requirements.

B. Strongly Recommended Changes

B-1 (p. 46309, right, last paragraph) - It is stated in this paragraph that "Aged spent fuel ..... need not have a high degree of protection from weather extremes, tornadoes, or tornado generated missiles". However, General Design Criterion (2) (ii) (p. 46319) states "Structures, systems and components important to safety shall be designed to withstand the effects of . . . tornadoes (excluding tornado missiles), lightning, hurricanes, floods,

tsunamis and seiches without impairing their capability to perform safety functions". This apparent discrepancy should be resolved and the General Design Criteria put in proper perspective.

B-2 (p. 46314, left, 72.15 (a)(13)(iii)) - Accidents and natural phenomena will not result in a potential dose to an individual off-site because of loss of water for a water pool type installation because this is not considered a credible event. ISFSI's will be designed against a catastrophic, abrupt loss of water. It would be acceptable to show that small losses through a liner, not captured by the liner leak collection system, might migrate through the concrete to the soil. An analysis could then be made of dose as in 72.15 (a)(13)(ii).

B-3 (p. 46314, left, 72.15 (b)) - Annual updating of the SAR is an unwarranted burden, especially for such a low-risk facility as an ISFSI. Safety might better be served by requiring revision of the SAR "upon significant change."

C. Suggested Changes

C-1 (p. 46313, left, Table I).

C-1a Change title of table to delete the impression that the full list is required when applying for license; table actually indicates only one thing, specifically the number of copies needed for compliance with various sections of Part 72.

C-1b The license application requirements are given in section 72.14, not 72.11.

C-1c It would appear that footnote 3 should apply to Safeguards Contingency Plan 72.81 (c) as well as to 72.81 (a).

C-1d From the guidance given in draft Regulatory Guide 3.24.1 it appea that several sections (e.g., 72.15, 72.19, 72.75, and 72.94) are not really individual documents but merely chapters in a document submitted according to 72.14 and called a "License Application." It might be worthwhile considering a change to the table to indicate this. Thus, a full application would contain four documents:

License Application
Environmental Report
Physical Security Plan
Safeguards Contingency Plan

C-2 (p. 46319, right, 72.71 (8)(ii) - Because there is no credible mechanism for dropping water level rapidly enough to require prompt local action, and because local alarms should be reserved for events that require prompt local action (e.g., high air activity, criticality without shielding), this section should be changed to delete the local water level alarm requirement. It is suggested that the water level alarm be retained only at the continuously manned location.

D. Items Requiring Clarification

D-1 There is an apparent contradiction between the SUMMARY statement: "The proposed new regulation specifies procedures and requirements for issuance of licenses to store spent fuel in an independent spent fuel storage installation" and the requirement that the license be issued prior to construction start. Since the SUMMARY implies that the license is for fuel storage, it appears that applicants (particularly DOE) should be able to construct a facility at their own risk if the NEPA process has been complied with, and obtain the license for fuel possession prior to receipt of spent fuel.

D-2 (p. 46314, center, 72.17 (a)) - Does this section require that specific individuals of, for example, the operating staff be named (and their resumes included) at the time of the license application? This is not usually done that far in advance of start of operations (about 4 years).

D-3 (p. 46314, right, 72.31 (a)(4)) - How will the NRC determine that the "operating procedures" are adequate? The SAR usually contains only the operating plan. The detailed operating procedures would not be developed until much later.

D-4 (p. 46319, center, 72.71 (2)(iii) - Clarify the purpose of specifying in the General Design Criteria that the licensee provide the capability for determining intensity of natural phenomena for comparison with design bases. Is a seismograph station and a tornado velocity and pressure measuring station required? Are these to be operated through the lifetime of the ISFSI?

D-5 (p. 46319, center, 72.71 (3)) - Explain what is meant by explosion detection, alarm and suppression systems.

D-6 (p. 46319, right, 72.71) - Explain how the designer can ensure "capability for use, as necessary, of ... offsite facilities and services such as hospitals, fire and police departments, ambulance service, and other emergency agencies."

D-7 (p. 46320, center, 72.71 (19)) - Clarify the last sentence. Does it refer to a typical waste treatment facility for concentrating waste, such as evaporators for radioactive liquid waste streams, or does it refer to all waste? If the latter, does it include items like protective clothing and supplies used in decontamination?

E. Questions

E-1 (p. 46318, left, 72.56 (b)) - What sort of financial report would NRC expect from a DOE installation to satisfy this annual financial reporting requirement?

E-2 (p. 46318, left, 72.57) (Violations) - What is the extent of applicability of this section to DOE and its contractors once legislation enabling NRC to license a DOE storage facility has been obtained?

F. Observations and Comments

F-1 (p. 46309, right, 8th paragraph) - The regulation states that "storage of aged spent fuel under dry storage conditions is also covered by this regulation." Present draft regulatory guides for ISFSI's are based on water basin storage. We believe that NRC should prepare guides for dry storage as well.

F-2 (p. 46311, center, 72.1) - If an ISFSI is to be a temporary storage facility, these sections are not currently worded in a way that would permit shipment out to a reprocessing, permanent storage, or other facility at an alternate location. The last sentence in 72.1 may even be interpreted to prevent shipment out by one definition of the word "disposal".

F-3 (p. 46312, left, 72.3 (r)) - The definition of spent fuel precludes storage of heavy water reactor (e.g., CANDU) fuel. This type of fuel may have to be stored in ISFSI's if the Foreign Spent Fuel Policy is implemented.

F-4 (p. 46314, center, 72.15 (d)) - This section seems to imply that one plan - the physical security plan - is all that is needed. To some extent this is correct as 72.81 is entitled Physical Security Plan. However, Table I and subsections (a) and (c) in 72.81 indicate that apparently two separate plans are needed - Physical Security and Safeguards Contingency.

F-5 (p. 46317, center, 72.42) - It is acknowledged that backfitting may be a desirable action under some circumstances, but it should be required by the Commission only after proposed backfits are

negotiated with the licensee on a cost-benefit or other rational basis.

F-6 (p. 46317, center, 72.51 (b)) - A physical inventory conducted annually or more frequently in 5000 MTHM ISFSI containing 15,000-25,000 fuel assemblies could range anywhere from very costly to impossible if unpacking of the array or visual reconfirmation of fuel serial numbers were required. A reasonable approach to meeting this requirement is represented by the DOE directive 5630.2 where it states that book records supplemented by observation as feasible and physical containment and administrative controls will suffice for highly radioactive material (> 100 rems/hour at one meter from an unshielded surface). A further amplification (from the same source) of permissible practices is: "Radioactive nuclear material in long term storage or in operations which is inaccessible for unique identification or individual piece counting because of radiation levels, should be accounted for based on a principle of containerization where the items are identified, if possible, or (at a minimum) counted at the time the container batch is made up. Containers may be buckets, uniquely identified zones in the fuel storage area, or any other well-defined three dimensional space that will remain unchanged during the inventory period. Containers shall be uniquely identified including serial numbers, dimensions (if applicable), listing of contents and location of grid number. The control of material in containers should follow the practices for individual items including the use of such things as TID's,* wherever possible, and control of operations that might lead to unreported changes in the batch content."

F-7 (p. 46320, left, 72.71 (13)(ii) - Verification of poison efficacy within the racks and bundles, once packed, would be very difficult; unpacking of the arrays to permit this verification is not feasible on a periodic basis throughout the life of the storage of fuel. Evaluation of coupons immersed in the same environment, as is now done in reactors, is proposed.

F-8 (p. 46321, center, 72.93 (a)) - Because of current federal restrictions on employer's hiring investigations and practices with regard to potential employee's physical and mental conditions, it may be difficult to meet these requirements in selecting personnel for safety-related activities.

*Tamper Indicating Device.

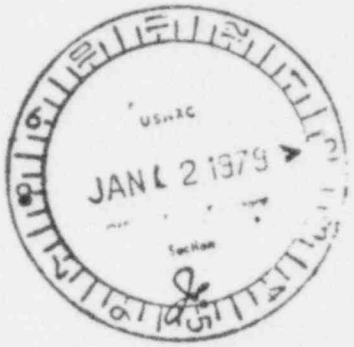
G. Apparent Typographical Errors

(p. 46311, center, 72.1) - Delete extra "72.1"?
(p. 46311, center, 72.2) - "Spent" vice "spend"?
(p. 46314, right, 72.31 (a)) - "Update it" vice "updated"?
(p. 46315, center, 72.33 (b)(4)) - "(b)" vice "(c)"?
(p. 46319, left, footnote) - "40 CFR 190.10" vice "40 CFR 190.11"?
(p. 46319, left, 72.66 (b)) - Delete extra "and" in second line?

STATE OF CONNECTICUT

POWER FACILITY EVALUATION COUNCIL
STATE OFFICE BUILDING HARTFORD, CONNECTICUT 06115
TEL. (203) 566-5612

PROPOSED RULE PR-72(43FR46309) (43)



January 2, 1979

Mr. Russell E.L. Stanford
Office of Standards Development
United States Nuclear
Regulatory Commission
Washington, D.C. 20555

Dear Mr. Stanford:

The Power Facility Evaluation Council shares the concern of NRC over disposition of spent fuel before a permanent repository is established. It is important that a definitive arrangement be made for spent fuel and other highly radioactive materials as soon as possible. The Independent Spent Fuel Storage Installation (ISFSI) regulations (10 CF Part 72) properly address this interim problem.

Although the proposed rule does not address financial liability protection, comment was sought on this issue. NRC should include the ISFSI in its broader study of financial protection requirements of materials licensees. These proposed ISFSI facilities will become a part of the nuclear fuel processing cycle, and as such should be subject to the requirements for public liability and financial protection. The PFEC follows with interest the NRC review of possible financial protection requirements.

In the Proposed Rules: Section 72.3 should define "temporary storage." There is confusion as to the ultimate fate of ISFSI. Is this to be a part of the routine processing of spent fuels before they are emplaced in a geologic repository, or is this an interim arrangement to be discontinued once a more permanent disposition is in place? Data concerning the disintegration of spent fuel claddings may provide a time frame for use of an interim storage facility.

We suggest an additional criterion to add to Subpart E - Siting Criteria. In choosing sites for ISFSI, consideration should be given to transportation corridors involved in moving spent fuel from present locations to the proposed sites. The regulations should define criteria for locating ISFSI with minimum transportation requirements.

Acknowledged 1/15

Developing independent spent fuel storage installations should in no way delay the development of geologic high level nuclear waste repositories.

Yours very truly,

Gloria Dibble Pond

Gloria Dibble Pond
Chairman

GDP:PMS:kp

cc: Governor Ella Grasso
Commissioner Stanley Pac (DEP)
Secretary of the Commission
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

DOCKET NUMBER
PROPOSED RULE PR -72(43FR46309) (44)

Gilbert/Commonwealth engineers/consultants/architects

COMMONWEALTH ASSOCIATES INC., 209 E. Washington Avenue, Jackson, MI 49201/Tel. 517 788-3000

January 3, 1979

Secretary of the Commission
Nuclear Regulatory Commission
Washington, D.C. 20555

Attention: Docketing and Service Branch

Dear Sir:

In the Federal Register of October 6, 1978 (pages 46309-46321), it was indicated that the Nuclear Regulatory Commission was proposing a new regulation specifying procedures and requirements for issuance of licenses to store spent fuel in an independent spent fuel storage installation (ISFSI). Our comments on the proposed new rule are attached.

Thank you for giving us this opportunity to make our comments known.

Very truly yours,

Daniel C. Kasperski

Daniel C. Kasperski, PhD
Manager, Licensing and
Regulatory Services

DCK:sjl
Attachment

1/15

Gilbert/Commonwealth Comments on Proposed 10 CFR Part 72

While in general, Gilbert/Commonwealth welcomes the proposed regulations for an independent spent fuel storage installation (ISFSI) as a first step in ensuring adequate medium term storage of spent reactor fuel, we have a number of concerns with the wording of the regulations as presently proposed.

While we understand that certain new definitions may be required in these new regulations which may not exist in other parts, we feel that the incorporation of new terms such as "controlled area", "neighboring area", "region", and "site" are not justified, and may be in conflict with other terms commonly utilized in 10 CFR 20, 10 CFR 50, and 10 CFR 100 which indicate similar concepts (e.g., "controlled area" versus "restricted area" or "exclusion area"; "neighboring area" versus "low population zone"). Even the proposed regulations appear to confuse the issue in 10 CFR 72.33(d), "Effluent Controls", when it makes reference in two separate places to "unrestricted areas". We therefore recommend that the need for such new and possibly confusing terminology be reviewed to determine the efficacy of such new terms. The placement of an ISFSI on an existing power reactor site would make the use of new, overlapping, and possibly conflicting terminology particularly undesirable.

Part 72.65, "Criteria for Regional Distribution of Population", discusses the need to evaluate the proposed site for potential accident consequences over the "operational lifetime" of the ISFSI. Since Part 72.32 limits the initial ISFSI license to no more than 20 years, with the possibility of renewal, the length of the operational life is uncertain. Clarification of the regulatory intent behind the 20 year license limit and criteria for license renewal would be desirable.

Part 72.20, "Environmental Report", requires that an Environmental Report meeting the requirements of 10 CFR 51 accompany the ISFSI application. As 10 CFR 51 requires both a construction permit and operating license stage environmental report, there appears to be some conflict between the single license requirements of the proposed 10 CFR 72, and the existing 10 CFR 51. Clarification of the requirements for environmental report preparation is believed to be needed.

Part 72.15(b) requires an annual update to the applicant's safety analysis report (SAR), and includes a number of items including a final analysis and evaluation of the design and updated quality assurance, security, pre-operational testing, and decommissioning plans. While we believe the update including these items to be appropriate for the final design review (90 days before receipt of spent fuel), we do not believe that an annual update including the detailed amount of information listed to be appropriate or warranted. We recommend that the phrase "and annually thereafter" be deleted from Part 72.15(b).

Part 72.31(a) (10) is unclear as to who is responsible for making a finding that the issuance of a proposed license is called for based on the evidence submitted. The circumstances under which the Director of the Office of Nuclear Materials Safety and Safeguards may make such a finding, or when a public hearing followed by an Atomic Safety and Licensing Board determination is required to make such a finding should be clarified.

Part 72.67(b) limits the calculated exposure at the outside boundary of the controlled area following a postulated accident to 5 rem after 2 hours. (Note: Exposure should be in Roentgen; dose equivalent in rem.) We believe this proposed limit to be without scientific basis. The supplementary information which accompanied the Federal Register notice indicated that with such a limit, an ISFSI located on a reactor site would then not add substantially to the risk to the public off site, presumably in accordance with proposed General Design Criteria 5, "Proximity of Sites". We believe this restriction to be without merit. In the case of ISFSI's located away from other nuclear facilities, there appears to be no basis for the restriction. To limit the hypothetical accident dose to this low level in the case of combined nuclear facilities requires the postulation of coincident initiating failures followed by additional failures in each facility. This has not been done in the case of multiple reactors at a site, nor is it justified in this case. We believe the accident limits of 10 CFR 100 to be more appropriate.

Finally, there is a discrepancy between the General Design Criteria provided in 10 CFR 72.71 and the seismic characteristics discussed in 10 CFR 72.66 in relation to the peak horizontal ground acceleration of 0.25g. Section 72.66 provides the option of using the 0.25g/500 year recurrence earthquake, or of establishing a site specific g value in accordance with 10 CFR 100. However, Part 72.71 (2) (ii) mandates the use of the 0.25g value by stating: ". . .shall be designed to withstand the effects of natural phenomena such as earthquakes (with a horizontal ground motion acceleration of at least 0.25g). . ." Should an applicant (choose to) qualify the facility seismic design basis according to a 10 CFR 100 investigation at a value below 0.25g, then the imposition of the 0.25g value is unwarranted and unduly restrictive. We suggest the deletion of the portion of 10 CFR 72.71 (2) (ii) quoted above in parenthesis.

NORTHEAST UTILITIES

THE CONNECTICUT LIGHT AND POWER COMPANY
THE HARTFORD ELECTRIC LIGHT COMPANY
WESTERN MASSACHUSETTS ELECTRIC COMPANY
HOLYOKE WATER POWER COMPANY
NORTHEAST UTILITIES SERVICE COMPANY
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(45)

DOCKET NUMBER
PROPOSED RULE [illegible]-72(43FR46309)

January 3, 1979

Secretary of the Commission
Attention: Docketing and Service Section
U. S. Nuclear Regulatory Commission
Washington, D. C. 20555

Reference: (1) Federal Register, Volume 43, Number 195, pp. 46309 - 46321, dated October 6, 1978.

Dear Sir:

With regard to 10CFR Part 72, the proposed new regulations concerning the storage of spent fuel in an independent spent fuel storage installations (ISFSI), Northeast Utilities Service Company on behalf of the Connecticut Yankee Atomic Power Company and Northeast Nuclear Energy Company offers the following comments:

(1) The proposed Part 72 deals only with fuel which is cooled more than one year. Although this is a reasonable assumption, there should be provisions contained in the new regulations to allow for storage of fuel cooled for less than one year on an emergency basis.

(2) Since an ISFSI will store spent fuel which has cooled a minimum of one year, any accident which might occur, if any, will certainly be less severe than that associated with an operating nuclear reactor. Consequently, NU feels that although indemnification for an ISFSI should be required, it should be in an amount substantially less than that presently required for presently operating commercially sized nuclear reactors as specified in 10CFR Part 140.11.

In general, it is encouraging that the NRC has begun to take the steps which are necessary in order to ensure that there is adequate spent fuel storage capability in the United States. The indefinite delay of reprocessing has caused a need for additional storage capability which cannot be met alone by expansion of individual reactor spent fuel storage pools. In order to insure that there are no potential losses in nuclear generating capacity, there will be a need for independent spent fuel storage installations to be built expeditiously. The proposed NRC Regulations (Part 72) covering these installations appear to recognize this fact. The NRC should act quickly to implement these

[illegible] 1115

proposed regulations so that those utilities needing an ISFSI will be given the guidelines necessary to allow construction of such a facility as soon as possible.

Thank you for your attention in this matter.

Very truly yours,

NORTHEAST UTILITIES SERVICE COMPANY

W. G. Counsil
Vice President

Nuclear Fuel Services, Inc. 6000 Executive Boulevard, Suite 600, Rockville, Maryland • 20852

A Subsidiary of Getty Oil Company

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(46)

DOCKET NUMBER
PROPOSED RULE 72-72(43FR46309)

January 4, 1979

Secretary of the Commission
U. S. Nuclear Regulatory Commission
Washington, D. C. 20555

Attention: Docketing and Service Branch

Dear Sir:

Nuclear Fuel Services, Inc. has reviewed the proposed new regulation 10 CFR 72 as published in the Federal Register (43 FR 46309) on October 6, 1978.

Based upon our experience of almost fifteen years in the transport, receipt and storage of irradiated fuel, NFS presents for your consideration the attached comments and suggestions which we believe are necessary if private enterprise is to contribute significantly to the timely solution of the present problem of accumulating spent fuel at reactor sites. Many of our comments arise due to the ambiguity and/or lack of specificity of the proposed 10 CFR 72. Such clarification may be provided by forthcoming NRC Regulatory Guides and standard review plans; therefore, NFS recommends that the comment period on 10 CFR 72 remain open until at least thirty days after the pertinent Regulatory Guides are issued for comment.

NFS would be pleased to meet with the Staff and explain our comments in detail.

Very truly yours,

James R. Clark
Manager, Quality Assurance
and Licensing

JRC:jnw

Enclosure 1/15

cc: R. E. L. Stanford, NRC-OSD
(With Enclosure)

COMMENTS OF NUCLEAR FUEL SERVICES, INC.

REGARDING PROPOSED 10 CFR 72

NFS applauds the development of a separate regulatory part for the away-from-reactor storage of spent fuel. We believe that the identification of the specific regulatory requirements is necessary before industry will seriously consider the storage of spent fuel in an independent spent fuel storage installation as a potential commercial project. At present, it is difficult to provide substantive suggestions on many portions of the proposed 10 CFR 72 because the NRC guidance documents explaining the desired implementation have not yet been published, and the proposed regulations are by themselves vague and ambiguous. The lack of specificity in the proposed 10 CFR 72 is: (1) contrary to the NRC intention, as identified in the Supplementary Information, of providing a *"... more definitive regulatory basis ..."*, (2) inappropriate in light of the hundreds of thousands of tonne-year of spent fuel storage experience[a,b] in the United States, Canada and Europe, and (3) potentially misleading to the public understanding of the minor safety implications involved in the storage of long-cooled spent fuel.

We recommend that the comment period for the proposed 10 CFR 72 remain open for at least thirty days beyond the publication date of the draft guidance documents. Our preliminary comments and suggestions are presented below.

1. FR 46309 - We accept the minimum of one year decay as a practical and generally satisfactory limitation but believe that sufficient evaluations have been performed to bound the radiologically significant zone by fuel exposure, specific power and decay time, thus providing a more defensible selection of this basic parameter.

2. FR 46310 - *"Storage conditions must provide an environment which will insure the long-term integrity on (sic) the fuel cladding ..."* The experiences of NFS and others[a,b] indicate that normal deterioration/degradation of the fuel assembly cladding during long-term storage is not deleterious to radiological health and safety. The Supplementary Information overstates the importance of fuel cladding integrity during the storage of aged fuel. It is our understanding that tests conducted at Battelle's Pacific Northwest Laboratories have shown that the leachability of irradiated oxide fuel is very low and approaches that of solidified waste forms.

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a. "Behavior of Spent Nuclear Fuel in Water Pool Storage", BNWL-2256, A. B. Johnson Jr., Battelle Pacific Northwest Laboratories, September 1977.

b. "Storage of Spent Fuel Elements", Proceedings of the NEA Seminar, Madrid, Spain, June 1978.

3. FR 46310 - It appears to NFS that the relationship between horizontal ground motion acceleration and recurrence interval is as yet too tenuous to justify a specific number such as "500 years." The NRC should utilize the experiences gained in both the review of more than a hundred reactor sites and the extensive survey for the Nuclear Energy Center study to develop a Regulatory Guide identifying the appropriate seismic parameter by geographical region.

4. Paragraph 72.3(h) - The NRC staff must draw upon their experience in developing Standard Review Plans for nuclear power plants and specify what "combination of events" must be addressed in the design of ISFSI since these parameters may well control the design of (or the decision to build) an ISFSI.

   Terminology such as *"These values may be (1) restraints derived from generally accepted 'state-of-the-art' practices for achieving functional goals"* is not satisfactory for clear and concise regulations.

5. Paragraph 72.3(j) - The term "self-contained" appears to be either superfluous for implying a significant but unspecified characteristic of the ISFSI. We recommend deletion of the term.

6. Paragraph 72.3(n) - The term "Region" appears to be too broadly defined, especially in light of the geographical area that could conceivably be affected by an accident at ISFSI. We recommend that the traditional 80 kilometer radius be used to bound a "Region."

7. Paragraph 72.3(s) - This Part 72 definition of "important to safety" extends, <u>without any accompanying justification</u>, the scope of protection beyond that provided by the Part 50 definition of "important to safety" to include plant personnel. It is clear that the development of the corresponding 10 CFR 50 regulations[a] were directed at *"structures, systems and components required to provide reasonable assurance the facility can be operated without undue risk to the health and safety of the <u>public</u>"* (emphasis added). Considering both the traditional use of the term "important to safety" and the use of the term for an ISFSI, we recommend deletion of the reference to plant personnel.

8. Table I, Footnote 3 - The withholding of information under 10 CFR 2.790(d) is a responsibility of the NRC, not the licensee. If the NRC desires such material withheld, the NRC should specify that it must be withheld.

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a. 10 CFR 50 Appendix A, "General Design Criteria for Nuclear Power Plants"

9. Paragraph 72.14(e) - While it is appropriate for the NRC to require a prospective licensee to show financial (and/or contractual) ability to remove the spent fuel from storage and decommission the facility, it is inappropriate to require the submission of the highly competitive information that would be required under the proposed Section 72.14(e)(1) and (2). The "estimated construction costs" are irrelevant since the ISFSI is not licensed to receive fuel until after the NRC has found the facility to have been adequately constructed. The actual costs for constructing the ISFSI can vary from totally irrelevant to the NRC to only slightly relevant, depending upon the financing mode. The "estimated operating costs over the planned life of the installation" are irrelevant without corresponding estimates of both revenues and the earliest potential data for decommissioning. We recommend that items (e)(1) and (e)(2) be deleted.

   Most of the "estimated shutdown and decommissioning costs" for an ISFSI will be easy to develop;[a] however, the Government charge for disposition of the waste generated will probably control the aggregate cost. We recommend that the NRC (1) publish guideline unit costs for the disposal of low level radioactive wastes, and (2) amend the proposed regulations to require only that the licensee show an arrangement to guarantee the early accumulation of funds to satisfy shutdown, decontamination and the NRC estimated costs of disposal.

10. Paragraph 72.1[illegible](a)(6) - Here and in several other sections[b] of the proposed Part 72 are references to "minimize waste volumes." The Staff has not presented a rationale for this objective which has not been incorporated in other Parts of Title 10 and which may be counter productive to the ALARA philosophy. Minimizing waste volume does not reduce public exposure and will probably increase plant personnel exposure. NFS' experience indicates that contaminated waste generation should average only about 1,000 cubic feet per year per million gallons of pool water. We recommend elimination of this "principal design criteria."

11. Paragraph 72.15(b) - The terminology "... for approval" is somewhat disconcerting and probably superfluous. We recommend deletion of the term.

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a. Generic costs have already been developed for the NRC in "Technology, Safety and Costs for Decommissioning a Reference Pressurized Water Reactor Power Station", NUREG CR-0130, June 1978.

b. Proposed Section 72.15(a)(12)(v) also. B-131

12. Paragraph 72.18(a) - *"This plan shall include provisions for minimizing the amount of solid, airborne and liquid wastes generated during decommissioning."* We regard this amount of detail as (1) inappropriate in light of the lack of specific NRC guidance on what constitutes acceptable decommissioning, and (2) premature considering that such decommissioning might be done several decades from the date of licensing review under procedures approved just prior to decommissioning. We recommend the deletion of the last sentence of this paragraph.

13. Paragraph 72.33(c)(4) - The licensees should be required to have the training and certification program in effect both prior to receipt and during storage, not just "prior to receipt."

14. Paragraph 72.33(c)(5) - This paragraph should be rewritten to allow the manipulation of the safety-related equipment and controls by non-certified personnel when such personnel are under the direct, visual supervision of certified personnel. This is necessary for an adequate training program.

15. Paragraph 72.33(d) - Remove the redundant term "as an upper limit" from the first sentence.

16. Paragraph 72.38(b) - A licensee cannot provide the "demonstration" that would be required by this proposed regulation because the NRC has not promulgated the decommissioning or disposal regulations referenced; however, it should be credible that decontamination and decommissioning of an ISFSI constructed for twenty years or more of safe operation can be readily accomplished.

17. Paragraph 72.42 - This proposed paragraph would extend, without NRC provided justification, the 10 CFR 50.109 concept of modifying a facility for a substantial improvement in public health and safety to also include occupational health and safety. We believe that it is extremely unlikely that a relatively simple and static facility such as an ISFSI would have to be "backfitted;" however, we also believe that such broad, vague regulations introduce further uncertainties that tend to dissuade commercial firms from pursuing the development of an ISFSI. We recommend modifying the proposed paragraph to match 10 CFR 50.109.

18. Paragraph 72.54 - It would appear adequate for the shipper of spent fuel to send only one copy of the NRC-741 to the receiver, as presently required by 10 CFR 70.54. The requirement for three copies should be deleted.

19. Paragraph 72.55(c) - Item (1) allowing for "tests of spent fuel during handling and storage" should be deleted. The

other three items allow the NRC to perform tests on activities conducted by the ISFSI licensee. The Item (1) as written implies that the NRC might conduct tests at the ISFSI, possibly relevant to other licensees but not relevant to the ISFSI.

20. Paragraph 72.56(c) - The proposed requirement that *"if a retention period is not otherwise specified, such records shall be maintained until the Commission authorizes their disposition"* should be deleted. For such a simple facility with so few radiologically significant records, the NRC should accept the minor burden of identifying the specific records to be retained.

21. Paragraph 72.61 - The wording of this paragraph might be interpreted to require a licensee to propose and evaluate several sites. We recommend the use of the term "the proposed site" throughout this section.

22. Paragraph 72.62 - It is singularly disappointing that the Staff should propose such an unspecific regulation on the criteria for design basis for external natural events. The NRC should draw upon their vast experience in reactor siting and extend the scope of natural phenomena resistance criteria for ISFSI beyond the specific earthquake resistance (0.25g/500 year return) to at least specify tornado winds and precipiation rate. Due consideration should be given to the very low potential release source involved in the storage of aged fuel. For example, NRC calculates[a] a tornado strike on the Barnwell Fuel Receiving and Storage Station would result in less than 0.1 rem to the critical organ of the maximum individual when fuel with cooling times as short as 150 days is stored.

23. Paragraphs 72.62(c) and 72.63(c) - The NRC Staff, not the licensee, should bear the responsibility for identifying what are "appropriate methods" for establishing design basis for natural phenomena and man-induced events. The licensee using these "appropriate methods" would compute the magnitude of the event.

24. Paragraph 72.65(a) - The term "character" should be defined or deleted.

25. Paragraph 72.65(b) - The wording should be modified to read *"... the licensee shall identify a controlled area and a neighboring area for the proposed site."* See also Comment No. 27 below.

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a. "Final Environmental Statement, Barnwell Fuel Receiving and Storage Station", NUREG-0008, U.S. NRC, January 1976.

26. Paragraph 72.66(a) - The requirement might be clearer if it read *"A site with a peak ... shall be deemed suitable for an ISFSI and require ..."*

27. Paragraph 72.67 - It is not clear why the NRC has chosen to utilize the term "controlled area" in Part 72 rather than "restricted area" as used in other parts. It would appear highly desirable to use the traditional term, i.e., "restricted area."

    The referenced EPA regulation (40 CFR 190.11) also limits the total quantity of radioactivity that may be released to the general environment from the entire uranium fuel cycle. The NRC should either indicate what proration of the EPA limit is applicable to ISFSI or exempt such ISFSI as insignificant contributors.

28. Paragraph 72.67(b) - We recommend that this paragraph be rewritten to something like: *"(b) The conservatively calculated radiation dose to any organ of any individual located beyond the boundary of the controlled area for two hours immediately following a postulated accident shall not exceed (blank) rem."* The actual quantitative dose limit should correspond to the protective action guidance of the EPA.

29. Paragraph 72.71(2)(iii) - If this proposed requirement is meant to require seismic motion monitors, it should so state. As written, the requirement could be interpreted to require "capability for determining the intensity" of "lightning" or "tornado winds."

30. Paragraph 72.71(2)(iv) - The proposed requirement that *"if an ISFSI is located over an aquifer, measures must be taken to preclude the transport of radioactive materials to man and the environs through this potential pathway"* is an overstatement of the potential hazard involved. No such specific requirement is highlighted for a nuclear reactor or other nuclear fuel cycle facility. An ISFSI would have pool water contamination of about 10^{-3} uCi/ml, not much of a hazard. If the proposed requirement is meant to preclude an ISFSI near a major underground water resource, a Reg Guide specifying such prohibited areas would expedite siting and review.

31. Paragraph 72.71(3) - *"Overall Requirements - Protection against fires and explosions."* This proposed requirement is almost identical to the requirement of 10 CFR 50, Appendix A, Criterion 3 and, therefore, greatly overstates the hazard potential involved in a fire at an ISFSI. At the ISFSI the fuel will be either under water while in storage or within a shipping cask designed to withstand fire accidents. Difficulties with this (and other) proposed requirement arise due to the non-quantified definition

(proposed 72.3(r)) of "important to safety." Until the NRC provides a quantifiable decision criteria for establishing what structures, systems and components are "important to safety," regulatory ambiguities will abound.

32. Paragraph 72.71(5) - This proposed requirement is identical to that specified for a nuclear power plant. Unlike nuclear power plants, the proximity of an ISFSI to another nuclear facility presents no significant incremental potential hazard and may well have some risk reduction due to proximity. The issue of combined radiological effect of discharge was considered in the development of EPA's 40 CFR 190. If the NRC wants a consideration beyond the EPA regulation, they should quantify "significant risk."

33. Paragraph 72.71(8) - The proposed requirement that "*fuel cladding shall be protected against degradation and gross ruptures*" is too broad and vague. It could be interpreted to require canning of fuel assemblies. Cladding obviously undergoes some "degradation" during long-term storage, but there is lots of empirical evidence that such "degradation" is not deleterious to health and safety. We reach this conclusion based upon our experience, statements by the NRC (Page S-3 of Reference b) and DOE (Page 17.1 of Reference a) and a review of the other references cited in these comments. We know of no "gross ruptures" of light water commercial power reactor fuel occurring after the fuel has been stored for one year. This requirement should be deleted.

34. Paragraph 72.71(12) - Our experience is that significant delays arise during Staff reviews of fuel assembly storage due to the use of different calculational methods by the Staff and licensee. We strongly recommend that the NRC publish very specific regulatory guides (including acceptable cross-section sets, scope of evaluation and acceptable codes) for the calculation of nuclear criticality safety margins. It is our understanding that Reactor Licensing has developed and promulgated such information via its Standard Review Plan.

35. Paragraph 72.71(16) - "*Measuring the amount of radionuclides in any effluent*" would, if literally complied with, entail an unjustified burden. While the vast majority of air released from ISFSI will be filtered, some air will be released via cask entry doors unless a large airlock is provided. As noted by the Staff in the Supplementary Information, experience (Page 4-17 of Reference b) shows that airborne contamination above a spent fuel storage pool is not significant.

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a. "Alternatives for Managing Wastes from Reactors and Post-Fission Operations in the LWR Fuel Cycle," ERDA-76-43, Volume 3, U.S. ERDA, May 1976.

b. "Draft Generic Environmental Impact Statement on Handling and Storage of Spent Light Water Power Reactor Fuel," NUREG-0404, U.S. NRC, March 1978

We believe that the personnel exposure involved in "measuring the amount of radionuclides" in solid wastes cannot be justified. We recommend that the proposed requirement read: *"Effluent systems shall include the means to determine the amount of radioactivity in airborne and waterborne effluents."*

36. Paragraph 72.71(19) - *"These facilities shall be designed to concentrate all site generated wastes and convert them into a form suitable for interim storage and ultimate final disposal."* A licensee cannot satisfy this requirement due to the lack of NRC criteria for (1) balancing degree of compaction versus operator radiation exposure and public exposure via effluents from the compaction operation, (2) a definition of a form suitable for "interim storage" and (3) a definition of the form suitable for "ultimate final disposal." We understand that the NRC Office of Nuclear Material Safety and Safeguards has such studies under contract. Until the completion and evaluation of these studies, it is premature to impose this proposed requirement.

    The total volume of radioactive waste generated at the ISFSI should not be significant. As noted in an earlier comment, the volume should be about 1000 ft^3/yr/million gallons of pool water. The waste composition will be primarily filter media and therefore not amenable to much concentration.

37. Paragraph 72.71(20) - *"... and to minimize the quantity of radioactive wastes ... at the time the facility is permanently decommissioned."* The largest quantity of contaminated equipment at decommissioning should be the storage racks. It is inconceivable that the Staff would want to reduce the potential strength of storage racks in order to reduce a waste volume at twenty years later. If the Staff wants a stainless steel lining on the pool surface, it should be a specific requirement.

38. Paragraph 72.81(b) - *"... ISFSI design features which will make the installation less vulnerable to sabotage ..."* Less vulnerable than what? We believe that the tests being conducted at Sandia Laboratories and the evaluations conducted by General Electric Company for MFRP show that an ISFSI does not present any undue risk to the public health and safety due to potential sabotage. The Staff should provide very specific requirements on physical protection at ISFSI rather than the generalized, vague requirements of Section 72.81.

39. Paragraph 72.93 - *"Any physical or mental condition which might cause impaired judgment or motor coordination must be considered in the selection of personnel for safety-related activities."* Such vague and ambiguous requirements

are inoperative and, therefore, not constructively adding to public health and safety. The Staff should draw upon their experience in implementing 10 CFR 55 and in developing 10 CFR 73, Appendix B, to provide much more substantive guidance.

General Comments

1. Neither the proposed Part 72 nor its accompanying Supplementary Information sets forth a clear explanation of the intended step by step licensing procedures which will be utilized for licensing of ISFSI. The relationship to 10 CFR Part 2 procedures is not addressed, nor is the timing of the issuance of the license within the licensing framework. Applicants will require more certainty in these procedures so as to be able to plan licensing schedules. Specifically, Section 72.31(a)(10) requires that the specific license must be issued prior to commencing of construction; however, there appears to be a possibility of another licensing action after construction and prior to operation of the facility as a result of Sections 72.15(b)(1) and 72.31(a), requiring the submittal of an "updated" SAR for "approval". It appears that Part 72 combines certain licensing concepts of a materials license (pursuant to Part 70) with other features of production and utilization facilities license (pursuant to Part 50). Thus, the one-stage licensing procedure of Part 72 may, in reality, constitute a two-stage procedure (construction approval and then an operating approval). When Part 72 is promulgated as an effective regulation, either the regulation or its Statement of Considerations must clarify procedural matters.

2. In the Supplementary Information, it was stated that the Staff was considering the question of the Commission exercising its discretionary authority under the Price-Andersen Act to prescribe specific requirements relating to financial protection and responsibility for public liability for Part 72 licensees. If the storage of spent fuel in an independent spent fuel storage installation is to be considered by prospective licensees to be a reasonable commercial undertaking, this matter must be determined prior to the promulgation of an effective regulation.

GENERAL ELECTRIC

NUCLEAR ENERGY
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DIVISION
SPENT FUEL SERVICES OPERATION

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DOCKETED RULE PR-72(43FR46309) (47)

DMD-279

January 4, 1979

(140)

Secretary of the Commission
Attn: Docketing and Service Branch
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

SUBJECT: COMMENTS ON PROPOSED 10 CFR PART 72, "STORAGE OF SPENT FUEL IN AN INDEPENDENT SPENT FUEL STORAGE FACILITY", OCTOBER 1978

The enclosed comments are submitted by General Electric Company pursuant to the request published in the Federal Register (43 FR 46309) Oct. 6, 1978.

General Electric considers the proposed regulation to be necessary and reasonable in its approach. We are, however, concerned about certain areas in which it appears that more specific or additional guidance is needed to assure satisfactory regulation. These areas are:

- The proposed regulation contains several non-quantitative requirements that could be subject to various interpretations. Quantitative or at least more definitive statements against which performance or design can be measured should be developed.

- It is apparent from statements made in the SUPPLEMENTARY INFORMATION section of the Proposed Rule that the NRC, like General Electric, is aware of the relatively low risk from storage of spent fuel. The risk is composed of nearly immeasurable consequences that are likely to occur at extremely low probabilities. What is not apparent is how allowance has been made in the Regulation for this acknowledged low risk. Rather, it appears that many of the same criteria for siting and safety that are employed in reactor licensing are reiterated

Acknowledged 1115

here for the ISFSI. We would suggest that more appropriate consideration be given to fitting the siting and design criteria to the extant risk.

- As further illustration of the above, we are concerned that the seismic design basis of 0.25g is overly conservative for this application. A recent ACRS recommendation indicated that a 0.2g acceleration was an adequate design basis for power plants in the eastern United States. This value of 0.2g is also consistent with the value in the latest version of the Uniform Building Code. We recommend that the design basis be reduced to 0.2g or that the regulation provide for a site specific design basis of less than 0.2g based on site investigation.

General Electric is also concerned about the efficacy of the requirement (72.15b) for the annual updating of the SAR and subsequent approval by the Commission. Changes in the facility which are important to safety are handled by the normal license amendment application, review, and issuance of the amendment by the Commission. Other changes can be handled by the procedure discussed in 72.34(b). We fail to see that the annual updating and approval of the SAR is either necessary or practical.

Comments on specific areas of the proposed regulation are attached to this letter.

General Electric appreciates the opportunity to comment on these proposed regulations. Any questions on these comments should be addressed to C.C. Herrington (408*925-6385).

Respectfully submitted,

GENERAL ELECTRIC COMPANY

D. M. Dawson, Manager
Licensing & Transportation

DMD:CCH:ca

§72.1 Purpose

This Section and §72.2 Scope describe the licensing of several activities with respect to special nuclear material, byproduct material and source material in spent fuel. This emphasis overlooks the fact that some or all of these material categories, but especially byproduct material may be present at the facility, not in spent fuel. The regulation needs to make allowance for quantities of other radioactive materials encountered in the normal course of operating an ISFSI, such as that associated with the basin water, the water cleanup system, casks, cask related equipment, laboratory standards or test sources.

§72.2 Scope

The references to spent fuel and material in the spent fuel should be broadened to include other radioactive material associated with the operation of an ISFSI (see the comment re: §72.1 Purpose, above).

§72.2 Scope, last paragraph, limits the relicensing of facilities licensed before the effective date of this regulation to those that meet the operating requirements of this Part 72. Operating requirements should be fully defined in the regulation to clarify the intent.

§72.3 Definitions

§72.3(r) defines "Spent Fuel" suitable for storage in an ISFSI as light water reactor fuel which has undergone at least one year's decay since reactor shutdown. If the phrase since reactor shutdown is augmented with or removal from the reactor, then the possible future case of on-line refueling can be accommodated.

§72.6 License Required and §72.7 General License to Own Spent Fuel

Other radioactive material, not in spent fuel should be included (see comments on §72.1 Purpose).

§72.11 Filing of Applications for Licenses; Oath or Affirmation

(b) Oath or Affirmation - It is not clear why a requirement of filing with Oath or Affirmation is made a requirement of Part 72 when it has not previously been required in licensing transactions in Parts 30, 40 or 70. It is suggested that the Oath or Affirmation requirement be deleted.

§72.15 Contents of Application: Technical Information

(a)(6) Among other information to be supplied in the SAR, this Section identifies the "features ... and operating modes to minimize waste volumes generated by the facility." A term other than minimize should be used in this location. Minimize is a limitless concept and should more realistically be replaced by "... and operating modes to maintain the low waste volumes established for the facility."

(a)(12)(v) This Section requires measures to control the quantities of radioactive waste for disposal offsite to ALARA levels. This is not a current regulatory requirement and is not necessary for this Part.

(b) This Section requires an annual updating of the SAR and submittal for Commission approval. It is not clear why an annual requirement is included in this Section. This is an unnecessary and unusual requirement that will result in duplicating review effort and double approvals on licensees' activities. Any change in the facility that requires a license amendment will necessarily have received Commission approval prior to the implementation of that change. Revision of the SAR should be implicit to each approved amendment. Any change in the facility that does not require an amendment, does not require Commission approval. Whether changes of this type are reported to the NRC in sixty days or annually, there is no basis or necessity for Commission approval.

§72.18 Decommissioning Plan, Including Its Financing

(a) This Section partially defines the requirements for a Decommissioning Plan. The wording used differs sufficiently from the discussion in NUREG-0436, "Plan for Reevaluation of NRC Policy on Decommissioning of Nuclear Facilities",

and the Commission's Advance Notice of Proposed Rulemaking in the Federal Register (43 FRO 10370, March 13, 1978) to raise questions about the NRC's actual intent. Reference should be made to a source for the Decommissioning Plan requirements.

The sentences that reads:

> "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 amounts of solid, airborne and liquid wastes generated during decommissioning."

should be modified by replacing "maximum degree" and "minimizing" with words or phrases that do not imply such unlimited conditions.

§72.31 Issuance of Licenses

(a) This Section defines the first issuance of a license but does not recognize that authorization to begin construction is required by the licensee. The first sentence should be changed to read:

> "(a) The Commission will issue a license under this part prior to start of construction. Such license will be updated prior to the receipt..."

The terms "qualified" and "adequate", used in (a)(2), (4) and (5) require additional definition or a corresponding reference to limit their meaning.

§72.33 License Conditions

(d) This Section describes effluent controls established as license conditions. Specific mention should be made regarding basin leak control and detection requirements.

Effluent reporting requirements should be made consistent with existing regulations in Part 70, §70.59.

§72.38 Applications for Termination of License

This section should be consistent with all other discussion of the Decommissioning Plan. Therefore, the comments on §72.18 (above) also apply to this Section.

§72.42 Backfitting

(a) This Section establishes the requirements for backfitting. It states in part "the Commission may require ... backfitting if ... such action will provide substantial, additional protection ..."

There should be an additional definition of the phrase "substantial additional protection" to clarify the applicability of backfitting. Backfitting should only be ordered following an independent case review and each such order should be substantiated by a cost benefit analysis by the NRC related to the "substantial additional protection".

§72.52 Reports of Accidental Criticality or Loss of Special Nuclear Material

This Section requires reporting of the title topics and states in part: "Each licensee shall report ... any loss of special nuclear material contained in spent fuel." The meaning of "any loss" in this context should be clarified.

The loss of SNM in spent fuel can only occur through the loss of spent fuel which is unlikely. Therefore, if "any loss" means any loss of fuel bundle, then let the regulation so state. However, if the intent is to quantify and report SNM levels in the basin water, then let the regulation state that, but in the latter case, some minimum reporting limit should be established.

§72.55 Inspections and Testing

(c) This Section gives the Commission authority to perform or cause the licensee to perform tests as deemed appropriate "...for the administration of the regulations in this part." It should be made clear in the regulation that the NRC will respect the proprietary nature of the information derived from testing. Further, any testing in behalf of NRC should be limited to areas related to the safety of the facility.

§72.66 Criteria for Defining Acceptable Seismic Characteristics

(a) This Section defines acceptable seismic criteria. The value of 0.25g for peak horizontal ground acceleration is too restrictive and a value of 0.2g is more appropriate. Our rationale is based on the following considerations:

1. The value of 0.25g cannot be inferred from the reference cited (Report by Algermissen and Perkings of USGS). Rather, 0.2g is given as the value that covers most of regions east of Rockies.

2. The value of 0.2g is consistent with present practice for design of equipment to be located in buildings. This typical requirement is given in the latest version of the Uniform Building Code.

3. The value of 0.25g seismic requirements may eliminate many suitable sites due to liquefaction consideration.

4. The purpose of selecting minimum design earthquake level is for convenience in lieu of expensive and time-consuming site investigation. Therefore, this selected earthquake level should be high enough to cover a representative number of potential sites and low enough to avoid excessive economic penalty. In this regard, we believe 0.2g is more appropriate.

It is not clear whether the alternative approach stated, "... of establishing a site specific 'g value'", permits the use of a value less than 0.25g. This should be clarified.

§72.71 General Design Criteria

(2)(ii) This Section states criteria for protection against the effects of natural phenomena. The earthquake horizontal ground motion acceleration of at least 0.25g is reiterated here. The comments on §72.66 (above) apply here, as well.

(2)(iv) This Section requires "measures" to be taken if an ISFSI is located over an aquifer. There is need to define further the juxtaposition limits (being all areas on Earth are located "over an aquifer"); the permissible release limits, and the "measures" implied (see also comments on §72.33).

(17) This Section requires means to "... minimize the release in effluents of radioactive materials ..." The word "minimize" is not well considered in this context. Replace "minimize" with "... limit to a level as low as reasonably achievable, the release in effluents ..."

(18) This Section requires design consideration for establishing the safety of waste storage and handling systems. It would be beneficial to define or reference the acceptable forms for the ultimate disposal of treated radioactive wastes.

(20) This Section requires design to facilitate decommissioning. The wording regarding decommissioning should be made consistent with previous sections on this regulation (see comments on §72.18 and §72.38), and with related documents (NUREG-0436) and Regulation Guides.

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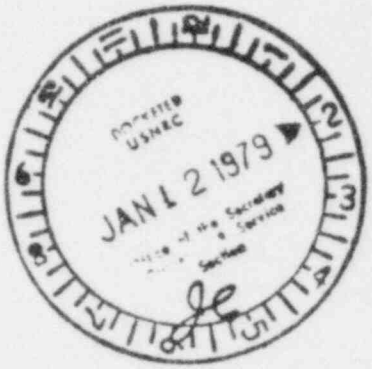
(48)

DOCKET NUMBER
PROPOSED RULE PR - 72 (43FR46309)



January 4, 1979

Secretary of the Commission
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

Gentlemen:

The Nuclear Regulatory Commission has requested comments on the Proposed Licensing Requirements for Storage of Spent Fuel in an Independent Spent Fuel Storage Installation (ISFSI) [proposed 10 CFR Part 72] published in the Federal Register on October 6, 1978 (43 F.R. 46309-21).

We are pleased to submit the enclosed Comments of the Utility Waste Management Group on behalf of the following utilities:

Arizona Public Service Company
Boston Edison Company
Commonwealth Edison Company
Duke Power Company
Florida Power & Light Company
Georgia Power Company
Houston Lighting & Power Company
Illinois Power Company
Iowa Electric Light & Power Company
Long Island Lighting Company
Nebraska Public Power District
Northeast Utilities Service Company
Pacific Gas & Electric Company
Portland General Electric Company

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Power Authority of the State of New York
Sacramento Municipal Utility District
San Diego Gas & Electric Company
Tennessee Valley Authority
Virginia Electric & Power Company
Yankee Atomic Electric Company

We first recommend some basic improvements in Part 72 concerning the proposed timing of license issuance and other important aspects of achieving a meaningful "single license" for an ISFSI (see "Licensing Approach"). We also recommend some basic changes in Part 72 to achieve generic rulemaking decisions based on the Commission's and DOE's generic environmental impact statements and to avoid duplicative reconsiderations of basic policy questions in individual licensing proceedings (see "NEPA Process"). We then provide comments on Part 72 on a section-by-section basis. Finally, we recommend the extension of coverage of the Price-Anderson Act to ISFSI's (see "Coverage Under the Price-Anderson Act").

Respectfully submitted,

Lowenstein, Newman, Reis, Axelrad
& Toll

MA:jcj
Enclosure

COMMENTS OF THE UTILITY WASTE MANAGEMENT GROUP

ON THE

NUCLEAR REGULATORY COMMISSION

PROPOSED LICENSING REQUIREMENTS FOR

STORAGE OF SPENT FUEL IN AN INDEPENDENT SPENT FUEL STORAGE INSTALLATION (ISFSI)

[Proposed 10 CFR Part 72]

January 4, 1979

January 4, 1979

Comments of the Utility Waste Management Group

The following comments on the Proposed Licensing Requirements for Storage of Spent Fuel in an Independent Spent Fuel Storage Installation (ISFSI) [proposed 10 CFR Part 72] are submitted in response to the Commission's notice (43 F.R. 46309-21) on behalf of the Utility Waste Management Group (UWMG), a group of investor-owned and publicly-owned utilities representing about one-half of the installed and planned nuclear power projects in the United States.

We first recommend some basic improvements in Part 72 concerning the proposed timing of license issuance and other important aspects of achieving a meaningful "single license" for an ISFSI (see "Licensing Approach"). We also recommend some basic changes in Part 72 to achieve generic rulemaking decisions based on the Commission's and DOE's generic environmental impact statements and to avoid duplicative reconsiderations of basic policy questions in individual licensing proceedings (see "NEPA Process"). We then provide comments on Part 72 on a section-by-section basis. Finally, we recommend the extension of coverage of the Price-Anderson Act to ISFSI's (see "Coverage Under the Price-Anderson Act").

Licensing Approach

The proposed regulations recognize that the storage of spent fuel at an ISFSI is licenseable under the Atomic Energy Act of 1954, as amended, as the ownership, receipt, possession, etc. of special nuclear, source and byproduct material, and not as the construction and operation of a utilization facility (such as a nuclear power plant).

Thus the regulations do not explicitly require the two-step process associated with the licensing of a reactor, i.e., the issuance of a construction permit followed by the issuance of an operating license. Instead the proposed regulations (§72.31) presumably call for the issuance of a "single license," as explained at 43 F.R. 46309.

We fully agree that a "single license" should be issued but we have several basic disagreements with the specifics of the proposed timing of license issuance and other important details.

First, we believe it is inappropriate to require that the license be issued before the start of construction of any physical facilities, particularly if the ISFSI is to be located at a site where there are existing licensed nuclear facilities or governmental nuclear activities. An ISFSI will not be a massive construction project (such as a reactor) and will not entail potential significant environmental impacts during construction. Moreover, since, as described in the Commission's Draft GEIS on Handling and Storage of Spent Light Water Reactor Fuel (NUREG-0404), there has been extensive favorable operating, safety and technical experience in the pool storage of spent fuels, there is no need for a formal review prior to construction. We would urge instead that the license not be required until spent fuel is to be received at the ISFSI and that the regulation be redrafted to provide that:

(1) An applicant be required to file preliminary information prior to construction, but only so that the NRC Staff can informally review the project and provide its informal views to the applicant during construction; and

(2) An applicant have the option to seek formal Commission approval at any time he chooses (including prior to construction) as to either the entire ISFSI or any aspect thereof (such as a site approval; approval of a particular method of spent fuel handling or storage, etc.).

Second, even if the single license is to be issued prior to construction we are concerned that the provisions for "re-evaluation" by the Commission and "up-dating" of license conditions prior to the receipt of spent fuel, might lead to a second regulatory proceeding and attendant delays at the time when operation is about to begin. Particularly in view of the proven technology to be utilized in an ISFSI, there are no complexities that would warrant such a second review of a licensed ISFSI. Instead we would suggest that the license, whenever issued, simply provide that spent fuel could not be received until specified conditions are satisfied (e.g., that construction be completed in accordance with specified criteria; that sufficient trained operators be available, etc.). It would then be a matter of inspection by the NRC prior to receipt of fuel, rather than an additional licensing review which could trigger additional procedural delays (such as hearing requests).

Third, it is difficult to evaluate the proposed licensing approach since important provisions pertaining to public hearings are not included but will be issued for public review and comment later. Regardless of the approach selected, it will be essential that no more than one hearing be held. Thus any up-dating of license conditions or subsequent amendment of the license should not provide an additional opportunity for public hearings.

NEPA Process

Although the Supplementary Information acknowledges that the Commission has evaluated the environmental impacts of the accumulation of spent fuel in its draft GEIS (NUREG-0404), we do not detect in the

proposed regulations any attempt to reach generic decisions based on the GEIS to avoid repetitive consideration of similar issues in individual licensing proceedings.

As the Commission has recognized in its subsequent Interim Policy Statement on Generic Rulemaking to Impr ve Nuclear Power Plant Licensing (43 F.R., 58377, December 14, 1978) there are significant advantages to deciding a generic issue by rulemaking, including arriving "at a dispositive finding regarding the generic issue so that the issue would not be addressed at all or in a simplified way in subsequent individual licensing cases . . . ." We believe that this principle can be and should be employed to good advantage in the current rulemaking on ISFSI's. For example, on the basis of its final GEIS the Commission should be able to determine that there are no significant differences in the environmental impacts of storage in ISFSI's, at reactor pools or any other available alternative. Thus, the Commission should be able to rule generically that alternatives need not be considered in the environmental analyses performed in the licensing of an ISFSI. Similarly the Commission should be able to determine generically that the incremental environmental impact of installing an ISFSI at the site of an existing licensed reactor or of substantial Federal nuclear activities is sufficiently small that no other site would be "obviously superior." Thus a generic rule should provide that no analysis of alternative sites would be needed for an ISFSI located at such an existing site. Another example of potential generic rulemaking would be a determination that spent fuel storage capacity is needed and that the individual licensing proceeding should not consider "need" for the ISFSI (at least within specified capacities in given regions).

The proposed regulations also ignore that the DOE has published a Draft Environmental Impact Statement (DOE/EIS-0015-D) and Supplement on Storage of U.S. Spent Power Reactor Fuel. If an ISFSI built by DOE is to be subject to licensing by the Commission, the proposed regulations should make clear that programmatic decisions reached by DOE on the basis of its generic impact statement will not be reevaluated by the Commission in the licensing of a specific ISFSI. United States Research and Development Administration (Clinch River Breeder Reactor Plant), CLI-76-13, 4 NRC 67, 79-84 (1976). Moreover, the regulations should contain a generic determination that as to matters covered in DOE's programmatic EIS which may be subject to Commission regulatory review, such review should not be de novo but should consider only whether DOE's determinations are "reasonable." Id. at 91.

We must emphasize that appropriate consideration of the foregoing principles would lead to a radically different approach to decision-making on environmental issues in individual ISFSI licensing proceedings than is currently reflected in §72.31(10) of the proposed regulations. That section presently contains a paraphrase of the type of overall cost-benefit analysis and de novo consideration of all potentially relevant environmental issues that the Commission would make under NEPA for any license application filed with it under a framework (e.g., Part 50) where (1) the Commission had issued no generic environmental impact statement and had correspondingly reached no generic decisions in policy statements or rulemaking, and (2) no other Federal agency had made programmatic decisions on the basis of its own generic statements which were entitled to dispositive weight in the Commission's proceedings.

Instead, for the the reasons we describe above, Part 72 when adopted should reflect rulemaking in which the Commission generically determines and thus disposes of (i.e., eliminates as an issue in individual proceedings) basic issues pertaining to "need" for (i.e., "benefits" of) ISFSI's and to consideration of alternative methods and sites. In essence, under the NEPA process we suggest the Commission would not need to do a cost-benefit analysis in individual licensing proceedings de novo, since major elements of such analysis would have been disposed of generically in the rule itself. Rather, the specific EIS in an individual proceeding and the Commission's required environmental decision-making in that proceeding would be limited to any site-specific and project-specific effects that were not determined in the generic rule and to environmental effects, if any, arising from any deviation by the specific ISFSI from the envelope of characteristics assumed in the generic rule (e.g., conventional pool storage technology; use of an existing licensed site or the site of Federal nuclear activities).

The NEPA process we suggest would take full advantage of the reasons why a generic (or programmatic) impact statement is undertaken in the first place. As recognized by the courts and cited for support by the Commission in Clinch River (4 NRC at 80):

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*/If our suggestions are not adopted and Part 72 neither determines environmental issues generically nor provides any guidance as to how basic environmental issues (e.g., "need" for ISFSI; consideration of alternative methods and sites) are to be considered in specific proceedings, it can readily be predicted that the Licensing Board in the first ISFSI licensing proceeding will be confronted with the same type of mixed questions of law and policy as arose in Clinch River. The Commission, rather than a Licensing Board, is best suited to decide such questions; and the rule-making proceeding, rather than the licensing proceeding, is the best forum for such decision.

> "The program statement has a number of advantages. It provides an occasion for a more exhaustive consideration of effects and alternatives than would be practicable in a statement on an individual action. It ensures consideration of cumulative impacts that might be slighted in a case by case analysis. And it avoids duplicative reconsideration of basic policy questions." (Emphasis added) Scientists' Institute for Public Information Inc. v. AEC, 481 F.2d 1079, 1087-88 (D.C. Cir. 1973).

The principles of disposing of generic issues appropriately in the context of broad, programmatic decision-making and of focusing in subsequent actions only on any specific limited issues arising from such actions are also expressly encouraged by the CEQ in the "tiering" process incorporated in §1502.20*/ and §1508.28 of the recently published regulations on NEPA implementation (43 F.R. 55978-56006, November 29, 1978).

We urge implementation of such principles by the Commission as the most effective and efficient manner of implementing its NEPA responsibilities in Part 72.

§72.1 Purpose

The last sentence of §72.1 states that "licenses are limited to the temporary storage only of spent fuel . . ." Particularly since

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*/ §1502.20 states:

> Agencies are encouraged to tier these environmental impact statements to eliminate repetitive discussions of the same issues and to focus on the actual issues ripe for decision at each level of environmental review (§1508.28). Whenever a broad environmental impact statement has been prepared (such as a program or policy statement) and a subsequent statement or environmental assessment is then prepared on an action included within the entire program or policy (such as a site specific action) the subsequent statement or environmental assessment need only summarize the issues discussed in the broader statement and incorporate discussions from the broader statement by reference and shall concentrate on the issues specific to the subsequent action. The subsequent document shall state where the earlier document is available. Tiering may also be appropriate for different stages of actions. (Sec. 1508.28).

the term "temporary storage" is not defined, this last sentence may create unnecessary controversy in the licensing process. For example, an opponent of the ISFSI might try to argue that, if there is no licensed repository for spent fuel available, there is no certainty that storage will be "temporary." Such spurious arguments should be avoided by deletion of the last sentence of §72.1. The purpose of the regulations is clear without it.

We are not aware of any environmental, safety or technical reason to limit the period of storage in an ISFSI. Storage should be permitted for any period as long as the requirements set forth in the regulations are satisfied.

§72.3 Definitions

The proposed regulations include the following new geographical terms: "controlled area" (§72.3(g)); "neighboring area" (§72.3(k)); and "region" (§72.3(n)). We believe that these new terms are inprecise, unhelpful and unnecessary. For example, they may be confused with the term "restricted area," which is elsewhere defined as "any area access to which is controlled by the licensee for purposes of protection of individuals from exposure to radiation and radioactive materials" (§20.3(a)(14)), and they may be interpreted inconsistently with terms such as "exclusion area," "low population zone" and "population center distance," which are applied for similar purposes in 10 CFR Part 100. Particularly in view of the limited environmental and safety impact of ISFSI's, we believe that the principles (and terminology) established in these other Commission regulations can readily be applied and that there is no need to innovate in these respects.

Similarly we see no reason why the definition of the term "as low as is reasonably achieveable" (§72.3(b)) should differ from that contained in §50.34a(a). Thus at the end of the proposed definition in §72.3(b) we would add the words: "and other societal and socio-economic considerations, and in relation to the utilization of atomic energy in the public interest."

The definition of "spent fuel" (§72.3(r)) should not be linked to reactor shutdown, since the reactor is likely to have started up again after the fuel was replaced. We suggest instead that §72.3(r) read as follows: "(r) 'Spent fuel' suitable for storage in an ISFSI means irradiated light water reactor nuclear plant fuel which has not been used in an operating reactor for at least one year."

§72.14 Contents of application: General and Financial information

In view of the limited activities involved at an ISFSI we question the need for requiring detailed financial information pursuant to §72.14(e) and the need for a finding of financial qualification under §72.31(a)(5). To the extent the Commission believes financial qualifications should be considered, the regulations should provide that any regulated utility (or company with specified assets) would automatically satisfy the regulatory requirements; that no additional findings would be needed, and that the only supporting financial information to be filed would be the company's latest annual report or certified balance sheet and income statement. If the Commission does not decide to include in the regulations a generic determination of financial qualifications covering all regulated utilities (or companies with specific assets), at the very least it should specify that no

finding of financial qualification would be required as to any applicant who holds a valid construction permit or operating license for a production or utilization facility under Part 50. Any applicant who has satisfied the financial qualification requirements of Part 50 should not have to undergo an unnecessary duplicative review for the limited additional activities at an ISFSI.

§72.15 Contents Of Application: Technical Information

§72.15(a)(6) requires the application to describe "the features of ISFSI design and operating modes to minimize waste volumes generated by the facility;" while §72.15(a)(12)(v) refers to "the measures taken to control the quantities of radioactive wastes for offsite disposal to as low as reasonably achieveable levels." The latter requirement seems more precise. §72.15(a)(6) should be deleted unless it has an additional purpose which is not apparent from the presently proposed regulations.

The requirements for updating the SAR set forth in §72.15(b) are worded awkwardly and appear to be internally inconsistent. Moreover, a requirement that a completed SAR be submitted to the Commission "for approval" at least 90 days before receipt of materials may give rise to unnecessary procedural delays at a time immediately before operation of an ISFSI is to begin. As discussed in our comments above under "Licensing Approach," we do not believe that there are any complexities associated with an ISFSI that would warrant a second "re-evaluation" or "approval" by the Commission once the "single" license has been issued. Moreover, there should certainly be no need for Commission "approval" of an updated SAR annually thereafter. Thus, although we have no objection to a requirement that the licensee main-

tain his SAR current and file up-dating information with the Commission 90 days prior to operation and annually thereafter, such filings should not require any Commission "approval."

§72.18 Decommissioning Plan, Including Its Financing

We believe that it is both undesirable and unnecessary to require in §72.18(a) the inclusion of a "decommissioning plan" in an application. With respect to the ISFSI itself the specific components of a "decommissioning plan" would best be determined at the end of the useful life of the ISFSI, taking into account prospective future use of the ISFSI or the site, then-available decontamination and decommissioning technology, etc. In addition, although the regulation is unclear, if the term "disposal of radioactive material" is intended to refer to the ultimate destination of spent fuel, requiring precise such information in an application for an ISFSI is unrealistic in light of unresolved Federal policy issues.

It is also unnecessary to require in §72.18(b) that a decommissioning plan include "the financial arrangements for its execution." It should be sufficient for the applicant to describe how he intends to provide funds for future decommissioning and to provide reasonable assurance that he will be able to provide such funds.

§72.32 Duration of License; Renewal

We see no reason why §72.32 should limit a license to a period not in excess of 20 years. Such a period may have significance in determining Congressional intent as to whether a DOE facility is subject

to Commission licensing because it is intended for "long-term storage of high-level waste generated by [DOE]" under Section 202(4) of the Energy Reorganization Act of 1974. It should not, however, be indiscriminately carried over into the licensing of facilities used for the storage of spent fuel. Instead, licenses for ISFSI's should be issued for such period as the applicant can show the activities can reasonably be carried out within the proposed facilities. In view of the similarity of ISFSI's to reactor pools, a 40-year licensing period would appear to be fully appropriate.

§72.33 License Conditions

Section 72.33(b) should be revised to state that "license conditions may include items in the following categories." The Commission ought to retain the opportunity to determine the matters which must be included in license conditions and those which are best covered in implementing procedures. In many cases, particularly with respect to surveillance, procedures which can be reviewed by the Commission's inspectors have proven to be more flexible and appropriate than license conditions in assuring that proper actions are taken.

§72.37 Creditor Regulations

Since Part 72 requires a license only for the ownership, acquisition, possession, etc. of materials in spent fuel, §72.37 properly provides for the rights of creditors in such materials. To avoid any questions in the future, however, it may be useful to state in the regulations that no license is needed for ownership, acquisition, possession, etc. of the ISFSI itself and that there are thus no limitations on any mortgages, pledges, liens, etc. upon the ISFSI.

§72.42 Backfitting

There should be added to §72.42(a) the requirement that prior to imposing any backfitting the Commission will conduct a cost-benefit analysis to determine whether the additional protection that would be provided by the backfitting action is cost effective.

§72.66 Criteria For Defining acceptable Seismic Characteristics

The first sentence of §72.66(a) is presumably intended to permit the siting of an ISFSI without the need for costly seismic investigations, analyses and review. It might not achieve this purpose, however, because it does not specify the information source that will be conclusively accepted by the Commission without need for further proof by applicant. We suggest that the first sentence be redrafted to provide explicitly that the applicant need not provide detailed information and seismic findings by the Commission and will not be required if the ISFSI is to be located (1) at a site where a production or utilization facility is currently licensed under Part 50 with a "g" value for a Safe Shutdown Earthquake of 0.25g or less, or (2) at a site within an area satisfying the earthquake ground motion potential and recurrence interval set forth in the regulations as demonstrated by authorities named in the regulations (e.g., incorporating into the regulations a reference to the report identified in footnote 2 of 43 F.R. 46310) or equivalent authorities.

We assume that the second sentence of §72.66(a)is intended to provide complete flexibility to an applicant to ignore the "novel seismic siting approach" set forth in §72.66 and instead to proceed under Part 100. Thus, if an applicant wishes to establish pursuant to Part 100 a site specific "g" value of less than 0.25g he is free to do so; and he could then design the ISFSI accordingly.(For this reason there should be deleted the parenthetical expression in Quality Standard (2)(ii) of §72.71. which requires designing for an acceleration of at least 0.25g). On the other hand, if he wishes to use a site where a greater "g" value would be applicable, he is free to establish the site-specific acceleration and design the ISFSI accordingly.

§72.71 General Design Criteria

Quality Standard 2(iv) pertaining to an ISFSI location "over an aquifer" is ambiguous and redundant in light of the requirement in 2(i). In view of the limited potential releases of radioactive materials and the very small likelihood of its transport to the biosphere via a groundwater pathway, and in the absence of any definition of what constitutes an "aquifer," this requirement is unduly restrictive and unnecessary and should be eliminated from the proposed rule.

The second sentence of Standard (19), "Waste Treatment," should be deleted. There is no reason to require concentration of "all" site generated wastes; as to some wastes concentration may be impossible,

may involve unnecessary personnel exposure or may not be cost effective. As to converting such wastes to a form suitable for "ultimate final disposal," although such conversion might in many instances be accomplished on-site, there is no reason to deprive the licensee of the flexibility of using off-site facilities that might be more effective.

§72.65 Criteria For Regional Distribution Of Population

Although the Supplementary Information states that "the population distributions at licensed reactor sites would be acceptable for the location of ISFSI's"(43 F.R. 46310), this determination is not included in the proposed regulation. The regulation should make explicit that if an ISFSI is to be located at a licensed reactor site, population distribution information would not need to be provided and reviewed.

The regulation should also provide, however, that in view of the acknowledged low level of potential risk of an ISFSI, population densities higher than, and population distributions different than, those at licensed reactor sites may also be acceptable.

Coverage of ISFSI's Under Price-Anderson Act

While the proposed regulation does not contain specific requirements relating to financial protection and responsibility for public liability, it is noted that the Commission is considering the question of whether it should exercise its discretionary authority under the Price-Anderson Act to prescribe such requirements. The following comments are in response to the solicitation of views on this issue.

We urge the Commission to exercise its discretionary authority under the Price-Anderson Act to extend the foregoing requirements to storage of spent fuel at an ISFSI, including transportation to and from the ISFSI. Such action would be consistent with the basic intent as to the scope of the activities to be covered by the Price-Anderson Act and the Commission's implementation thereof. Until the Administration's recent unilateral decision to defer indefinitely the reprocessing of spent fuel, there would have been no "gaps" in Price-Anderson Act coverage of fuel utilized in nuclear reactors, i.e., coverage was provided for transportation to the reactor, at the reactor (including storage in spent fuel pool), transportation of spent fuel to the reprocessing plant, at the reprocessing plant, and transportation of recovered products and wastes from the reprocessing plant. The additional step (storage at an ISFSI) resulting from the Administration's action is functionally indistinguishable from storage which takes place at the reactor or reprocessor. There is no reason why the public should be deprived of the protection provided under the Price-Anderson Act for this additional step. In addition, Price-Anderson Act coverage is important in order to assure that constructors and suppliers of equipment are not dissuaded from participating in construction of an ISFSI because of concerns as to whether unlimited liability exposure would impact their ability to raise capital. Finally, including ISFSI's under the Price-Anderson Act would facilitate the obtaining by utilities of overall nuclear insurance that would cover spent fuel at all times. Thus, although we are convinced regarding the low level of risks associated with the operation of an ISFSI, we believe it is important that the provisions of the Price-Anderson Act be extended to ISFSI's either in proposed Part 72 or in Part 140.

In applying financial protection requirements to ISFSI's, the low level of risk should be recognized and a reasonably low level of financial protection should be established (as it is in the case of pre-operation possession of fuel at a reactor) in order to avoid imposing an inappropriate economic burden on an ISFSI. In addition, an ISFSI should, of course, not be subject to the retrospective premium requirements applied to reactors.

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January 3, 1979

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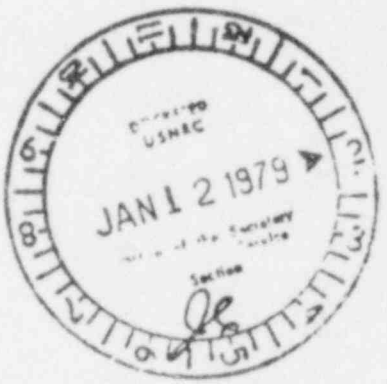

Secretary of the Commission
U. S. Nuclear Regulatory Commission
Washington, D. C. 20555

Attention: Docketing and Service Branch

Gentlemen:

Louisiana Power & Light Company has reviewed the proposed 10CFR72 and feels that this regulation makes an important contribution to the task of spent fuel storage pending development of a commercial reprocessing industry.

However, we wish to raise the following concerns which should result in improvements to the document:

(1) Section 72.18 - This section requires "a decommissioning plan which shall contain information on proposed procedures" for the "dismantling and disposal of the ISFSI at the end of its useful life". The useful life of an ISFSI is likely to be at least equal to that of a nuclear power plant (40 years). Due to the potential for advances in the state of the art for decommissioning nuclear facilities, it is inefficient to require more than a very general document on decommissioning the ISFSI at this stage. The decommissioning requirements for an ISFSI should not be more restrictive than those presently required of reactor sites. The decommissioning document should contain the selection of a general approach to decommissioning, an estimate of the cost for this approach, and an evaluation of the ISFSI design features which facilitate decontamination and decommissioning. The decommissioning document should not address the ultimate disposal of the spent fuel as this is the responsibility of the Federal Government.

(2) Section 72.71 (10) - The control room need not be located in the ISFSI. Where an ISFSI is placed on a reactor site, the reactor control room could also contain the ISFSI control area. Local control should suffice for normal operating conditions, and a "control room", as such, should not necessarily be required.

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(3) Section 72.15 (13) - This section calls for a conservative analysis of the potential dose to an individual offsite from accidents and natural phenomena which result in criticality, release of radioactive materials to the site and surrounding areas, and the loss of water for water pool type installations. These analyses are both inappropriate and unnecessary and could lead to difficulty in the design of such a facility. Regulatory Guide 1.25 would be a suitable alternative for the establishment of the design basis event for an ISFSI. The requirements for analyses of ISFSI's should be no more restrictive than those presently required for spent fuel pools at reactor sites.

Yours very truly,

D L Aswell

D. L. Aswell

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PR-72 (43FR46309)

January 4, 1979

Secretary of the Commission
U. S. Nuclear Regulatory Commission
Washington, D. C. 20555

Attention: Docketing and Service Branch

Re: Proposed 10 CFR Part 72,
"Storage of Spent Fuel in an
Independent Spent Fuel Storage
Installation"

Gentlemen:

The Nuclear Regulatory Commission's Federal Register notice of October 6, 1978 invited comments on proposed regulations governing the storage of spent light water reactor fuel in independent spent fuel storage installations. We are pleased to submit the attached comments on behalf of the Radioactive Waste Management Group, composed of utilities operating, constructing and planning nuclear power reactors. The members of the Group are American Electric Power Company, Baltimore Gas and Electric Company, Duquesne Light Company, General Public Utilities Corporation and its subsidiaries Jersey Central Power and Light Company and Metropolitan Edison Company, Madison Gas and Electric Company, Ohio Edison Company, Pennsylvania Power & Light Company, the SNUPPS Utilities (Kansas Gas and Electric Company, Kansas City Power & Light Company, Northern States Power Company, Rochester Gas and Electric Company, and Union Electric Company), The Cleveland Electric Illuminating Company, The Toledo Edison Company, Wisconsin Electric Power Company, Wisconsin Power and Light Company, and Wisconsin Public Service Corporation.

We appreciate the significant effort which has been made in developing the proposed regulations. Our major comment is that the proposed regulations do not fully reflect the somewhat

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relaxed view of regulatory constraints promised by the Statement of Considerations. In some cases, the proposed regulations establish obligations beyond those required in reactor licensing. We also believe that the environmental review requirements should reflect those generic NEPA reviews which will already have been completed in order to avoid duplication. These and other views are set forth in more detail in the attached comments.

We appreciate the opportunity to comment on proposed Part 72 and would be pleased to assist the Commission in any way in connection with these regulations.

Very truly yours,

Jay E. Silberg

Jay E. Silberg
Counsel for the Radioactive Waste
Management Group

cc: Russell E. L. Stanford
Office of Standards Development
U. S. Nuclear Regulatory Commission
Washington, D. C. 20555

Enclosure

GENERAL COMMENTS

Although the Statement of Considerations reflects a rather relaxed view of regulatory constraints on storage pools for aged (1 year or more) fuel as compared to those applied to reactors and reprocessing plants, the proposed regulation itself in many places reads as if it relates to a type of facility whose operations are far more complex than those involved in the operation of a spent fuel storage facility. In part, this results from the use of rather general wording in many places, where the exact interpretation for purposes of assessing the adequacy of an application will be established by the judgment of the reviewer of the license application. It was indicated for example that, although a rather detailed facility design will be required at the license application stage, some details of the proposed facility may be described in terms of potential alternative design details, or in terms of boundary conditions within which the final design would rest; here again, the use of broad and general language to identify information required in applications is likely to lead to extensive dialogs among the staff and applicants over the details of specific applications.

For example, section 72.15(a)(4) requires "a preliminary analysis and evaluation of the design and performance of structures, systems and components . . . and including determination of

(i.) The margins of safety during the normal operations and expected operational occurrences...."

It is not clear what extent of detail is expected by NRC in response to this requirement. But it is apparent that there are wide limits to the detail which could be required to satisfy a reviewer. Similarily, section 72.71(10) appears to mandate a control room, or centralized control of all active functions of the facility; reference is made in this paragraph to "control areas" but a rather general design criterion is established which would appear difficult to meet without an enclosed control room.

Section 72.15(a)(9) requires identification of structures, systems or components requiring research and development to confirm the adequacy of their design and a description of the R&D program which will be conducted to resolve any associated safety questions. Although this requirement is qualified by the phrase "if any" in respect to structures, systems or components requiring R&D, we suggest that the generalized wording of this statement may lead to unnecessary dialog over adequacy of the design. We suggest that this paragraph be revised by substituting the following for the first five lines of paragraph (i.e. down to the first semicolon):

> "If the proposed facility incorporates any safety related structures, systems, or components whose functional adequacy or reliability have not been demonstrated by prior use for the same purpose, or cannot be demonstrated by reference to performance data in related applications or to widely accepted engineering principles, such structures, systems, or components shall be identified,"

It would appear that the NRC should develop additional background justification for the selection of the 0.25g seismic criterion. If, indeed, 0.25g lies below the structural seismic criterion at which substantial cost penalties begin to be incurred to meet increased acceleration values, then that thesis should be developed and supported with authoritative cost data. It would also appear desirable to include additional analyses to support the contention that the cost trade-offs between average transportation costs of fuel to the repository and the cost of justifying a higher seismic criterion favor the proposed course of restricting acceptable sites to those showing a maximum acceleration of 0.25g or less.

Further comment on the referenced USGS report (Algermissen and Perkins, Open File Report 76-416, 1976, "A Probabilistic Estimate of Maximum Acceleration in Rock in the Contiguous United States") is in order. Algermissen and Perkins, in the cited document, present a preliminary map of horizontal accelerations in rock with a 90% probability of not being exceeded in 50 years; based on information presented in the report, the maximum accelerations on the same probabilistic basis which might be anticipated with a recurrence interval of 500 years would be approximately 2.7 times the values shown on the Algermissen and Perkins map. From this it would appear that a substantial fraction of the country lying between the 75th and 105th meridians would be able to justify a substantially lower seismic criterion than the 0.25g value selected. In fact, Algermissen and Perkins state:

> It can also be surmised, from the acceleration vs. return period rule-of-thumb and rough considerations of the area involved, that an attempt to produce an acceleration map of the Eastern United States by a uniform distribution of all historical seismicity east of the Rocky Mountains would result in a uniform motion level between 4 and 10%g. Such a map would emphasize the hypothesis that earthquakes could happen anywhere in the Eastern United States but the motion levels as design levels are probably easily met by structures conforming to wind loading codes - earthquake protection would not be a design criterion at all.

It would thus appear appropriate to consider establishing as the seismic criterion a value less than 0.25g. and require that facilities proposed for sites where the anticipated peak acceleration based on the Algermissen and Perkins data might be exceeded, that a complete seismic evaluation would be required. It would appear from the Algermissen and Perkins map that relatively few additional sites would be excluded from the standardized consideration by reducing the g value to 0.20.

Section 72.3(s) defines safety related structure, systems and components as those items whose function is to maintain the required spent fuel storage conditions, to prevent damage to the spent fuel during transfer and storage and to protect plant personnel from exposure to radiation during design objectives. In one interpretation, this could be taken to include virtually everything within the boundary of the plant site. Section 72.71, under "Overall Requirements", sub-paragraph (1) "Quality Standards", states that structures, systems and components

important to safety shall be designed, fabricated, and tested to quality standards commensurate with the importance of the function to be performed. Section 72.75(a) requires that a quality assurance program based on Appendix B of 10 CFR 50 shall be established and implemented to provide assurance that the safety related structure, systems and components will perform their safety functions. This paragraph goes on to state that "the application of the quality assurance program should be commensurate with the importance of individual structure, systems and components." These provisions add up to a rather broad range of possible interpretations both as to the specific items which might be included as Class I structures, systems or components, as well as to the extent of the quality assurance program requirements necessary to be imposed on the design, purchasing, fabricating, handling, shipping, storing, cleaning, erecting, installing, inspecting, testing, operating, maintaining, repairing, and modifying.

On the other hand, the Statement of Considerations states that

> ". . . the heat capacity of the large volume of water in a spent fuel storage pool allows adequate time to take corrective action if the cooling system fails, provided there is an assured source of make up water, and some means of getting it to the storage pool if needed. Therefore the cooling system need not be designed to withstand the extremes of natural phenomena. Likewise, the emergency water supply system need not be permanently installed, provided it is available within the time span needed."

These statements would lead to the conclusion that the pool water treatment systems need not be considered to be Class I (or "Q-list" items). However, the wording of the regulation may not necessarily be interpreted so as to lead to this same conclusion.

While we would consider it undesirable to publish a list of specific items of equipment to be included on the Q-list, we do believe it would be appropriate to include some further elaboration of the definition in section 72.3(s) in the form of a statement of the criteria which the NRC would plan to use in evaluating the applicant's identification of items on his Q-list, as well as his definition of the extent of applicability of the QA program. It is our opinion that without this clarification, the regulation as presently drafted would inevitably lead to the inclusion on the Q-list and the imposition of the full 10 CFR 50 Appendix B QA program on all structures, systems and components of the fuel storage pool which have any relation to or contact with the spent fuel. If it is the intent of NRC that this be the case, then there should be a clear statement to that effect in the regulation and in the Statement of Considerations.

Section 72.33(d) appears to invoke the EPA regulations in 40 CFR Part 190 as a regulatory requirement on the operator of a spent fuel storage facility. It has been our understanding that the EPA regulations and standards applied to the entire uranium fuel cycle, concern the general environment, and

represent guidance to the regulatory agencies with regulatory jurisdiction over specific types of facilities. The dose equivalents specified in 40 CFR §190.10(a) and the curie limits of 40 CFR §190.10(b) are, based on our understanding, not intended to govern any specific class of facilities within the uranium fuel cycle. It is thus not clear as to how section 72.33(d)(1) is to be applied.

SPECIFIC COMMENTS

§72.1 ISFSI licenses are stated to be limited to "temporary storage", but no definition of that time period is provided.

§72.2 Renewal of existing licenses covering spent fuel storage in an ISFSI is made contingent on meeting the "operating requirements" of Part 72. These should be specifically identified.

§72.3(b) The definition of "as low as is reasonably achievable" does not fully track the definition of the same term in 10 CFR §20.1(c), in that it omits the phrase "and other societal and socio-economic considerations, and in relation to the utilization of atomic energy in the public interest". The Part 20 definition should be followed.

§72.3(j) The definition of ISFSI seems to preclude sharing facilities with another facility, while General Design Criteria 4 (§72.71) would seem to permit

sharing under certain circumstances. Sharing should be permitted.

§72.3(n) The indeterminate size of a "region" is inappropriate. Since radiological consequences for the "region" must be evaluated under §72.61(e) and §72.65(e), better guidance must be provided.

§72.3(s) The definition of "structures systems and components important to safety" appears to include the cooling system and water supply, whereas the Statement of Considerations in column 2 page 46310, third paragraph, would appear to exempt these systems from the full implication of this classification. This discrepancy should be clarified.

§72.11, Table 1 Footnote 3, which provides that physical protection plans "should be" exempt from public disclosure, should make such exemption mandatory.

§72.13 This section on public availability of documents pursuant to Parts 2 and 9 is unnecessary and should be deleted.

§72.14(e) There is no reason why the financial qualifications requirements for ISFSI's should be more rigorous than those for reactors as set forth in 10 CFR §50.33(f) and Appendix C to Part 50. The proposed section could be read to require financial arrangements for decommissioning prior to licensing.

Such a requirement would be unreasonable, particularly where the licensee is a government agency (such as DOE) or one or more utilities. For utilities, such a requirement might conflict with state regulatory requirements.

§72.15(a)(13) This provision would appear to require an ISFSI design to assume criticality as a design basis accident. No basis is shown for the reasonableness of such an assumption.

§72.15(b) No basis is shown for requiring the annual updating of safety analysis reports over the life of the facility. Even if such updating is required, the possible implication in sub-paragraph (b)(1) that site evaluation analyses must continue through plant life, should be removed.

§72.15(d)
§72.81 These paragraphs require the development of detailed security measures for physical protection of the fuel storage facility, and invoke "the applicable requirements of part 73 of this chapter" as the basis for the required physical protection program. It would appear that the physical security plan for a spent fuel storage facility need not go beyond providing protection against overt or covert acts of sabotage; on this basis, it would appear that the requirements set forth in 10 CFR §73.55 would provide an adequate

basis for a physical protection system. Some clarification of the intended coverage of the physical security plan should be set forth clearly in the regulation.

§72.18(a) The requirements for a decommissioning plan seem to require an unnecessarily large amount of information at the pre-construction stage. Similar information is not required for reactor licensing and should not be required here. The provision, if retained, should also explicitly exclude the ultimate disposition of the spent fuel itself from the scope of the plan.

§72.18(b) This sub-paragraph requires that the decommissioning plan "include the financial arrangements for its execution"; it is not clear whether this provision is intended to mandate the establishment of a sinking fund or other specific financial arrangement to accumulate funds required for decommissioning during the lifetime of the facility or whether it is intended to require merely a description of how the licensee would propose to finance the decommissioning at the time the decommissioning is to be undertaken. Under either interpretation, NRC runs the risk of conflict with state regulatory agencies where utilities are the licensees. It would seem

unreasonable to require such information for an ISFSI when it is not required for reactor licensing. Imposing preconstruction financial arrangements for future decommissioning on government agencies, utilities, and similar large and well-established entities is unreasonable.

§72.20 The regulation should explicitly provide that environmental reports and environmental impact statements for ISFSI's need not cover those requirements of Part 51 which will already have been considered by generic NEPA reviews (i.e., need for ISFSI's, non-site related alternatives) other plant specific NEPA studies (i.e., uranium fuel cycle impacts covered in each reactor FES), or NRC regulations (i.e. Tables S-3 and S-4 of Part 51.

§72.31(a) The phrase "appropriate or necessary" as used to describe NRC license conditions should be changed to "appropriate and necessary", consistent with the equivalent Part 50 provision (§50.50).

The reference to updating of a license prior to receipt of spent fuel is unclear. No new licensing action should be involved, and in particular, no new opportunity for hearings should be provided.

§72.31(a)(10) The reference to NEPA determinations made by a licensing board at a public hearing is confusing in that it implies that a public hearing would only deal with NEPA issues.

§72.32 A 20 year limit on initial licenses is unreasonably short. Since the NRC's practice is to start the license duration from the issuance of the initial license, the length of time during which an ISFSI could operate under its initial license would be significantly less than 20 years. Given the 40 year license term routinely issued for power reactor licenses (which include the licensing of the spent fuel pool), there is no reason why a 40 year duration should not also be specified for ISFSI licenses. There is little question that spent fuel can be safely stored for that period. See "Initial Decision Approving Amendment to Operating License to Authorize Enlargement of Spent Fuel Pool Storage," Vermont Yankee Nuclear Power Corp. (Vermont Yankee Nuclear Power Station), LBP-77-54, 6 NRC 436, 440 (1977), aff'd. ALAB-455, 7 NRC 41 (1978).

§72.33(b)(4) The reference to paragraph (c) should be to paragraph (b).

§72.33(d) This paragraph appears to interpret the EPA standards in 40 CFR Part 190 as establishing or

constituting specific release limits for the fuel storage facility. If so, how is the licensee to calculate the limits applicable to his facility? Specifically, 40 CFR 190.10(a) sets limits on radiation doses to an individual member of the public from the operations related to the nuclear fuel cycle, including both radioactive material releases and radiation. How will the total be allocated to any individual operation? 40 CFR 190.10(b) specifies the maximum "quantity of radioactive materials entering the general environment from the entire uranium fuel cycle per gigawatt-year of electrical energy produced . . . ." (emphasis added); how is this to be allocated to any individual operation? (A 1000 ton spent fuel storage facility at full loading will contain a quantity of uranium fuel representing approximately 37 gigawatt years of electrical generation.) While we would not anticipate that releases from a spent fuel storage facility would normally be more than a very small fraction of these EPA limits, these questions are nevertheless considered pertinent, in the light of sub-paragraph 72.33(d)(1). If NRC is interpreting the EPA standards of 40 CFR 190 as being applicable to individual facilities, we recommend that this sub-paragraph 72.33(d) be

clarified to indicate that fact and also to indicate how the requirement of 40 CFR 190.10(b) is to be applied to a specific fuel storage facility.

§72.42 The backfitting provision is unreasonable. First, it should include some recognition that backfitting can entail substantial costs which may outweigh any benefits. Thus, the finding which the Commission must make to require backfitting should balance the added cost of the backfit against the added protection. Second, the provision differs from the equivalent Part 50 provision, §50.109, by substituting "occupational . . . health and safety" for "common defense and security" as a justification. The provision should be made consistent with Part 50 in this respect.

§72.56(b) The requirement to file the annual financial report and certified financial statements may make little sense for a potential government agency licensee such as the Department of Energy.

Subpart E The regulations should provide that a site previously approved by NRC in connection with a facility license would require no further NRC review for an ISFSI license. If, for example, a site was adequate (from geological, hydro-

logical, seismic, etc. standpoints) for a reactor, it should be defined adequately for an ISFSI.

§72.61(b),(d) These general criteria as written apply to "proposed sites for the ISFSI." It is unclear why reference is made to multiple sites and a single ISFSI. The reference should either be to "proposed site for the ISFSI" or to "proposed sites for ISFSI's".

§72.61(f) This provision, requiring an environmental analysis, is unnecessary. Instead, 10 CFR §51.5 should be amended to add ISFSI licensing as the type of action requiring NRC environmental analysis.

§72.62(c) This sub-paragraph requires that "appropriate methods shall be adopted for establishing the design basis natural events for important natural phenomena. The method should be justified as being compatible with the region and the current state of knowledge." This appears to require that the licensee justify the seismic criteria established by this regulation. Unless this is the intent, this sub-paragraph should be modified to make clear that it applies only to facilities located at sites whose seismic characteristics lie outside those specified in paragraph 72.71, General Design Criterion 2(ii).

§72.65(c) The limits specified on use of a controlled area should at a minimum be no more strict than those in 10 CFR §100.3(a) for exclusion areas. As written, the provision might not be interpreted to allow the kinds of transportation activities permitted under §100.3(a).

§72.65(d) The "neighboring area" concept, defined in §72.3(k), is too indefinite to allow meaningful evaluation. A more explicit definition, along the lines of the "low population zone" (§100.3(b)), should be adopted.

§72.65(e) This requirement appears to duplicate that set forth in sub-paragraph 72.61(e). If these are intended to cover separate actions by the applicant, the difference should be more clearly set forth.

§72.66(c) This sub-paragraph states that fuel storage facility designs other than the water basin type will require that the proposed sites be evaluated on the basis of the site-specific investigation and analysis. This appears to imply that storage facility designs other than the water basin type will require the full site-specific seismic analysis and justification of design seismic criteria that would be required of a reactor or fuel reprocessing plant. The most likely

alternative designs to the water pool storage are those involving direct storage of fuel containers in caissons at near-grade level in the ground, or air-cooled vault storage, neither of which involves consideration of the loss of coolant as a result of seismic damage to a pool structure. It therefore appears that, unless it can be demonstrated that there are other potential effects of seismic disturbances on these types of storage which are not likely to result from a seismic disturbance of a water pool storage, they should be treated on the same basis as water pool storage facilities as far as the seismic requirement is concerned.

§72.67(a) This paragraph in effect interprets EPA standards in 40 CFR 190.10(a) as being applicable at any individual facility in the uranium fuel cycle. The NRC's interpretation and application of the EPA standard should be explained clearly.

§72.71 In general, the General Design Criteria should be more specific to remove from dispute the nature of the design required.

§72.71(2)(ii) This sub-paragraph, and in particular sub-sub-paragraphs (A) and (B) appear to be in direct conflict with the criteria set forth in paragraph 72.66, and with the apparent intent of the State-

ment of Considerations both of which imply that "costly seismic site investigations, analyses, and review" are not required if the applicant demonstrates that his facility will meet the 0.25g requirement. This discrepancy should be clarified, preferably by deleting sub-sub-paragraphs (A) and (B) of 72.71(2) with their introductory sentence beginning "The design basis for these structures, systems and components shall reflect . . . ."

§72.71(3) What kind of explosions are contemplated by this requirement? There appear to be no systems in the facility which might be subject to possible explosion hazard from internal sources. If this requirement is intended to refer to protection against a type of sabotage, the boundary limits of an explosion against which the protection must be required should be stated. (This would appear to be a case of a requirement having been lifted from a different regulation, without consideration of the applicability of the detailed requirement to the fuel storage facility.)

§72.71(8)(i) The criterion requires protecting the fuel cladding against degradation and gross ruptures, but gives no indication of what, if any, mechanisms are contemplated.

§72.71(11) The criterion on Utility Services includes a single failure assumption. The regulations should indicate whether the single failure assumption is also meant to apply as to other aspects of ISFSI design.

§72.71(12) The criterion adopts a standard of "unlikely (i.e. very low probability) . . . changes", but does not define what is meant by this term.

§72.71(14)(v) This sub-paragraph requires the provision of shielding "to assure that exposure to personnel in accessible areas are within the limits of Part 20 and are as low as is reasonably achievable." This sub-paragraph fails to identify which criterion (i.e. within the limits of Part 20, or are as low as reasonably achievable) takes precedence. How far is the licensee expected to go in providing shielding? For example, would it be expected that he would be required to provide shielding on the fuel handling machine to reduce the dose from the pool water even if the radiation level from the water were already well within the limits of Part 20 exposure guidelines? This point should be clarified in this sub-paragraph.

§72.71(16) This sub-paragraph requires that effluent systems include means for measuring the flow of environmental diluting media either air or water, in

addition to means for measuring the amount of radionuclides in any effluent. It is not clear how this requirement might be applied to a gaseous effluent. For example, an aqueous effluent released to a surface stream can be measured, and the stream flow can be measured, from which one can readily calculate the concentration of radionuclides in the environmental medium. In the case of a stack release of a gas, the concentration of radionuclides in the effluent gas stream can be determined, but it is not clear what is intended by the requirement for measuring the flow of air past the stack. It is clear that one can record the wind velocity and direction at the stack, from which one can calculate a dilution factor given the current meteorological parameters. If this is what is intended, it is suggested that the sub-paragraph be rewritten to make this more clear.

§72.71(20) The decommissioning criterion requires that the ISFSI design "minimize the quantity and facilitate the removal of radioactive wastes and contaminated equipment . . . ." Some concept of cost-effectiveness should be included in this criterion, given the implications of the requirement to "minimize".

§72.75(a) Can it be concluded that any structure, system or component whose function is the subject of a requirement in this Part 72 is to be considered safety related, and therefore to require the application of a quality assurance program? If this is the intent, then what criteria may be used to evaluate "the importance of individual structures, systems and components to safety", in establishing an appropriate level of quality assurance program for each affected element? If it is not intended that all structures, systems and components are to be considered safety related, what criteria may be used to define the safety related structures, systems and components.

§72.91-72.94 Subpart I on training and certification should make explicit the obvious intent that these issues are not part of the licensing process.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

3 JAN 1979

(51)

DOCKET NUMBER
PROPOSED RULE PR-72(43FR46309)

Secretary of the Commission
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

ATTN: Docketing and Service Branch

Dear Mr. Secretary:

We appreciate the opportunity to offer comments on NRC's proposed licensing requirements for Spent Fuel Storage Installation which appeared in the Federal Register October 6, 1978.

Our only comment of substance concerns your requirement that such independent storage facilities provide radiation protection consistent with this Agency's public health protection standards for the Uranium Fuel Cycle (40 CFR 190). We generally support your use of these requirements in this fashion. Your use of these standards in combination with the other requirements stated in the proposed rule will, we believe, provide adequate public health protection for such facilities.

Sincerely yours,

William A. Mills, Ph.D.
Acting Deputy Assistant Administrator
for Radiation Programs (ANR-458)

Acknowledgment card 1/15

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(52)

DOCKET NUMBER
PROPOSED RULE PR - 72 (43FR46309)

January 4, 1979

Mr Russell E L Stanford
Office of Standards Development
US Nuclear Regulatory Commission
Washington, D C 20555

Dear Mr Stanford:

SUBJECT: COMMENTS ON PROPOSED 10CFR72
STORAGE OF SPENT FUEL IN AN INDEPENDENT
SPENT FUEL STORAGE INSTALLATION

In response to your request for comments on proposed regulation 10 CFR Part 72, we are pleased to provide the following (page numbers refer to the notice as published in the Federal Register of October 6, 1978):

1. Page 46309, Third Column, First Complete Paragraph - We concur with the concept of having a single license cover both construction and operation of the ISFSI. However the rules regarding conditions of issuance should be further clarified, especially with regard to license re-evaluations.

2. Page 46309, Third Column, Seventh Paragraph - "Sufficient aging" for dry storage of spent fuel should be defined, along with a minimum age or criteria for the determination of a minimum age.

3. Page 46309, Third Column, Last Paragraph - The possibility of accepting, under special contingency conditions, a limited number of fuel assemblies with less than one year decay but more than a specified minimum age should be considered.

4. Page 46310, First Column, Second Paragraph - The provisions for periodic inspection and surveillance of critical components should be related to specific, identified concerns and requirements for inspection and surveillance.

5. Page 46310, Second Column, Paragraph continued from previous column - The sentence "based on previous evaluations of the impact of transporting spent fuel, the savings achieved by the site restrictions are justified, " needs further justification. Please clarify what savings would be achieved by the site restriction.

1/15

6. Page 46310, Second Column, Fourth Paragraph - Some references should be provided to demonstrate that the level of radioactive materials in the ambient air in the spent fuel storage area of an ISFSI is normally about five percent of 10 CFR 20 limits for occupied areas.

7. Page 46310, Third Column, Third Paragraph - We believe that an ISFSI should be indemnified by Price-Anderson Act coverage in order to be consistent with coverage afforded to spent fuel in transport or in storage at reactor plants.

8. Page 46312, First Column, Paragraph 72.3(s) - The definition of structures, systems and components important to safety is extremely broad and is not consistent with the philosophy used elsewhere in the Commission's regulations for defining such items. As used in 10CFR 50 and 100 Appendix A, the term "important to safety" has heretofore been applied only to those structures, systems or components which are necessary to prevent doses to the public and to essential plant operating personnel from exceeding regulatory limits for accident conditions and anticipated operational occurrences. The definition given in paragraph 72.3(s) makes no distinction between normal operating conditions and abnormal or accident conditions. We recommend revising the definition to explicitly eliminate items required solely for normal operating conditions from consideration in identifying structures, systems and components "important to safety."

9. Page 46314, First Column, Paragraph (13) - If criticality is to be considered an accident, the means of causing such a criticality accident should be described.

10. Page 46314, Third Column, Section 72.20 - This requirement will probably be the critical path item for the licensing of an ISFSI. We believe that revisions to 10CFR51 are required to delineate the specific requirements for contents of an Environmental Report for an ISFSI and to identify the extent to which the GEIS can serve as a basis for findings required by NEPA.

11. Page 46314, Column 3, Paragraph 72.31(9) - The criteria which would be used in determining the adequacy of the applicant's decommissioning plan and its financing should be identified.

12. Page 46319, First Column, Paragraph 72.67(b) - We find the establishment of a more restrictive offsite individual accident dose limit for ISFS installations than that contained in 10CFR100 to be inconsistent with the supplementary introduction statements regarding the risk of accidents in such facilities relative to risks associated with power reactors. The rationale set forth in the introductory statement, to the effect that such a lower value will provide a satisfactory limit on the incremental risk to the public resulting from locating an ISFSI on an existing reactor site, implies a degree of precision and utilization of risk assessment techniques which does not currently exist. Indeed there are no comparable strictures based on incremental risk placed on the co-location of a number of power reactor units on a single site. We recommend that the ISFSI offsite accident dose limit be made consistent with the 10CFR100 limit (ie, 25 rem in 2 hours). Although the lower limit of 5 rem may well be reasonably achievable in most cases, we find this to be an inadequate basis for regulation.

13. Page 46319, Third Column, Paragraph 72.71(5) - As in our comments above on offsite accident dose limits, the strictures placed on co-location of an ISFSI with other nuclear facilities to limit incremental risk is not consistent with the Commission's siting policy with regard to power reactors. If it is accepted that the risk associated with an ISFSI is considerably less than the risk associated with a power reactor, it must be accepted that the incremental risk associated with co-locating an ISFSI with a power reactor cannot increase overall risk significantly. The current level of uncertainty in risk assessment techniques does not permit quantification of risk of the degree that would be required to show compliance with the requirements of item (5) of the proposed General Design Criteria. We therefore recommend its deletion.

14. Page 46319, Third Column, Paragraph (8)(ii) - What pool water level would be considered to be a safe limit? This limit probably should be tied to Subsection 14(v) on the following page in terms of providing sufficient shielding. However, for doses to be as low as reasonably achievable would mean a study is required of the maximum shielding water depth that could be reasonably achieved, rather than just a depth that results in acceptably low doses.

15. Page 46320, First Column, Paragraph (13)(ii) - The regulation should indicate whether credit for the use of liquid absorbing materials (poisons) in the pool is allowed.

16. Page 46329, First Column, Paragraph (14), Line 6 - The words "significantly above background levels" should be defined in terms of a numeric range.

17. Page 46320, Second Column, Paragraph (18)(iii) - "Confinement systems" should be defined more specifically. For instance, would a building with no special ventilation requirements over the spent fuel pool be adequate? If not, Paragraph (8)(iii), on the previous page, should be rewritten.

As a final comment we feel some guidance is needed on the expected lead times for NRC review of ISFSI license applications (especially with respect to final SAR updates submitted 90 days prior to the receipt of spent fuel).

We appreciate being given the opportunity to comment on this proposed regulation and hope that our comments will be useful to you. Please forward any later drafts of the regulation as well as other pertinent documents as they are issued.

Very truly yours,

E P O'Donnell

E P O'Donnell
Chief Engineer
Nuclear Licensing

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C Uliano (L-ADM-79-10)
(File C.24, G.9)

Department of Water and Power the City of Los Angeles

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(53)

DOCKET NUMBER
PROPOSED RULE PR - 72 (43FR46309)

January 4, 1979

(170)

Secretary of the Commission
United States Nuclear
Regulatory Commission
Washington, D. C. 20555

Attention Docketing and Service Branch

Gentlemen:

Comments on Proposed Licensing Requirements:
Storage of Spent Fuel in an Independent
Spent Fuel Storage Installation

This is in response to the announcement in the Federal Register dated October 6, 1978, requesting comments on proposed licensing requirements for storage of spent fuel in an independent spent fuel storage installation (ISFSI).

Our understanding of the Nuclear Regulatory Commission's (NRC) intention in proposing Title 10, Code of Federal Regulations, Part 72 (10 CFR 72), as stated in the Supplementary Information, was to consider "whether a new seismic siting approach for an ISFSI should be adopted which recognizes that the simple static nature of an ISFSI makes seismic risk less serious than it is for a reactor" (emphasis added). However, the proposed regulations as set forth in paragraphs 72.66 and 72.71 of 10 CFR 72 do not accomplish the NRC's intention. We believe that the "new seismic siting approach for an ISFSI" being considered by the NRC as set forth in paragraphs 72.66 and 72.71 of 10 CFR 72 would still require extensive geologic investigations and would not result in significant savings of resources and time. It appears that the modification of seismic and geologic siting criteria (e.g., use of probabilistic methods) for nuclear facilities would be more appropriately located in a revised Title 10, Code of Federal Regulations, Part 100 (10 CFR 100).

Acknowledged by card. 1/15

111 North Hope Street, Los Angeles, California ☐ *Mailing address*: Box 111, Los Angeles 90051
Telephone: (213) 481-4211 Cable address: WATERPOW

For the above reasons, we believe that with regard to the criteria for defining acceptable seismic characteristics for an ISFSI located at a site which has not been licensed, the proposed regulations in paragraph 72.66 of 10 CFR 72 should provide that the site seismic and geologic characteristics for evaluation of the suitability of the site shall be determined in accordance with 10 CFR 100. Also, we believe that the proposed regulations in paragraph 72.71 of 10 CFR 72 should provide that structures, systems and components important to safety shall be designed to withstand the effects of natural phenomena, such as earthquakes with a horizontal ground motion acceleration as determined by 10 CFR 100.

Additionally, as peak acceleration levels increase for a given site, the appropriateness of the NRC staff's requirement for anchoring a Regulatory Guide 1.60 response spectra based on peak ground acceleration becomes questionable. Evidence was presented to the NRC and the Advisory Committee on Reactor Safeguards on studies conducted for the San Joaquin Nuclear Project Early Site Review Report, indicating that there are more appropriate methods for establishing spectra levels of shaking associated with earthquakes. Alternate methodologies presented include the scaling of real earthquake response spectra, use of spectral intensities and spectral ordinates. We believe that the emphasis placed in the proposed regulation on the use of peak ground acceleration for determining the seismic characteristics of a site (i.e., for normalizing design response spectra) is not appropriate for sites with moderate to high peak ground accelerations.

We believe that these comments will be of use to you in developing the finalized regulations for licensing an ISFSI.

Sincerely,

James L Mulloy/2

JAMES L. MULLOY
Chief Electrical Engineer
and Assistant Manager

cc: Mr. Russell E. L. Stanford
Office of Standards Development
United States Nuclear
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John Windhorst
Manager
Civil Design Department
Concrete

Southern Company Services
the southern electric system

DOCKET NUMBER
PROPOSED RULE PR - 72 (43FR46309) (54)

January 3, 1979

Re: 10CFR Part 72 - Storage of Spent Fuel
In an Independent Spent Fuel Storage
Installation

Mr. Russell E. L. Stanford
Fuel Process Systems Standards Branch

Dear Mr. Stanford:

I wish to thank you for your offer to comment on the proposed regulation for ISFSI's. Both as a member of the ANS Nuclear Power Plant Standards Committee and as an engineer engaged in the design of nuclear power plant facilities, this regulation is of interest to me. As Southern Company Services is active in the nuclear power area, I have solicited comments from others inside our organization in their areas of expertise and concern.

The offer of acceptance of 0.25g as the limiting earthquake ground motion appears to be a positive step to cut costs and reduce regulatory review time; however, in reviewing the application of these design features, there are a number of factors in the regulation which limits its use. Some geological investigation would be required to ascertain that no unusual geological condition exists. The foundation investigation would have to ascertain that bedrock exists at the base level for the structures. After these two conditions are determined, there would be little additional expense accrued to determine a site specific "g" value. The set "g" value of .25g is proposed to approve some 95% of the continental area seismically. In looking at the Southeast, the bedrock requirement excludes about 75% of the area. In considering the area east of the Rockies, this requirement excludes the coastal plains, the river valleys and the embayment areas, leaving probably less than 50% of the area. Of the areas available, much of it is remote and the terrane is too rough for developing a site for this usage. More and more restrictions are being added to transporting of radioactive material and in the future, long hauls may be prohibitive in costs. In the Southeast most of the area (except around Charleston and a portion of the Piedmont province) is designated as UBC Zone 0 or Zone 1 and the proposed value is extremely high for the potential seismic loading conditions. If a new seismic siting approach is to be offered, it should include a more rational approach of various values for general locations and foundation conditions.

The balance of our comments relate to specific paragraphs and for your ease of review are arranged in order by the indicated paragraph number as follows:

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72.15(6) - This requirement is redundent to (5) and should be deleted. Minimize is a somewhat ambiguous term and we could not determine how to explain this satisfactorily in a license application.

72.15(12)(B)(iii) - The requirement for procedures should be deleted as they are included in other regulations.

72.18(b) - Financial arrangements for decommissioning of nuclear facilities is an open question before the Commission and should not be included in this document at this time.

72.18(a) - The last sentence should be deleted as the knowhow to accomplish this is not available at this time.

72.32 - As the time period for power plants is 40 years, there is no apparent reason that this should be less for an ISFSI which is designed to similar requirements. (See 10CFR50.51)

72.42(a) - The requirement for backfitting for "occupational health and safety" should be deleted as being inconsistent with the requirements for power plants. (See 10CFR50.109)

72.67(a) - Reference should be to Part 50 Appendix I or the requirements should be made consistent. Although the potential is much less at this type facility the requirements should be consistent as a rational approach.

72.67(b) - The requirements should be consistent with Part 100 for the same reasons.

72.71(2)(ii) - This section should permit the use of a site specific ground motion acceleration ("g" value) as allowed in Paragraph 72.66.

72.71(2)(iv) - Almost all sites will be over an aquifer of sorts and to preclude the potential for transport of radioactive materials through this medium is virtually impossible. As the flow of an aquifer is normally very slow, means are available to restrict or limit the movement outside the site borders. We suggest a rewording to limit the transporting within present offsite requirements.

72.71(5) - Does this relate to one owner? If not this would be outside the control of the licensee.

72.71(8)(ii) - Since temporary loss of water will not cause criticallity why is it necessary to design to maintain a "safe" pool water level?

72.71(11) - Would non-normal or ab-normal be more understandable than off-normal?

72.71(16) - The last sentence is not consistent with present requirements, suggest it read "a means of determining" in place of "measuring".

72.71(18)(v) - The minimization of wastes is a fine objective and one, I am certain, all designers will include; however, it is not one that is auditable or proveable. As it is an economic consideration, it should not be required in a regulation.

72.71(20) - Some comment as above on minimizing.

72.93 - How do you determine an acceptable mental condition under present government restrictions? Is the requirement limited to knowledge or does it include psychological analyses?

72.3(s)(3) - "Protect plant personnel from exposure to radiation in excess of design objectives". Structural items in this category are not considered safety related or important to safety in power plant design and should be deleted for an ISFSI as the proposed inclusion would require that shielding comply with safety quality standards and be designed for severe natural phenomena loadings.

The "Supplementary Information" section requests comments on application of the Price-Anderson Act to ISFSI's and I have contacted our Corporate Insurance Department for their input. I have not received it at this time, but will forward it to you when I do.

If you have any questions or wish to discuss the comments further, I may be contacted at 205-870-6670 during working hours or at 205-879-5671 at home at other times.

John Windhorst

J. Windhorst

ra

(55)

DOCKETED
PROPOSED RULE PR - 72(43FR46309)

Telephone 617 366-9011
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YANKEE ATOMIC ELECTRIC COMPANY

20 Turnpike Road Westborough, Massachusetts 01581

January 4, 1979
FCM-78-58

Secretary of the Commission
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

Attention: Docketing & Service Branch

Subject: Proposed rule 10CFR Part 72

Gentlemen:

This letter is in response to a Federal Register Notice (Volume 43, No. 195 - Friday, October 6, 1978) inviting public comment on a Nuclear Regulatory Commission proposed rule on the storage of spent fuel in an Independent Spent Fuel Storage Installation (ISFSI). The comments provided here are submitted by the Nuclear Services Division of Yankee Atomic Electric Company on behalf of the three nuclear plants for which we have operating responsibility, namely Yankee Rowe, Vermont Yankee, and Maine Yankee.

In March of 1978 the NRC published a Draft Environmental Impact Statement on Handling and Storage of Spent Light Water Power Reactor Fuel (NUREG-0404) which found a need for a more definitive regulatory basis for the licensing of future "storage-only" facilities. We also recognize the need for this new regulatory basis. Our review of the proposed rule 10 CFR Part 72 leads us to believe that it is a reasonably good foundation from which to fashion a final regulation. In particular we are pleased to see a proposal for a procedure with a single license and a single safety analysis report. Such a procedure offers the potential for more expeditious licensing than occurs now with the two-step process for nuclear reactors.

We believe that there are several areas in which the proposed rule could be improved. These include the following:

Acknowledged by card. 1/15

- In Section 72.15 the minimum required technical information for the Safety Analysis Report is listed. Item 11 on this list deals with analysis of potential doses to offsite individuals from postulated accidents and natural phenomena. Among the accidents to be considered is criticality. This is a significant departure from common practice in reactor licensing for storage pools and one which we believe is inappropriate. Spent fuel storage racks are designed in such a way that a criticality accident is impossible even with fresh reactor fuel. Under these circumstances there is no reason to consider criticality as a design basis accident, and therefore we recommend that it be excluded from those accidents requiring offsite dose calculations.

- The sections on decommissioning are unduly restrictive. In sections 72.18 and 72.38 reference is made to dismantling as part of the decommissioning process. Since dismantling is not the only form of decommissioning, we do not believe it is appropriate in 10 CFR Part 72 to apply that dismantling must be done. While we agree that decommissioning should be considered in the licensing procedures, we do not believe that it is appropriate to demand detailed plans and financial arrangements for a procedure that will not take place for several decades.

- Part (d) on Effluent Controls in section 72.33 is somewhat confusing. There are two references in this part to "design objectives" but there is no definition of this term or information on how such objectives will be established. We believe that this part should be clarified.

- We see no reason why a license for an ISFSI should be limited to 20 years. A facility such as this should have an economic life well in excess of 20 years. Although the 40 year limit on licenses for power reactors is also arbitrary, we believe that 40 years would be a more appropriate license limit for ISFSI's than 20 years.

- In section 72.41, it is stated in part that the NRC may under certain circumstances "cause the retaking of possession of all special nuclear material contained in spent fuel held by the licensee". It is not clear who will actually "retake" possession and whether retaking implies an actual physical transfer of spent fuel.

- Section 72.42 deals with backfitting. It states that "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." We believe that justification for backfitting should also include a cost/benefit evaluation to assure that arbitrary and expensive backfitting requirements are not imposed which may not have commensurate benefits.

- Paragraph (b) of section 72.67 specifies an exposure limit of 5 Rem in 2 hours for the controlling design basis accident at the outside boundary of the controlled area. It is not clear whether this exposure is meant to be a whole body exposure or an organ limit or both.

- In subpart F - General Design Criteria several overall requirements are listed. These include under Protection against Environmental Conditions and Natural Phenomena a subparagraph dealing with siting over aquifers. This paragraph reads:

  (iv) If an ISFSI is located over an aquifer, measures must be taken to preclude the transport of radioactive materials to man and the environs through this potential pathway.

  We believe that this paragraph needs further clarification. A definition of aquifer to which this section will apply would be helpful. We believe that the word "preclude" should be replaced by "limit" and that the section should conclude with a phrase such as "...if analysis indicates that there exists a mechanism by which radionuclides could reach the aquifer".

In addition to comments on the proposed rule, the Commission requested suggestions on whether or not ISFSI's should be covered by the Price-Anderson Act. We contend that storage of spent fuel assemblies in an ISFSI is not significantly different from storage in pools at nuclear reactors which are already covered by Price-Anderson. Although the possibility of an accident at an ISFSI affecting the general public is extremely remote, it would appear useful to assure the public that in the event that such an accident did occur, they would be protected by Price-Anderson coverage. Therefore, we recommend that the Commission exercise its discretionary authority and prescribe requirements for financial responsibility under the Price-Anderson Act.

Included among the potential locations for an ISFSI are individual reactor sites. These reactor sites are licensed under 10 CFR Part 50. Presumably construction of an ISFSI on a licensed site could be accomplished through the mechanism of amending an existing Part 50 license instead of through the new Part 72 licensing scheme. We would like to see this Part 50 option left available to holders of Part 50 licenses and note that no mention is made of this alternative in the proposed rule. Clarification of this point in the final rule would be useful.

Thank you for the opportunity to comment on the proposed rule. We would be pleased to further discuss our concerns with you upon request.

Very truly yours,

YANKEE ATOMIC ELECTRIC COMPANY

D. E. Vandenburgh
Senior Vice President

Commonwealth Edison
One First National Plaza, Chicago, Illinois
Address Reply to: Post Office Box 767
Chicago, Illinois 60690

DOCKET NUMBER
PROPOSED RULE PR-72(43FR46309) (56)

January 4, 1979

Secretary
United States Nuclear
Regulatory Commission
Washington, D.C. 20555

Attention: Docketing and Service Branch

RE: 10 CFR, Part 72 - Storage of Spent Fuel in an Independent Spent Fuel Storage Installation - Proposed Licensing Requirements

Gentlemen:

These comments with respect to the proposed licensing requirements for independent spent fuel storage installations are submitted on behalf of Commonwealth Edison Company. Edison is an investor-owned electric utility which has a substantial commitment to nuclear generation. Consequently, Edison has a vital interest in the development and regulation of the disposition of spent fuel.

Edison is a member of the Utility Waste Management Group (UWMG) and has reviewed the comments which that group is submitting to the Commission with respect to 10 CFR, Part 72. Edison concurs with the UWMG comments. We particularly urge the Commission and its staff to give careful and serious consideration to the UWMG comments concerning the importance of relying upon generic environmental impact statements in licensing particular ISFSIs.

Commonwealth Edison believes that in most instances a license for an ISFSI will be requested prior to the commencement of construction. For such situations, clarification of proposed section 72.15(b) is necessary to assure that last minute requests for a second hearing do not delay the operation of the facility. With respect to reactors, some changes in design first receive review in connection with the issuance of an operating license. While the more limited nature of an ISFSI suggests that few design changes which would require amendments will occur after the issuance of a license, the rules ought to provide for prompt consideration of such changes. As a result, we suggest that the following language be added at the end of section 72.15(b).

1115

> If the Applicant's review pursuant to section 72.34 indicates that any portions of an updated SAR require amendment of its license, a request for such an amendment shall be submitted with the updated SAR. The Commission will review such requests as promptly as possible and any construction activities conducted in accordance with the proposed amendment pending approval shall be at the Applicant's risk.

Edison appreciates this opportunity to comment on proposed 10 CFR, Part 72. If we can be of further assistance to the Commission or its staff with respect to this matter, please do not hestitate to call upon us.

Very truly yours,

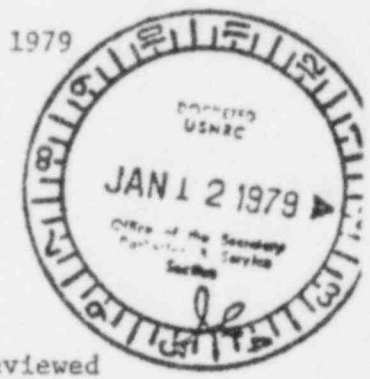
C. Reed

C. Reed
Assistant Vice President

State of New Jersey
DEPARTMENT OF ENVIRONMENTAL PROTECTION
DIVISION OF ENVIRONMENTAL QUALITY
BUREAU OF RADIATION PROTECTION
380 SCOTCH ROAD, TRENTON, N. J. 08628

DOCKET NUMBER
PROPOSED RULE PR-72 (43FR 47309) (57)

January 2, 1979



Secretary of the Commission
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

Dear Sir:

The New Jersey Department of Environmental Protection has reviewed the U.S. Nuclear Regulatory Commission's proposed regulation 10CFR Part 72 "Storage of Spent Fuel in Independent Spent Fuel Installation". The regulations appear to be consistent with other regulations written by the Nuclear Regulatory Commission for other types of facilities, for example, utilization and production facilities. Except for administrative procedures, which must be established early, the regulations are very brief and are stated in general terms. No doubt, as design and construction of Away-from-Reactor (AFR) facilities begin, more details will appear in the regulations. For example, the regulations reflect the presently favored underwater storage concept. If and when facilities are constructed for dry storage of spent fuel, it might be worthwhile to prepare specific regulations for the method. Alternatively, the regulations can be kept very general and supplemented with regulatory guides to aid in their interpretation. No doubt, a combination of these procedures will be used.

The regulations under consideration should form the nucleus for viable regulatory activities concerned with the storage of spent reactor fuel.

Very truly yours,

Joseph M. Vann

Joseph M. Vann
Nuclear Engineer
Bureau of Radiation Protection

JMV:js

Acknowledged by card 1/15

STATE OF CONNECTICUT

POWER FACILITY EVALUATION COUNCIL
STATE OFFICE BUILDING HARTFORD, CONNECTICUT 06115
TEL. (203) 566-5612

DOCKET NUMBER
PROPOSED RULE PR-72(43FR46309) (58)

January 2, 1979

Mr. Russell E.L. Stanford
Office of Standards Development
United States Nuclear
Regulatory Commission
Washington, D.C. 20555

Dear Mr. Stanford:

The Power Facility Evaluation Council shares the concern of NRC over disposition of spent fuel before a permanent repository is established. It is important that a definitive arrangement be made for spent fuel and other highly radioactive materials as soon as possible. The Independent Spent Fuel Storage Installation (ISFSI) regulations (10 CFR Part 72) properly address this interim problem.

Although the proposed rule does not address financial liability protection, comment was sought on this issue. NRC should include the ISFSI in its broader study of financial protection requirements of materials licensees. These proposed ISFSI facilities will become a part of the nuclear fuel processing cycle, and as such should be subject to the requirements for public liability and financial protection. The PFEC follows with interest the NRC review of possible financial protection requirements.

In the Proposed Rules: Section 72.3 should define "temporary storage." There is confusion as to the ultimate fate of ISFSI. Is this to be a part of the routine processing of spent fuels before they are emplaced in a geologic repository, or is this an interim arrangement to be discontinued once a more permanent disposition is in place? Data concerning the disintegration of spent fuel claddings may provide a time frame for use of an interim storage facility.

We suggest an additional criterion to add to Subpart E - Siting Criteria. In choosing sites for ISFSI, consideration should be given to transportation corridors involved in moving spent fuel from present locations to the proposed sites. The regulations should define criteria for locating ISFSI with minimum transportation requirements.

115

ARIZONA NUCLEAR POWER PROJECT
Post Office Box 21666 Phoenix, Arizona 85036

PROPOSED RULE PR - 72 (59) (43FR46309)

January 4, 1979
ANPP-12364-ACR/MDH

Secretary of the Commission
U. S. Nuclear Regulatory Commission
Washington, D. C. 20555

Atten: Docketing and Service Branch

Subject: Proposed Regulation 10CFR Part 72
Storage of Spent Fuel in an Independent
Spent Fuel Storage Installation, October 1978
File: 79-057-026

Gentlemen:

We appreciate the opportunity to comment on the subject proposed regulation. The need for this intermediate storage facility as well as permanent high level waste disposal facilities is urgent in order to avoid the discontinuation of the nuclear option, and we wish to support your efforts in this area. We do, however, still believe that reprocessing is a sound and proper step in the fuel cycle. Our comments here should not be taken otherwise.

We are generally supportive of the 10CFR Part 72 proposed NRC Regulations for Storage of Spent Fuel in an Independent Spent Fuel Storage Installation (ISFSI). Several specific comments follow but in a more general way we would like to recommend against tightening up of the proposed regulations as may be recommended by many in this commentary period. We believe the regulations as they have been stated are sufficiently conservative to fully protect the health and welfare of the general public.

Our specific comments are as follows:

1. We support the idea of a "new seismic siting approach" which recognizes that the seismic risk factor for an ISFSI is less serious than for a nuclear reactor. Along the same line we support the thought that an approved reactor site is most certainly suitable for an ISFSI.

2. We believe it would be desirable that the responsibility for public liability and the applicability of Price-Anderson be defined. It seems reasonable that some application of the Price-Anderson Act would be appropriate to the liability coverage for such a facility. A lower level of private insurance and

Acknowledged by card 1/16

the utilization of Price-Anderson at a lower fee structure than for a reactor site seem appropriate. The same conceptual approach of the application of Price-Anderson should be applied to this facility as has been applied to reprocessing plant liability.

3. The statement in the introduction that periodic surveillance of critical components be required is vague. The most critical of the components is that of the fixed neutron poison, assuming a poisoned rack design, and related to this poison the proposed rule states the "the design shall provide for positive means to verify their continued efficacy". It could easily be argued that observation of a sealed noncorrosive kind of poison could be satisfactorily inspected by visual means but the regulation seems to indicate that some kind of "test" is required. In reactors a coupon test approach is considered satisfactory for certain applications of data verification or collection and this type of approach might be satisfactory for this application.

4. The relationship of the proposed regulation to the recently issued NRC Reg Guide 3.44 (USNRC Office of Standards Development, December 1978) has not been identified in this regulation. We have not had sufficient time to correlate this Reg. Guide to the Proposed Regulations, but it is clear that they should be compatible with each other.

5. Recognizing that aged fuel has a significantly lower release hazard some consideration should be given to minimizing the need for extensive meteorological testing for site approval. A "standard" meteorological criteria should be quite adequate for the safety analysis.

6. Section 72.3(b) - We suggest that the definition of "As low as is reasonably achievable" reference 10CFR50 Appendix I as more specific requirements are contained therein.

7. Section 72.3(j) - In order to avoid any confusion between an "Independent Spent Fuel Storage Installation (ISFSI)" and fuel storage facilities normally associated with an operating reactor we suggest that a phrase be added which states that an ISFSI is also not covered by 10CFR50.

8. Section 72.3(r) - We think that the flexibility for a ISFSI to receive nuclear fuel other than from light water reactors is valuable (unless this falls under the scope of another regulation). A requirement could be added to commit in the SAR to the types of fuels to be stored.

9. Section 72.18 - We do not think that the nuclear industry's technological base, as well as federal regulatory guidance, is sufficient at this time to require the submittal of decommissioning plans. Further, industry experience may undergo significant changes during the plant lifetime, thus rendering initial plans obsolete. Similarly, the costs

associated with decommissioning are not well identified. It should be the responsibility of the applicant to recover these costs by appropriately adjusting storage charges. Thus, the financial qualifications of the applicant are not affected with regard to licensing for construction. Local regulatory bodies may require a provision for decommissioning financing on the part of utilities so that costs may be included in rate bases. The balance of ownership should be by private corporations.

If you wish to discuss any of these items further, please feel free to contact me.

Sincerely,

E. E. Van Brunt, Jr.
APS Vice President,
Nuclear Projects
ANPP Project Director

EEVBJr/MDH/sb

DUKE POWER COMPANY
POWER BUILDING
422 SOUTH CHURCH STREET, CHARLOTTE, N. C. 28242

WILLIAM O. PARKER, JR.
VICE PRESIDENT
STEAM PRODUCTION

TELEPHONE: AREA 704
373-4083

January 4, 1979

(60)

DOCKET NUMBER
PROPOSED RULE PR-72 (43FR46309)

Secretary of the Commission
U. S. Nuclear Regulatory Commission
Washington, D. C. 20555

Attention: Docketing and Service Branch

Dear Sir:

Duke Power Company has reviewed the new regulation specifying procedures and requirements for issuance of licenses to store spent fuel in an independent spent fuel storage installation (ISFSI) to be issued under 10CFR Part 72.

Please find attached our comments on the proposed regulation.

Very truly yours,

William O. Parker, Jr.

GJP:scs
Attachment

1/15

1. With regard to the question of whether the Commission should exercise its authority under Price-Anderson to provide financial protection for public liability in the case of ISFSI, Duke takes the following position:

Away-from-reactor storage embraces three categories of ISFSI's. First, an independent facility at an independent site; second, an independent facility at an existing reactor site; and third, a shared (new or existing) facility at an existing reactor site.

With respect to an independent facility at an independent site, financial protection is not mandatory if the facility is not a production or utilization facility. However, the Commission may, at its discretion, impose a financial protection requirement. To determine whether it will exercise its discretion, it is necessary for the Commission to go through the statutory analysis as set forth in Section 170 of the Act. In the event the Commission determines that financial protection is required it should also provide indemnification pursuant to the Price-Anderson Act. However, it does not necessarily follow that the retrospective premium system would apply, particularly in light of the unique characteristics of such a facility. Further, it is our view that unless maximum financial protection were required (a position we maintain, based upon our analysis, is unwarranted), the retrospective system is not applicable inasmuch as the Commission has chosen to distinguish between reactor and storage risks.

With regard to an independent facility at an existing site, a problem arises with respect to ascertaining the cause of an event on the existing site (and/or the source of releases). Such a problem leads to uncertainty of coverage. If it can be concluded that it will always be possible to determine the specific cause (and/or source), then the storage facility could be treated as a separate facility at a separate site. Such a result would normally bring into play the factors presented in the preceding discussion of this category, except that as a practical matter, no additional nuclear liability insurance is available at a site which has one or more commercial reactors. This leads to potential gaps in the scope or amount of coverage as between financial protection and indemnity, and accordingly, it seems preferable to include the storage activity in the operating license with its attendant financial protection and indemnity. It should be noted that in the event the reactor located on the site has yet to receive an operating license, the storage activity should be treated as an independent facility at an independent site. It cannot be said with equal confidence whether in all cases one could ascertain the cause of the event or source of the release, in the interest of placing no unnecessary hurdles in the way of public recovery because of the inability to sort out the sources in a common occurrence, financial protection and indemnity should be combined for the storage and reactor. From the Applicant and the Commission's administrative standpoint, such an approach is warranted. This works no change in the coverage for the existing facility.

For shared facilities, the cause of the event (and/or the source of release) probably cannot be distinguished and thus, as set forth immediately above, financial protection and indemnification should be combined for the storage and the reactor.

With respect to the application of the retrospective premium system to the storage facilities located on a reactor site, such system should come into play only through the reactor or the production facility rather than the storage facility.

2. It is Duke's position that decommissioning plans should be developed in a time frame current with the decommissioning in order to utilize the latest in decontamination techniques and to be assured of a much more realistic cost analysis of decommissioning alternatives. The sections referring to decommissioning should require a decommissioning plan only of a conceptual nature.

3. Section 72.31 does not include a time table for filing of an application, processing by the NRC Staff, and issuance of the license. It is suggested that an application be submitted by the licensee at least twelve months prior to the proposed commencement of construction so the NRC could have twelve months to rule on the application. However, the applicant should be allowed to begin construction at his own risk prior to issuance of a Construction Permit by the NRC.

4. Section 72.55(c) should either be deleted or justification given for its purpose.

5. There appears to be conflict between 72.71 Overall Requirements 2(ii) and the last paragraph in the right column on page 46309 for design requirements for tornado protection.

6. Section 72.71 which addresses "Utility Services" is not entirely clear. Reference should be made to electric power sources if that is what is meant by utility services.

(61)

DOCKET NUMBER
PROPOSED RULE PR-72 (43FR46309)

Westinghouse Electric Corporation
Power Systems Company

M T Johnson
General Manager
Advanced Energy Systems Division

Box 10864
Pittsburgh Pennsylvania 15236

January 9, 1979

Secretary of the Commission
U. S. Nuclear Regulatory Commission
Washington, D. C. 20555

Attention: Docketing and Service Branch

Dear Sir:

This is in response to your request for review comments on the proposed rule: 10CFR Part 72, "Licensing Requirements for the Storage of Spent Fuel in an Independent Spent Fuel Storage Installation" (43 FR 46309, October 6, 1978). Westinghouse has reviewed the proposed new rule and hereby offers for your consideration the general comments stated below and the specific detailed comments in the Attachment.

The existing rules and regulations for LWR power plants set forth in other parts of Title 10 of the Code of Federal Regulations have evolved from years of development and careful deliberation. ISFSI facilities should have less potential for risk to the health and safety of the public than a LWR facility. Therefore, most of the existing requirements and criteria for LWRs should be more than adequate for the ISFSI facilities.

Thus, it is not expected the requirements for ISFSI should be more stringent than those for LWR plant spent fuel facilities. Further, it is considered that any departures from existing LWR rules and regulations should be in the direction of relaxation of requirements, rather than being more stringent, as are certain parts of the proposed new rule. Where such relaxation is not appropriate, maximum use should be made of existing LWR rules and regulations, including terminology. For example, it would seem appropriate to make provision for some form of limited work authorization as is the case for LWRs.

With regard to Price-Anderson coverage, in view of its benefit for the public and the industry, we believe that Price-Anderson coverage should be extended to ISFSI facilities.

We appreciate this opportunity to comment on this proposed new rule and would be pleased to offer our assistance to you in discussing these comments further.

Acknowledged 1/15

Very truly yours,

M. T. Johnson

Att.
cc: Mr. Russell E. L. Stanford
Office of Standards Development

ADDITIONAL SPECIFIC COMMENTS ON THE
PROPOSED RULE 10CFR72

1. The term: "temporary storage" used in Section 72.1 (Purpose) is not defined. We believe that it is both appropriate and necessary to provide a clear definition for this term. This can be done by adding one additional definition in Paragraph 72.3: "Definitions".

2. The proposed regulation presents two definitions in Paragraph 72.3 which represent a set of terms different from those in other parts of 10CFR but whose meaning is essentially the same. These terms are: (g) "Controlled area" and (k) "Neighboring area". The term controlled area has the same meaning as restricted area defined in 10CFR20.3(a)(14) and exclusion area defined in 10CFR100.3.(a). The term neighboring area has the same meaning as low population zone defined in 10CFR100.3.(b). It appears unnecessary to create a new set of terms for this section of the regulation when terms with the same meaning exist elsewhere in the regulations.

3. The definition, as written, for "structures, systems and components important to safety" (Subparagraph 72.3.(S)) is unnecessarily overinclusive. We recommend that this definition be rewritten to be consistent with 10CFR50 as follows:

   " 'Structures, systems and components important to safety' means those plant features which are required to reasonably assure that operation of the facility will not result in undue risk to the health and safety of the public."

4. The proposed regulations require in paragraph 72.15(13) an analysis of the offsite dose consequences of accidents which result in criticality. We believe that this requirement could result in evaluations of accidents which are beyond the "design basis". We believe that this paragraph or an additional paragraph in the regulations should require a definition of the design basis event(s) and the definition of acceptable design basis risk. The offsite dose analysis should then be performed for accidents up to and including the design basis event. If accident scenarios resulting in criticality are beyond this design basis, then the consequences of such scenarios should not be required to be analyzed.

5. Section 72.65 contains criteria for regional distribution of population which are not applied to LWRs. For reasons stated in the cover letter, such additional requirements are not appropriate. Furthermore, the proposed regulation requires, in paragraph 72.61 (e) and 72.65 (e), that the potential for radiological consequences in the region shall be evaluated. It is believed that the intent, although not clear, of this requirement is the performance of an offsite dose analysis of the design basis accident(s) with respect to the regional population. This is above and beyond the requirement for light water reactors under 10CFR100. Additionally, once the analysis has been completed, no criteria have been established against which to measure the acceptability of the results of the analysis. The only requirement for "regional" population dose assessment in the case of LWR licensing is

in the NEPA evaluation contained in the Environmental Report which is performed using realistic assumptions for the accident scenario. Definitive design objectives for such evaluations are given in Appendix I to 10CFR50.

6. The proposed regulations set radiological siting criterion in Paragraph 72.67(b) which appears to be arbitrary in nature and inconsistent with the LWR radiological criteria set forth in 10CFR100. We are of the opinion that the existing radiological siting criteria in 10CFR100 should be equally applicable to the ISFSI facilities and we strongly recommend that the setting of any new radiological siting criteria in 72.67.(b) must be based on clearly defined and sound justification.

   The justification given for the 5 rem requirement is that this will permit an ISFSI to be located on a reactor site without adding substantially to public risk. This justification is inappropriate for the following reasons:

   - Not all ISFSI's will be located on reactor sites. Those that are not should not be subjected to more stringent criteria than LWRs.

   - Even if an ISFSI is located on a reactor site, it is not clear that such a stringent limit is required. The limit applied should be the same as that for the LWR (25 rem), as is the case if a second LWR were to be located on an existing reactor site.

7. Subparagraph 72.71.(3) requires that "Structures, systems and components important to safety shall be designed and located so as to continue to perform their safety functions effectively under fire and explosion exposure conditions." This design criterion as written is unnecessarily over-stringent and is above and beyond what is required for LWR facilities (re.10CFR50, Appendix A, GDC NO. 3 and Regulatory Guide 1.120, Regulatory Position C.1.d.(1)), as it implies that other non-fire-related plant accidents be considered coincident with fires and explosions.

   Accordingly, we recommend that the foregoing sentence in the proposed 72.71.(3) be replaced with the LWR requirement defined in 10CFR50, Appendix A, GDC No. 3, which states: "Structures, systems and components important to safety shall be designed and located to minimize, consistent with other safety requirements, the probability and effect of fires and explosions."

8. Subparagraph 72.71.(8).(i) on design requirements for "Confinement barriers and systems" states that "The fuel cladding shall be protected against degradation and gross ruptures". We recommend that this provision be rewritten as: "The fuel cladding shall be protected against gross ruptures including proper consideration for minimizing long-term degradation of the cladding".

9. Subparagraph 72.71.(2).(iv) states: "If an ISFSI is located over an aquifer, measures must be taken to preclude the transport of radioactive materials to man and the environs through this potential pathway".

   We recommend the word "reasonably" be inserted between the words "to" and "preclude".

10. Subparagraph 72.15.(a).(12) requires the description of the equipment installed to control radioactive material in gaseous and liquid effluents and means for keeping levels of radioactive effluents to unrestricted areas as low as reasonably achievable. However, items (ii) and (v) introduce solid radioactive waste as an expansion of this requirement. This represents a new application of the ALARA concept not previously used in the LWR licensing. This concept requires a new cost-effectiveness evaluation not just amongst alternative solid radwaste systems but taking into account liquid and gaseous radwaste systems from whence the solid waste comes.

    Since the present application of the ALARA concept was the result from extensive rule-making proceedings, we recommend that the extension to solid radwaste be deleted. If the intent is to extend it to solid waste, we believe it is more appropriate that it should be a subject of a separate proceeding.

11. We recommend that Paragraph 72.18(b) be revised to read: "The decommissioning plan will include plans for periodic review of the cost for decommissioning and a discussion of how the licensee will assure the Commission of its ability to pay these costs when they occur."

12. We recommend that the following note be added to Subparagraph 72.3.(r), "Spent Fuel":
    "Note: In addition to spent fuel, control rods and other irradiated core components discharged with the fuel may also be stored in ISFSI."

13. We recommend that a statement be included in the proposed rule in Section 72.1 or 72.2 to indicate that interpretations of these rules should not lead to more stringent requirements than those for the LWR plant spent fuel storage facilities.

14. In paragraph 72.15.(a).(5) we recommend that the words "and the limits shown in" be modified to "in accordance with".

Secretary of the Commission
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

35 Idlebrook D.
Richmond, Va. 2323
January 15, 1979

Comments on Proposed 10CFR72

Dear Sir:

Your proposed 10CFR72 is a thoughtful and, I believe, helpful attempt to provide the guidance industry needs to build an independent spent fuel storage installation. The effort you have put into this is a refreshing change from the DOE. I do have the following suggestions:

Section 72.42 on back fitting should require a cost/benifit analysis to determine if the additional protection is worth the cost.

Section 72.71(2)(ii) requires the a ground motion acceleration of at least 0.25g be a design basis. This conflicts with 72.66(a) which gives the option of using a site specific acceleration. The applicant should have the option of using the same design basis earthquake as an already approved

Dupe of 7901290206

reactor at the same site without additional study or regulatory review.

Thank you for letting me express my opinions.

Robert W. Nail

P. O. BOX 013100, MIAMI, FL 33101

FPL
FLORIDA POWER & LIGHT COMPANY

(63)
DOCKET NUMBER
PROPOSED RULE 10 CFR 72 (43FR46309)

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

Attention: Docketing and Service Branch

Dear Mr. Chilk:

Re: Proposed Rule 10 CFR 72
Storage of Spent Fuel in an Independent
Spent Fuel Storage Installation (October 1978)

Florida Power and Light Company has reviewed and supports the implementation of the proposed rule with the following comments.

I. The definition of "neighboring area" is unclear.

If this definition is to determine the zone of emergency planning, it is important to clearly establish a maximum size for this area. Failure to do so will lead to unnecessary difficulties in determining the intent of the regulation. This type of ambiguity increases the present uncertainty associated with regulatory compliance.

II. The definition of "structures, systems and components important to safety" is overly broad.

As set forth in Section 72.3(s) this definition includes components whose function is to maintain "required conditions". Without clarification this could include components that are not required to "prevent or mitigate the consequences of postulated accidents that could cause undue risk to the health and safety of the public." (Appendix B 10 CFR 50); therefore, Section 72.3(s) should be revised to reflect the same functional level as Appendix B.

III. The license duration should not be limited to 20 years.

10 CFR 50.51 puts a 40 year limit on an unrenewed facility license. Since it is possible to shutdown and decommission a nuclear power plant but still require a spent fuel storage facility, the duration of the ISFSI license should be at least as long as the plant operating license.

Acknowledged by card. 169

IV. The license conditions are overly inclusive.

The license conditions should include only those items that are required to protect public health and safety. Other items such as surveillance requirements are more properly established by procedures and administrative controls to which the licensee is committed.

We appreciate the opportunity to comment on the proposed rule.

Yours very truly,

R. E. Uhrig
Vice President

REU:JRP:cf

cc: Robert Lowenstein, Esquire

ISHAM, LINCOLN & BEALE
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(64) January 10, 1979

PROPOSED RULE -72(43FR46309)

Secretary
United States Nuclear
Regulatory Commission
Washington, D.C. 20555

Attention: Docketing and Service Section

RE: Proposed 10 CFR Part 72

Gentlemen:

We have been asked by Commonwealth Edison Company to make the following comment as a supplement to those submitted in its letter of January 5, 1979.

In view of the state of technology with respect to spent fuel storage, and the low possibility of radiation exposure to the public from such facilities, there is no justification for considering population density as an independent safety criterion in connection with identifying a site for an independent spent fuel storage installation. Population density should at most be considered with any environmental review that you are conducting.

Very truly yours,

John W. Rowe

JWR:emh

Acknowledged by card 1/19

790129 0211

United States Department of the Interior

OFFICE OF THE SECRETARY
WASHINGTON, D.C. 20240

In Reply Refer To:
ER 78/1125

JAN 11 1979

(65)

DOCKET NUMBER
PROPOSED RULE PR-72(43FR46309)

Chairman of the Commission
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555
ATTN: Docketing Service Branch

Dear Sir:

We have reviewed the proposed rule, 10 CFR 72, to license the storage of spent fuel in an Independent Spent Fuel Storage Installation (ISFSI, 43 FR 46309) and have the following comment regarding site selection criteria.

Criteria for natural events to be considered in site selection are given only for seismicity. However, we recommend the potential for flooding also be considered in the selection of a site for an ISFSI. Flooding could affect storage facilities adversely and should be covered by criteria. Avoidance of floodplain sites would be in line with policies established in Executive Order 11988, Floodplain Management.

We hope this comment will be helpful to you in the preparation of final rules.

Sincerely,

Larry E. Meierotto
Deputy Assistant SECRETARY

Acknowledged by card. 1/19

Natural Resources Defense Council, Inc.

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(910)

January 12, 1979

(66)
DOCKET NUMBER
PROPOSED RULE PR - 72 (43FR 46309)

Samuel J. Chilk, Secretary
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

Dear Mr. Chilk:

Enclosed are the Natural Resources Defense Council's Comments on the Proposed 10 CFR Part 72 Regulations. Although these comments are submitted on day after the one week extension granted on January 4, we request that they be accepted and considered.

Sincerely,

Anthony Z. Roisman /BL

Anthony Z. Roisman

enclosure

Acknowledged by card. 1/19

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

In The Matter Of	:
	:
10 C.F.R. Part 72	:
	:
(Proposed Regulations)	:

NATURAL RESOURCES DEFENSE COUNCIL COMMENTS ON PROPOSED 10 CFR PART 72 REGULATIONS

I. Policy Considerations

The proposed regulations are seriously flawed because they are premised on an unproved and unprovable assumption -- i.e., the assumption that storage of commercially generated spent fuel at an away-from-reactor (AFR) storage facility is a preferred solution to the problem created by continued generation of nuclear wastes without an implemented and acceptable method for nuclear waste disposal.

No federal agency has reached any final and legally defensible conclusion that the use of AFRs is warranted or desirable. The Department of Energy (DOE) continues to study the issue in an ongoing environmental review. That review has already created at DOE serious questions about the wisdom of a widespread AFR program.[1] The NRC as a Commission has

1/ Inside D.O.E. (January 1, 1979), p. 1:

> DOE officials are leaning toward severely cutting back plans to store spent nuclear fuel in away-from-reactor (AFR) facilities, sources said last week, and are now considering only one or two AFR facilities where they had planned four as recently as six months ago.

articulated no policy and the publication of the draft GEIS on interim spent fuel storage prepared by the Regulatory Staff must not be confused with a Commission position.[2] Despite this uncertain status of AFRs, the promulgation of the regulations at this time is clearly premised on the assumption that the use of AFRs will be acceptable government policy and regulations designed to facilitate that policy. If such a premise does not underly these regulations, then, at a minimum, the NRC should be simultaneously promulgating regulations for expansion of at-reactor storage of spent fuel for those cases where the utility seeks to build an additional pool and should be requiring for all plants proposed for construction and under construction that spent fuel storage capacity for the lifetime needs of the reactor be provided.

In comments filed on both the NRC draft GEIS and the DOE draft impact statements on the AFR proposal, we have fully articulated our basis for opposing the AFR concept. Rather than reiterate those comments, they are incorporated here by reference and copies are attached.

2/ In the preamble to the proposed rule, reference is made to the draft GEIS (and later only to the GEIS) as an NRC statement. This practice by the Staff of boot-strapping draft documents prepared by the Staff into Commission endorsements of the contents of the documents because they are published by the NRC does a disservice to the Commissioners and the public. Far more careful scrutiny of the contents of such documents would be required before the Commissioners could be said to have approved the contents as Commission policy.

Because there is no policy now favoring the unlimited use of AFRs and because it is becoming increasingly clear that even if some AFR use is required it will be substantially restricted, we believe the development of AFR licensing regulations is premature. Were the subsequent evolution of an AFR policy irrelevant to the licensing requirements, an early development of such regulations, while wasteful of limited Commission resources, might not be totally objectionable. However, the shape of the AFR policy would sharply influence the shape of the regulations. For instance, if the AFR policy prohibited the use of an AFR unless it could be shown that expansion of at-reactor storage would be unsafe, then the licensing requirements would not only have to incorporate this pre-condition but would also have to assure that AFR storage would be safer than the at-reactor storage option. Transportation and handling would necessarily be a part of this analysis and they would be affected by which reactor's fuel was proposed to be shipped to an AFR. To license the AFR without knowing the source of the fuel is to license blindly.

If the Commission is nonetheless committed to proceeding with licensing requirements for AFRs at this time, we believe the proposed amendments are seriously defective. The following discussion addresses those deficiencies.

II. Principal Deficiencies

A. Absence of a need requirement

The use of an AFR has been discussed exclusively as a stop-gap measure to assist utilities which do not have adequate storage space for spent fuel. Use of AFRs is not independently desirable, if desirable at all, and its use ought to be severely restricted to instances in which a clear need exists. These concepts should be embodied as preconditions to processing an application for construction of an AFR.

As the Commission is aware, the major (not the only) controversy about AFRs is whether to use them and not only whether in fact they are safe. It would be beneficial to resolve the issue of need before commencing the formal licensing process. By establishing an adjudicatory mechanism for resolution of that issue in advance of formal hearings on the specific project, the Commission could save time and make for a more orderly process. This determination of need could be in the nature of a generic proceeding without the necessity for site identification or detailed design information. Inasmuch as the hearing will be adjudicatory the findings on need would be binding in subsequent site-specific proceedings absent a prima facie showing of the necessity to reopen the record.

The findings required to conclude that the need for an AFR exists should include the following:

1. Further compaction of nuclear fuel at the reactor site is technologically impossible or involves unacceptable risks to the public and/or worker health and safety during the period of planned reactor operation, and

2. Construction of an additional at-reactor storage facility is technologically impossible or involves unacceptable risks to the public and/or worker health and safety during the period of planned reactor operation.

In addition, to deal with the possible problem created by the failure of utilities to anticipate spent fuel storage problems, the following principles should be applied:

1. No spent fuel could be considered as a candidate for storage at an AFR unless the utility had implemented a concerted effort to resolve conditions 1 and 2 above.

2. No spent fuel could be shipped to an AFR except during the period required to determine the answer to conditions 1 and 2 above and, if both conditions are not met, for the further period required to obtain a final answer from all cognizant agencies to a proposal to expand at-reactor storage.

3. No spent fuel could be shipped to an AFR from any reactor which received its operating license on or after December 31, 1979.

4. No spent fuel could be shipped to an AFR from any reactor which has been denied permission to expand spent fuel storage capacity unless the basis for denial was explicitly stated to be one of the two conditions listed previously.

These standards for determining need assure that a genuine need for spent fuel storage exists and prevents utilities from using AFRs to bail out of the waste problem. It also assures that local and state governmental entities with the authority to approve or disapprove spent fuel storage expansion do so with the knowledge that their denial, except on certain very explicit bases, will force shutdown of the reactor and with the assurance that if they make that decision the AFR will not be used as a device to evade the consequences of that decision. In this way the AFR concept remains neutral to the

question of the desirability of continued use of nuclear power.[3] The economic and technical uncertainties which now surround nuclear waste management are legitimate uncertainties which flow directly from the anomaly created by beginning a nuclear power program without having any reasonably notion of how to solve the most serious and irreversible problem created by nuclear reactors -- nuclear waste. It is fair and essential that decisions on whether to build more nuclear plants and whether to continue to build and operate those to which commitments have already been made should be influenced by the real uncertainties created by this anomalous situation. For the government to step forward and to offer to take title to and store spent fuel in government-owned interim storage facilities in order to artificially establish for a utility a solution to the mounting volume of nuclear wastes for which in fact no disposal solution exists, is the worst kind of government subsidy. Nuclear power is rightly burdened by the waste problem and the absence of any solution to it. If its benefits are not sufficient to offset that burden, then it deserves to be halted.

B. Failure to require a final design

Nuclear reactor licensing has been marked by the inability of applicants to provide a final design for licensing approval at the construction permit stage. This has necessitated the two-hearing process (Power Reactor Co. v. Electrical Union, 367 U.S. 396 (1961)) and much ratcheting. However, we

3/ The Draft IRG Report supports this neutrality.

are repeatedly assured by the industry and the Staff that spent fuel storage pools involve no similarly complex technological problems. This is apparently reflected in the proposed Part 72 which contemplates only one hearing, at construction, for the AFR. Such an approach is certainly desirable provided the construction permit proceeding resolves all possible issues related to the facility design.

As drafted, Part 72 does not require that the construction permit approval be preceded by a final design approval. Such a requirement must be included or Part 72 makes a mockery of meaningful public or board participation. As the regulation is now written, the Staff will decide on its own, after construction is approved, what the AFR design should be. With all due deference to the Staff, past history exemplifies that they are not capable of adequately handling that job without the timely intervention of hearing boards and the public.

A requirement for final design approval prior to construction would avoid ratcheting, eliminate the need for hearings on proposed amendments to the preliminary design and avoid the illegality of an effort to turn a two-hearing process into a one-hearing process without eliminating the need for two hearings.

C. Failure to prohibit sunk costs prior to construction

As the decision in the Seabrook case makes clear, the expenditure of money by an applicant prior to approval of a construction permit can and does directly affect the outcome

of the Commission consideration of the wisdom of the issuance of the construction permit as compared to alternatives. The Commission thus has the authority to protect the integrity of its decision-making process by prohibiting such expenditures except to the extent they are essential to the application process. Thus, proposed § 72.3(e) should be amended to exclude item (3) and to embody the principles enunciated.

D. NEPA

There should be a clear statement that the proposal to issue approval for any AFR is a major federal action significantly affecting the environment for which an impact statement is required. The incorporation by reference of the filing requirements of Part 51 contained in proposed § 72.20 is not sufficient, nor is the provision specifying findings under Part 51 contained in proposed § 72.31(10).

E. Emergency planning

Because the regulations propose only one hearing, the emergency planning requirements must include approval of the final plan. This final approval should include a finding that there is reasonable assurance that the state and local government emergency plan, which must be submitted in detail, will be implemented and what steps will be taken by NRC to assure its implementation.

F. Safeguards

A final plan for safeguarding the AFR must be approved as part of the construction permit program. The exception contained in Part 73 for spent fuel must not be applicable

unless the spent fuel meets the conditions of burnup, enrichment and age which are the premise for those exceptions.

G. Radiation exposures

The establishment of the 25 MREM limit for radiation exposures does not adequately account for possible exposures from other parts of the fuel cycle. The total dose set by EPA for any individual is 25 MREM/year from the nuclear fuel cycle. Some evaluation of other potential exposures for the individuals living near an AFR must be made to assure that total fuel cycle exposures are no more than 25 MREM.

H. General license

There is no basis provided for the approval at this time of a general license as proposed in § 72.7.

I. Hearings

In several proposed sections (§§ 72.8, 72.32, 72.34, 72.36, 72.38, 72.81(d)), major actions of relevance to the public are authorized without an opportunity for a public hearing. Pursuant to Section 189 of the Atomic Energy Act and relevant court decisions (Brooks v. AEC, 476 F.2d 924 (D.C. Cir. 1974)), any action which alters the terms of a previously issued license must be noticed prior to the action being taken and the public must be provided with an opportunity to argue that a hearing would be appropriate. For instance, a decision to exempt a party from the licensing requirements (§ 72.8), to extend the period during which spent fuel can be stored at the AFR (§ 72.32), to change the owner and the thus the person financially responsible for the spent fuel (§ 72.36(c)) and to

allow a license to be terminated and the responsible person to be adjudged to have completed all requirements for disposal of the spent fuel and of the facility (§ 72.38) are matters in which the public would be expected to have a substantial interest. the spent fuel and of the facility (§ 72.38) are matters about which the public would be expected to have a substnatial interest. At a minimum, there should be an opportunity for a public hearing and a notice of such opportunity at the earliest date on which the Commission has reason to believe a proposal to take such action will be submitted.

The proposed regulations are based upon the premise that the applicant and/or the Staff can be relied upon to draw the line between matters which do not require public involvement and those which do. Given the general attitude of the applicant and the Staff to the public and its value in the process, such reliance is unwarranted. Only the public can adequately protect its own interests.

J. Financial security

One need only look at the West Valley fiasco to appreciate the importance of adequate financial arrangements with respect to storage of spent fuel. The proposed regulations address this issue far too casually. Specific criteria should be developed in advance for the financial arrangements for decommissioning which include a substantial bond or creation of an escrow fund and establish some basis for determining in advance what could be the maximum cost. Past cost estimates have been so ridiculously low (e.g., West Valley set up a $4 million fund for a

problem whose cost may run as high as $500 million to $1 billion[4]) that great care should be used in setting the cost.

Pursuant to § 72.41(c), the Commission can retake title to spent fuel. This section should include a provision requiring that financial responsibility for the spent fuel and its disposal continues to rest with the licensee to avoid shifting the costs to the taxpayers.

The changes needed in the regulations would require substantial tightening of the provisions of proposed § 72.14(e)(3). In particular, the necessary funds should be guaranteed prior to issuance of a license and not merely be based on "reasonable assurance." The continuing financial trauma of the Seabrook facility, although the reasonable assurance finding had been made, supports the need for a more explicit finding.

K. Population and siting

Current population criteria are vague and inadequate. The proposed § 72.65 is even worse. Specific criteria defining population levels which are acceptable and man rem doses calculated using design basis accident conditions and conservative assumptions are the only reliable standards. Also the use of conservatively calculated man rem doses would permit a basis for comparison of alternative sites for safety purposes. See generally Natural Resources Defense Council and Citizens for a Better Environment Comments on Proposed Amendment to Appendix E to 10 CFR Part 50, In the Matter of Appendix E - Emergency Plans for Production and Utilization Facilities, October 23, 1978.

4/ NUREG-0043, April 1976, pp. 141, 142; DOE Western New York Nuclear Service Center Study, Final Report for Public Comment, TID-28905-1, November 1978.

The provision to automatically approve siting for accident purposes at an existing reactor site (43 Fed. Reg. 46310, column 1) is totally unacceptable. An accident with exposures of just below 5 rem per person (proposed § 72.67(b)) is not insignificant and does materially increase the risk to the public health and safety, particularly at existing reactor sites with high population concentrations like Seabrook, Zion, and Indian Point. Each AFR site should be evaluated on a case-by-case basis with respect to its acceptability.

L. Public health and safety

In proposed § 72.31(a)(11) a new concept of public health and safety is added which substantially dilutes existing requirements. There is nothing to authorize the reduction of the protection to the public to the level of only preventing all "unreasonable risks." The proper standard is reasonable assurance of adequate protection for the public health and safety. That standard must be maintained for AFRs.

M. Backfitting

The backfitting authority should explicitly include the authority to backfit where warranted by substantial additional protection for the environment. The extension of all Atomic Energy Act protections to environmental protection is required by NEPA and the courts. Calvert Cliffs' Coordinating Committee v. U.S. Atomic Energy Commission, 449 F.2d 1109 (D.C. Cir. 1971).

N. Fire protection

Fire may be one of the most serious hazards for an AFR because the fire becomes the mechanism for an alteration in and dispersal of the nuclear material. The provisions of proposed Design Criteria (3) do not recognize this and include vague generalities and numerous loopholes. For instance, non-combustibles and heat-resistant materials are only required to be used where practical. There is no basis to dilute safety in the name of economy. The Union of Concerned Scientists petition on fire protection systems provides ample support for the need for careful standards for fire protection and those comments are incorporated here by reference.

III. Conclusion

Throughout the proposed regulations is the theme that the AFRs are good and should be encouraged. One classic example is the statement in the preamble (43 Fed. Reg. 46310, column 3) which indicates that accident limits for siting were set with the principle that they could be met, not that they were what was required. This attitude is unacceptable for a regulatory agency and reflects a continuation of the promotional bias. These proposed regulations should be withdrawn and should be rewritten by persons who are not predisposed to believe that AFRs are safe and should be encouraged.

Respectfully submitted,

Anthony Z. Roisman /BP

Anthony Z. Roisman
Natural Resources Defense Council
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Dated: January 12, 1979

THE CLEVELAND ELECTRIC ILLUMINATING COMPANY

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Dalwyn R. Davidson
VICE PRESIDENT - ENGINEERING

(67)

DOCKET NUMBER
PROPOSED RULE PR-72(43FR46309)

January 10, 1979

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

Attention: Docketing and Service Branch

Gentlemen:

The Federal Register on October 6, 1978 published a proposed change to the Nuclear Regulatory Commission Regulations. This proposed change specifies licensing requirements for the storage of spent fuel in an Independent Spent Fuel Storage Installation (ISFSI) and has been designated 10 CFR Part 72. Although the comment period has expired, we are nevertheless submitting the following brief comments in the expectation that they might also be given consideration.

1) 72.33 LICENSE CONDITIONS, ITEM b3, SURVEILLANCE REQUIREMENTS

In relation to the statement "Surveillance requirements are requirements relating to tests...to assure that the necessary integrity of...the fuel in storage is maintained", we assume that the NRC does not mean "tests" in the sense of testing the integrity of the spent fuel by experiment." To clarify this ambiguity, we suggest that this section read "Surveillance requirements are requirements relating to inspection of the fuel and inspection, calibrations and tests to assure that the necessary integrity of required systems and components is maintained, that operation, etc."

2) 72.71 ITEM 8, THE FUEL CLADDING SHALL BE PROTECTED AGAINST DEGRADATION AND GROSS RUPTURE -

To prevent degradation, some of the failed fuel might be containerized. A section should be included discussing the storage of spent fuel in canisters. If fuel is stored in containers then it should be required that only the integrity of the container be maintained against all postulated events.

Acknowledged by card. 1/19

B-239

3) 72.71 (18) HEAT REMOVAL CAPABILITY WITH TESTABILITY

We assume that the NRC does not mean "testability" in the sense of testability of the heat removal capability by experiment. We suggest that "testability" be defined as the ability to check system performance by periodic monitoring of instrumented system parameters.

We fully endorse the Radioactive Waste Management Group comments on the Proposed NRC Regulations on Away-From-Reactor Spent Fuel Storage Facilities. These were forwarded to you earlier on behalf of the Group by Shaw, Pittman, Potts and Trowbridge of Washington, D.C.

Very truly yours,

Dalwyn R. Davidson
VICE PRESIDENT - ENGINEERING

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(68)
DOCKET NUMBER
PROPOSED RULE PR-72(43FR46809)

January 22, 1979

Secretary of the Commission
US Nuclear Regulatory Commission
Washington, DC 20555

Attention: Docketing and Service Branch

Subject: Proposed Rule 10CFR Part 72
Storage of Spent Fuel in an Independent
Spent Fuel Storage Installation (ISFSI)

Gentlemen

The Edison Electric Institute is the national association of investor-owned electric utility companies and its members serve 77.5 percent of the nation's electricity customers. We are pleased to have an opportunity to comment on the proposed rule 10CFR Part 72. While it is recognized that Independent Spent Fuel Storage Installations (ISFSI's) may be licensed under the current 10CFR Part 70 regulations the establishment of a new Part 72 is encouraged to provide a more specific licensing procedure for ISFSI's. A definitive Part 72 regulation that effectively addresses and resolves many identifiable elements of an ISFSI during its rulemaking proceeding will provide a comprehensive basis for effective and timely future licensing actions.

Each nuclear power facility licensed under 10CFR Part 50 includes a spent fuel storage area as a component of the facility. Part 50 specifically addresses the nuclear power facility and entails more stringent requirements than is typically necessary for an ISFSI. The proposed rule 10CFR Part 72 should entail less stringent requirements than Part 50 and no element of Part 72 should impose requirements beyond those of Part 50.

A provision should be included in Part 72 that recognizes the already accepted qualifications of both an applicant and a site that have current license approvals under Part 50. Any application for a license under Part 72 for an ISFSI facility to be located on the site of a Part 50 facility for which the applicant holds a construction or

an operating license should be accepted as a pre-qualified applicant with a pre-qualified site. Such pre-qualification should be applicable at least to financial responsibility, population distribution and a majority if not all of the elements of an environmental evaluation.

Generic environmental impact statements have been drafted and are being reviewed on spent fuel storage including NUREG 0404, Handling and Storage of Light Water Reactor Fuel, DOE/EIS-0041-D, Charge For Spent Fuel Storage, and DOE/EIS-0015-D, Storage of US Spent Power Reactor Fuel. Many environmental elements of spent fuel storage will be resolved with these reviews. Environmental elements that are resolved during generic evaluations of programmatic spent fuel storage activities should be accepted by reference for any site-specific license and not subject to redundant and duplicate environmental evaluation. Also, the environmental evaluations for activities on the same site that have preceeded the ISFSI applications should be accepted by reference and not duplicated. Any additional environmental evaluations to satisfy NEPA requirements should be specifically limited to the incremental impact of the ISFSI during the site-specific licensing consideration.

The issue of financial protection and responsibility for public liability should be resolved for ISFSI's in a manner similar to storage of spent fuel at reactor sites. Spent fuel is covered under Price-Anderson when stored in a reactor pool or a reprocessing plant pool. An extension of the applicability of Price-Anderson to the ISFSI facilities appears to be in order and is recommended. The low level of risk for such a facility should be recognized and a resonable level of financial protection required.

Specific comments on several paragraphs of the proposed rule are provided as Attachment A. We will gladly discuss our comments in greater detail with you at your convenience.

Sincerely yours

John J Kearney

John J Kearney
Senior Vice President

Acknowledged by card ...

ATTACHMENT A

EDISON ELECTRIC INSTITUTE
Comments on

Proposed Rule 10CFR Part 72,
Licensing Requirements For The
Storage of Spent Fuel In An
Independent Spent Fuel Storage
Installation (ISFSI)

72.1 Purpose

The purpose should include a clear statement that the license will permit the receipt and storage of spent fuel whether or not title to the spent fuel is held by the licensee. Also, further clarification is needed for the limitation of temporary storage which should include all or part of the time between reactor discharge of the spent fuel and the point when the spent fuel is either reprocessed or disposed of in a Federal repository.

72.3 Definitions

(j) "Independent spent fuel storage installation (ISFSI)." The definition of an ISFSI should include all independent spent fuel storage installations whether located at a separate site or located at a site that includes other facilities licensed under 10CFR.

(s) "Structures, systems and components important to safety." The definition provided in the proposed rule appears to extend beyond the requirements of 10CFR Part 50 Appendix B and it should be rephrased. These items should be limited to include only those "structures, systems and components that prevent or mitigate the consequences of postulated accidents that could cause undue risk to the health and safety of the public."

72.6 License Required

This section refers to two types of licenses, 1) general and 2) specific. A subsequent paragraph 72.7 provides a discussion of the general license and a similar subsequent paragraph is recommended to provide the elements and applicability of a specific license.

72.15 (b) The requirement for annual updating of the SAR appears to be unjustified. Updating should be required periodically when significant changes or modifications are contemplated and filed with the Commission. Commission approval on SAR updated information should be limited to major changes that result in significant plant modifications or operations.

72.18 Decommissioning Plan, Including its Financing

Information on the disposal of radioactive material as requested could be interpreted to include a plan for disposition of the spent fuel. Since the Federal Government has indefinitely deferred reprocessing and Federal policy is required to define the disposition of spent fuels, the decommissioning plan should specifically exclude the disposition of spent fuel. Decommissioning information should be similar to that required under Part 50 and the proposed requirement for the disposal and decontamination procedures that will be employed many decades hence should be removed.

72.20 Environmental Report

A specific statement should be included that calls for the recognition by reference to all environmental issues of spent fuel storage that are previously resolved in programmatic and generic environmental reviews and other site specific environmental reviews. Such a position will minimize the redundant and duplicate review of previously settled issues.

72.31 (a) (10) Issuance of Licenses

A reference should be included for the recognition of previously resolved environmental elements to preclude redundant and duplicate reviews. Environmental reviews should be limited to site specific and project-specific effects related to the facility being considered.

72.32 Duration of License; Renewal

The 20 year maximum licensing period is unduly restrictive. A longer term, equivalent to the 40 year power reactor license period is recommended.

72.42 Backfitting

The requirement as stated appears to be overly restrictive. Backfitting should be required only after a determination has been made that the benefits of backfitting are significantly greater than the cost of providing the backfitting. New regulations and changes in regulations should not be automatically imposed upon a licensed facility unless it can be demonstrated as necessary for the protection the health and safety of the public.

72.51 Material Balance, Inventory and Records required for stored Materials

This section should clearly recognize the character of spent fuel in terms of material accountability. A specific statement should be included that analytical analysis of the nuclear material components and the composition of the nuclear material are not required to verify quantities at the time of receipt, at inventory points or at the time of shipment. Nuclear compositions should be accepted as determined by the shipper to the ISFSI and the composition and quantities should be retained unchanged and recorded without modification when the spent fuel is shipped from the ISFSI. Material control in a ISFSI should be by item control and piece count that does not require verification by analytical analysis.

Subpart E - Siting Criteria

A section should be included in Subpart E that recognizes the pre-qualification of a site that has been previously approved by the NRC for a 10CFR Part 50 facility. Such sites should automatically qualify for a Part 72 installation.

72.66 Criteria for Defining Acceptable Seismic Characteristics

We concur with the position that any site with a peak horizontal ground acceleration of not greater than 0.25 g with a recurrence interval of at least 500 years, shall be deemed suitable for an ISFSI site. A specific reference should be provided for the basis of determining that the g value of a site is no greater than 0.25g. However, ISFSI's should not be excluded from sites with a greater g value. Any site that has an established g value either above or below 0.25 g for a Part 50 facility should also be deemed acceptable for a Part 72 installation that is designed to withstard the established g loadings for that site.

The reference to designs other than water basin type requiring a site-specific investigation and analysis appears to be inappropriate and should be eliminated. The seismic characteristics of 72.66 should be applicable to all types of ISFSI's.

72.71 (2) (ii) General Design Criteria

The design requirement to withstand earthquake horizontal ground motion acceleration of at least 0.25g should be required only for those installations sited on the basis of 72.66 without a seismic analysis of the site. For those sites where a determination is made that a g value lower or higher than 0.25g is applicable, the determined g value may be used as the design requirement.

72.71 (10) Control Room or Control Areas

A clarification is recommended for this paragraph. As worded, it could be interpreted that the ISFSI is to be operated remotely from a control room or control areas. Certain items should be controllable from central locations. However, many items such as cranes, hoists and underwater tools should be operated by persons having visual contact with the operating items. This paragraph should be expanded to describe more fully the intent of permitting visual contact operation during normal activities and to provide safe control during off-normal or accident conditions.

72.71 (19) Waste Treatment

The requirement "to concentrate all site generated wastes," needs further clarification since some waste, such as discarded equipment, do not lend themselves to concentration. Concentration requirements should be based on a combination of cost effectiveness and personnel radiation exposure considerations in addition to waste form and volume.

* * *

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(69)

DOCKET NUMBER
PROPOSED RULE PR-72(43FR46309)

DESIGN
CONSTRUCTION
REPORTS
EXAMINATIONS
CONSULTING
ENGINEERING

January 8, 1979

Secretary of the Commission
U. S. Nuclear Regulatory Commission
Attention Docketing and Service Branch
Washington, DC 20555

Gentlemen:

PROPOSED 10CFR72

The following comments and suggestions are submitted for consideration with respect to proposed new regulation 10CFR72, "Storage of Spent Fuel in an Independent Spent Fuel Storage Installation (ISFSI)."

Part 72 precludes the issuance of an LWA-type permit. However, paragraph 72.31(a)(10) appears to allow a license to be issued upon a conclusion by the Director of the Office of Nuclear Materials Safety & Safeguards or after public hearings and an ASLB finding with respect to environmental issues. Part 72 should contain specific provisions to allow certain construction activities to proceed prior to hearings and ASLB findings if hearings are to be held.

Paragraph 72.3(s) defines structures systems and components important to safety. This definition is inconsistent with 10CFR50 Appendix A which defines these as "...structures systems and components that provide reasonable assurance that the facility can be operated without undue risk to the health and safety of the public."

Accordingly 72.3(s) should be revised to read "Structures, systems and components important to safety" means those items whose function is to (1) maintain the required spent fuel storage conditions, and (2) prevent damage to the spent fuel during transfer and storage.

Paragraph 72.15(a)(13) states that doses due to direct exposure, inhalation, and ingestion should be analyzed for a 24-hr period, while paragraph 72.67 gives a single 2 hr dose criterion of 5 rem. Clarification is needed with respect to whether or not the criterion applies to total dose with an equivalent dose applied to other organs (as in GDC 19) and what limits apply beyond 2 hr.

Paragraph 72.71(2)(ii) excludes tornado missiles as a design basis. However, Draft Regulatory Guide 3.24.3 (revised September 1, 1978) discusses tornado missile analyses. This is an inconsistency. Therefore, the Regulatory Guide should be revised to be consistent with the design bases requirements of Part 72.

Paragraph 72.71(3), "Protection against fires and explosions" (third sentence) implies that explosion detection, alarm, and suppression systems are provided. We suggest deletion of the words "Explosion and" from the beginning of this sentence.

In the first sentence of paragraph 72.71(12), "Design for criticality safety," the words "to be" should be replaced with "such that the spent fuel is."

Paragraph 72.71(13) suggests that permanently fixed neutron-absorbing materials is an "alternative" method of criticality control and favorable geometry is the "standard" method. The regulation should not define what is a standard and what is an alternative. We suggest combining the paragraphs to read as follows:

> (13) Acceptable methods of control. Favorable geometry (spacing) and the use of permanently fixed neutron-absorbing materials (poisons) are acceptable methods of nuclear criticality control. Subcriticality is assured by limiting the reactivity through the control of spacing of the individual storage unit (one or more fuel assemblies) and, for underwater storage, by the neutron absorption by the water between storage units. Where solid neutron-absorbing materials are used for the prevention of nuclear criticality, the design shall provide for positive means to verify their continued efficacy. Storage racks must be structurally compatible with seismic design criteria.

Very truly yours,

S. B. Jacobs
Chief Licensing Engineer

WB:MAT

Acknowledged by card ....

STATE OF NEW YORK
ENERGY OFFICE

AGENCY BUILDING 2
EMPIRE STATE PLAZA
ALBANY, NEW YORK 12223

JAMES L. LAROCCA
COMMISSIONER

(70)

DOCKET NUMBER
PROPOSED RULE PR-72(43FR46309)

January 15, 1979

Secretary of the Commission
U.S. Nuclear Regulatory Commission
Washington, DC 20555

Attention: Docketing and Service Branch

Dear Sir:

The New York State Energy Office and the State Department of Environmental Conservation have reviewed NRC's proposed regulation (10CFR72) regarding procedure and license requirements for an Indendent Spent Fuel Storage Installation (ISFSI).

The following comments regarding the proposed regulation are offered for your consideration:

- We urge that the license procedure as stated in 10CFR72 (proposed) relating to public hearings and intervention by interested parties be defined with more specificity. The proposal is vague in presenting the procedural steps available to carry out this important part of the licensing procedure. We believe the licensing section of 10CFR72 (proposed) Subpart B, should parallel the requirements for production and utilization facilities as stated in 10CFR50, Class 103 licenses, thus allowing the opportunity for citizen and State input prior to issuance of an ISFSI license.

- The supplementary information section of 10CFR72 (proposed) mentions amendments to regulations establishing public hearing procedures. These amendments should be made available as expeditiously as possible to allow a complete review and comment by the public.

- The term "active fault" as used in Section 72.66 should be defined in the proposed regulations. The terminology should be comparable to that of 10CFR100, Appendix "A", III Definitions.

Dupe of

- Consideration should be given to reducing the proposed annual dose limit criteria. A reduction of the proposed limit would be in accordance with the "as low as reasonably achievable" concept defined in 10CFR20. Spent fuel storage pool experience to date appears to indicate that a lower limit would not be restrictive to the normal operation of the facility.

- Potential effects resulting from the increased handling and transportation of spent fuel to an Independent Spent Fuel Storage Installation should be considered in the licensing process.

We appreciate having the opportunity to comment on this proposed regulation.

Sincerely,

Theodore K. DeBoer
Director of Nuclear Operations

TKD/lw

Acknowledged by card [redacted]

Allied Chemical

IDAHO CHEMICAL PROGRAMS OPERATIONS OFFICE
550 Second Street
Idaho Falls, Idaho 83401

JAN 10 1979

(71)
DOCKET NUMBER
PROPOSED RULE PR-72(43FR46309)

Comments on 10 CFR Part 72
Dug-1-79

Russell E. L. Stanford
Fuel Process Systems Standards Branch
Division of Engineering Standards
Office of Standards Development
US Nuclear Regulatory Commission
Washington DC 20555

Dear Russ:

I appreciate your letter of October 27, 1978, requesting a review of the proposed spent fuel storage regulation, 10 CFR Part 72. This regulation was reviewed by several members of our staff with extensive experience in spent fuel storage. We found the regulation reasonable and generally very good with no major recommended changes. Some comments are attached for your consideration.

This transmittal also covers the comments of B. R. Wheeler. Please feel free to contact me if we can be of any assistance.

Sincerely,

J. Dugone
Assistant Manger, FAST Project

Attachment

jr

Acknowledged

1. Supplementary Information, paragraph 5 under Section 4.

   It is not apparent why aged spent fuel need not have a high degree of protection from weather extremes, tornadoes, or tornado generated missiles. The facility should provide enough protection from these natural events to preclude possible criticalities and the rupture of the basin.

2. Supplementary Information, paragraph 9 under Section 4.

   An exclusion clause should permit design of the ISFSI's to a lower seismic acceleration provided sufficient evidence is presented to support the lower seismic acceleration.

3. Paragraph 72.3, Section (b)

   The definition of ALARA would be significantly improved if a dollar value would be set.

4. Paragraph 72.38, Section (a)

   This information is redundant to that requested in paragraph 72.18

5. Paragraph 72.42, Section (a)

   A definition of "substantial addition" should be provided. This leaves a licensee open to significant political risk.

6. Paragraph 72.55, Section (c)

   This section needs clarification. It is not clear what is meant by "--tests of (1) spent fuel during handling and storage, (2) spent fuel handling and storage facilities --".

7. Paragraph 72.64, Sections (a) and (b)

   An evaluation of usual characteristics should also be made.

8. Paragraph 72.71, Section (2) (ii).

   Reference paragraph 72.66 instead of the parenthetical phrase stating seismic accelerations of at least 0.25 g. Paragraph 72.66 allows an exception.

9. Paragraph 72.71, Section (8)

   The word "significant" should be inserted prior to degradation in the first sentence. It would be impossible to present enough evidence that no degradation could occur during storage.

10. Paragraph 72.81, Section (b)

This is very general and could be very difficult to comply with unless made somewhat more specific. Recommend deleting requirement to preclude inside sabotage.

Also, the details of physical protection should be kept confidential or this requirement could be self defeating because access to details could make the facility more vulnerable to sabotage.

TENNESSEE VALLEY AUTHORITY
CHATTANOOGA, TENNESSEE 37401
500C Chestnut Street Tower II

(72)

DOCKET NUMBER
PROPOSED RULE PR-72(43FR46309)

February 16, 1979

Secretary of the Commission
U.S. Nuclear Regulatory Commission
Washington, DC 20555

Attention: Docketing and Service Branch

Dear Sir:

In accordance with the October 6, 1978, Federal Register notice (43 FR 46309-46321), the Tennessee Valley Authority (TVA) is pleased to comment on the proposed new regulation, 10 CFR Part 72, which provides procedures and requirements for issuance of a license to store spent fuel in an independent spent fuel storage installation (ISFSI). We have reviewed the proposed new regulation and our specific comments are enclosed.

The Council on Environmental Quality regulations clearly favor lead agency arrangements when more than one Federal agency is involved in a project (40 CFR 1501.5 as noticed in 43 FR 55992-55993). By referencing 10 CFR Part 51, Part 72 implicitly incorporates footnote 1 of 10 CFR 51.20, permitting lead agency agreements between the Federal agencies involved in the implementation of the provisions of the National Environmental Policy Act (NEPA) in lieu of an environmental report. Such lead agency agreements minimize the duplication of efforts by the Federal agencies involved in the preparation of environmental impact statements (EIS), while still ensuring that the EIS for each project will satisfy the NEPA requirements of each agency involved. Because Part 72 does not explicitly discuss lead agency agreement, a specific provision should clarify the Nuclear Regulatory Commission's (NRC) intent.

We recommend that Part 72 be revised to permit explicitly the development of lead agency agreements by adding the following footnote to Sections 72.20 and 72.31(10):

> Where the "applicant," as used in this part, is a Federal agency, different arrangements for implementing NEPA may be made, pursuant to the Guidelines established by the Council on Environmental Quality.

Acknowledged by card. 2/26

February 16, 197[illegible]

Secretary of the Commission

While it appears that an ISFSI license would not be required for a utility to transship fuel from one nuclear plant's spent fuel pool to another plant's pool, the regulation is not explicit. The NRC could avoid potential future disputes by clarifying the definition of an ISFSI contained in Section 72.3(j) to ensure that it does not encompass a spent fuel pool which is an integral part of a nuclear plant.

Sections 72.18, 72.38, and 72.71(20) in referring to a decommissioning plan for the ISFSI require decontamination of the site and dismantling and disposal of the facility. This rules out alternate methods of decommissioning such as mothballing. We suggest that the NRC reword these sections to clearly state that alternative decommissioning methods may be permissible.

Very truly yours,

J E Gilleland

J. E. Gilleland
Assistant Manager of Power

Enclosure
cc (Enclosure):
Executive Secretary
Advisory Committee on Reactor Safeguards
U.S. Nuclear Regulatory Commission
1717 H Street, NW.
Washington, DC 20555

Mr. R. A. Szalay
AIF, Inc.
7101 Wisconsin Avenue
Washington, DC 20555

ENCLOSURE

TVA COMMENTS ON PROPOSED REGULATION 10 CFR PART 72

1. Section 72.3 Definitions

72.3(e) We believe construction of suitable access facilities to the site should be excluded from the definition of "commencement of construction" and should be so stated. We suggest adding the following:

(4) Construction of suitable access facilities to the site.

72.3(j) We suggest the definition of ISFSI be changed to permit or allow the supporting services to not necessarily be dedicated totally to the ISFSI.

72.3(s) We believe in (1) the phrase, "required spent fuel storage conditions" is vague and should be defined if used here. Also, it would seem to encompass prevention of damage to spent fuel during storage in (2). We suggest the definition of this term should be based upon those items whose failure to function under design basis events would cause allowable offsite dose limits to be exceeded (e.g., damage to spent fuel during transfer generally will not result in releases which will exceed offsite dose limits).

Plant personnel exposures should not be included in this definition except to ensure maintenance of the fuel to prevent exceeding allowable offsite dose limits. Design occupational dose limits are tied to ALARA considerations and operating limits or technical specifications.

2. Section 72.15 Contents of Application: Technical Information

72.15(a) iii We suggest it should be clearly stated whether "the loss of water" analysis is for a nonmechanistic total water loss or a maximum credible water loss.

The use of the term "ultimate capacity" as used in Section 72.15 (a)(1) is ambiguous. It should be clarified that the site is to be assessed assuming that the installation will be operated at the capacity which the applicant requests in its application. If the applicant wishes to expand the capacity at a later time, it should have the option of licensing the present contemplated capacity or a larger capacity possibly needed in the future.

The NRC should clarify whether the $1,000 per Man-rem test in Part 50, Appendix I, will apply to the as-low-as-reasonably-achievable requirement in Sections 72.15(a)(5) and 72.33(d).

72.15(c) It appears the term "safety-related" used here and elsewhere in Part 72 is the same as defined in

72.3(s) "structures, system, and components important to safety." If this is so, we suggest the equivalence should be stated, and, if this is so, the term should be defined.

3. Section 72.18 Decommissioning Plan, Including Its Financing

71.18(a) We believe the requirement for proposed procedures for decommissioning is too definitive for this time. It would have a tendency to commit to a certain procedure and not take into account any future advancements in technology. We suggest instead use of the words "proposed practices," using "preliminary alternative methods." This would permit updating the decommissioning plan as the actual decommissioning time approaches taking into account the regulatory requirements in effect at time. We also believe the definition of "dismantling and disposal" should be more specific. Dismantling and disposal might not be the best method. It appears reasonable to allow the concrete structure of the pool and embedded piping to remain in place and be filled with earth or sand.

4. Section 72.19 Emergency Plan

Section 72.19 requires a final (FSAR stage) radiological emergency plan (REP) when the application is submitted. We suggest a preliminary version of the REP be acceptable for submittal with the initial application.

5. Section 72.20 Environmental Report

Section 72.20 requires an environmental report which meets the requirements of 10 CFR Part 51. Part 51 requires two environmental reports, one at the construction permit stage and one at the operating license stage. Since Part 72 requires only a single license, only one environmental report should be required. This could be implied, it would eliminate the possibility of future dispute if Section 72.20 were to specify the requirement.

The applicant for a license under Part 72 may be a Federal agency. In that case, a lead agency agreement in accordance with the Council on Environmental Quality regulations should obviate the need for an environmental report. Part 72 should allow for this possible exception in Section 72.20.

6. Section 72.42 Backfitting

Section 72.42(a) Backfitting - The Commission should prepare a benefit/cost evaluation before requiring any changes in an ISFSI after the license has been issued.

7. Section 72.62 Criteria for Design Basis External Natural Events

We believe Section 72.62 is vague and does not specify a design basis flood. This contrasts with draft Regulatory Guide 3.24.1 and 3.24.3 which specify a Probable Maximum Flood (PMF) approach. We do not believe that a PMF approach is justifiable for an ISFSI because the consequences of floods are much less severe.

8. Section 72.66 Criteria for Defining Acceptable Seismic Characteristics

Section 72.66(a) indicates that a peak horizontal ground acceleration of not greater than 0.25g with a recurrence interval of at least 500 years can be used to define the earthquake or that a site specific "g value" can be determined by procedures outlined in 10 CFR 100. We suggest several clarifications that are needed for this section as follows:

a. Horizontal ground acceleration is specifically stated; therefore, vertical acceleration should be specified or the word "horizontal" removed.

b. The ground motion should be specified as free-field surface motion.

c. This section implies that if a site specific "g value" is determined, an earthquake with a return period of 500 years could be used. This should be clearly stated. In the majority of the eastern United States, a 500-year earthquake would result in maximum accelerations less than 0.10g. This is quite a bit smaller than 0.25g which would definitely affect the cost of at least the equipment.

d. Specification of just a peak "g value" is not complete. Additional information should be included concerning ground response spectra and methods of analyses (static or dynamic)

or tests for structures, systems, and components. 10 CFR 100, Appendix A, Section VI(a) is an example of what needs to be added. Use of the regulatory guide spectra is applicable for most sites, but some reference or information should be in 10 CFR 72.

9. Section 72.67 Criteria For Defining Potential Radiological Consequences

72.67(a) We believe by referencing 40 CFR 190.11 in the footnotes, the Commission infers an annual dose equivalent from this facility of 25 mrem total body, 75 mrem thyroid, and 25 mrem to other organs. Yet, in the "Supplementary Information" the ISFSI is considered as part of the uranium fuel cycle.

This appears to be a discrepancy in annual dose equivalent limits and should be clarified.

72.67(b) We suggest the phrase should read, "exceed 5 rem whole body dose in 2 hours."

10. Section 72.71 General Design Criteria

72.71(2) ii "Structures, systems, and components important to safety shall be designed to withstand the effects of natural phenomena such as earthquakes (with a horizontal ground motion acceleration of at least 0.25g), tornadoes (excluding tornado missiles),

lightning, hurricanes, floods, tsunami, and seiches without impairing their capability to perform safety functions."

a. The statement from the Supplementary Information lumped all extreme weather events together and implies that consideration for these events is not critical to the design; however, the requirements in the general design criteria specifically name extreme weather events to be considered in the design, except tornado generated missiles. This ambiguity needs to be resolved.

b. This statement appears to be inconsistent with Section 72.66 (b) in that "(with a horizontal ground motion acceleration of at least 0.25g)" does not allow for the possibility of using a lower site specific earthquake even if justified by adequate supporting data.

72.71(2) iii This section should be more specific as to which natural phenomena should be measured. Lightning, as listed above, is a natural phenomenon, but it would be inappropriate to be required to determine its intensity.

72.71(8) i A degradation of cladding should be defined in Section 72.3 as that which would cause the offsite accident dose limits to be exceeded.

Tornado missile impact could cause what might be considered as "gross ruptures" and "cladding degradation"; however, accident analyses may show the doses to be acceptable. Therefore, we suggest this item should be rewritten to allow clad failures of this type and magnitude, if the exposures are within the limits.

72.71(8) iii We suggest addition of the following at the end of this subsection,". . . to control airflow paths for proper airborne radioactivity routing and to provide for pressurization of the safety-related buildings."

72.71(10) We believe it should be permissible to abandon the control room in certain accident situations if it can be ensured that no controls or monitors are required from the control room during the period of evacuation or that the required controls or monitoring can be accomplished from another area that is habitable. A requirement for continuous control room occupation should not be necessary for the quasi-static nature of spent fuel storage. Also, it would be very expensive to design the control room for the postulated accident conditions (e.g. LCCA) that may exist at a site shared by a nuclear power plant.

72.71(12) It should be possible to allow for a fuel handling system failure (from a single failure) and postulated resultant criticality (e.g. seismically caused fuel basket drop) if the doses are within the prescribed limits.

72.71(13) We suggest adding after ". . . the neutron absorption by the water," the following phrase, "and rack structure." This is consistent with current design practice in which the rack structure is considered separate from a burnable neutron poison material and as a result would not have to have a special poison verification program (e.g. periodic removal and inspection) established (other than to ensure that unacceptable corrosion has not occurred).

72.71(17) This section implies that "as low as is reasonably achievable" amounts to termination of flow or retention of effluents. It is possible that releases during normal operation and accident conditions will not result in exposures that exceed site boundary limits and that the addition of features to terminate flow or retain effluents will not be cost-beneficial according to the methodology of Regulatory Guide 1.110. Therefore, we suggest you reword this section as follows:

(a) Add this statement to the end of the first sentence: ". . . or it shall be shown by appropriate analyses that releases to the environment during normal operations

(including anticipated occurrences) and during accident conditions are within acceptable exposure limits."

(b) Reword the last two sentences to read: "System provided to monitor the release of materials shall be designed to be periodically tested and calibrated and shall provide adequate alarm(s) upon detection of release levels in excess of approved operating limits. In all cases, it shall be shown that the capability exists to ensure that the concentrations and total quantities of radioactive materials in effluents can be maintained within the limits of Part 20 and are as low as is reasonably achievable."

11. Comments on Supplementary Information

1. It is stated in the Supplementary Information, "Aged spent fuel, having lost the short-lived radionuclides by decay, needs not have a high degree of protection from weather extremes, tornadoes, or tornado generated missiles."

The level of natural phenomena to be used as acceptable design bases should be made more explicit. Two methods appear satisfactory Preferably, these requirements should be specified on the basis of an acceptable recurrence interval for the events in order to account for regionally varying phenomena. For example, a 500-year tornado

wind might be specified. Alternately, plant design and review standardization could be further advanced by requiring specific design basis values (e.g. a 200-mph tornado wind) at the expense of overdesign for some phenomena in some regions.

2. Paragraph 16 of the Supplementary Information indicates that, "The proposed Part 72 includes an operational dose limit to any member of the general public of 25 mrem per year from the uranium fuel cycle . . ." The way the dose limits are included in the body of the proposed Part 72 (Section 72.67) does not appear to support the ". . . from the uranium fuel cycle . . ." portion of the above statement. See our comments on 72.67 for further discussion.

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(73)

DOCKET NUMBER
PROPOSED RULE PR-72 (43FR46309)

February 28, 1979

Secretary of the Commission
Docketing and Service Section
U. S. Nuclear Regulatory Commission
Washington, D. C. 20555

Dear Sir:

Enclosed are our comments on 10 CFR Part 72, "Storage of Spent Fuel in an Independent Spent Fuel Storage Installation (ISFSI)".

We appreciate having been given the opportunity to comment.

Yours very truly,

J. S. Loomis

J. S. Loomis, Head
Nuclear Safeguards &
Licensing Division

JSL:WTD:bc
Enclosure
Copies:
M. S. Turbak (1/1)
G. P. Wagner (1/1)
NSLD File 1B-4 (1/1)

Acknowledged by card 3/16/79

10 CFR Part 72

STORAGE OF SPENT FUEL IN AN INDEPENDENT

SPENT FUEL STORAGE INSTALLATION (ISFSI)

COMMENTS

1. In the Supplementary Information paragraphs of the 10 CFR Part 72, it is correctly stated that:

> "Aged spent fuel, having lost short lived radionuclides by decay, need not have a high degree of protection from weather extremes, tornadoes, or tornado generated missiles."

However, requirements of Section 72.71 (2) (ii) of the regulation are as follows:

> "Structures, systems and components important to safety shall be designed to withstand the effects of natural phenomena such as earthquakes (with a horizontal ground motion acceleration of at least 0.25 g), tornadoes (excluding tornado missiles), lightning, hurricanes, floods, tsunami, and seiches without impairing their capability to perform safety functions."

Here we see a discrepancy between the intent as expressed in the Supplementary Information and the general design criteria part of the regulation which calls for protection against such extreme environmental events as 0.25 g earthquake and tornadoes, etc. Sargent & Lundy believes that:

a) The design requirements for tornadoes be deleted. The ANS Working Groups 2.19 and 57.7 have concluded, based on the radiological risk study [Reference 1], that ISFSI need not be designed to resist the effects of tornadoes.

b) The horizontal ground acceleration of at least 0.25 g is overly conservative for a low risk facility. For an ISFSI located near nuclear power plants in most midwest and Eastern states, the design earthquake of 0.25 g would exceed the SSE for the nuclear power plants. This situation may raise undue questions in the mind of the public as to the safety of the nuclear power plant. We recommend: the 300-year earthquake acceleration should be selected for the design of ISFSI.

2. The extent of site investigation required in Subpart E - Siting Criteria is not compatible with the potentially low radiological risk from ISFSI as expressed throughout the proposed rules.

References

1. Sargent, I. H., "Independent Spent Fuel Storage Installation (ISFSI) Evaluation of Radiological Risk Associated with Low Probability External Events." Report prepared by Westec Services Inc., Fort Washington, PA. for Allied Chemical Corporation, Idaho Falls, Id 83401

NRC FORM 335 (7-77) U.S. NUCLEAR REGULATORY COMMISSION

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16. ABSTRACT (200 words or less)

This report covers the staff analyses and actions taken in response to comments received on the proposed rule, 10 CFR Part 72, "Licensing Requirements for the Storage of Spent Fuel in an Independent Spent Fuel Storage Installation" which was published October 6, 1978.

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