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U.S. ATOMIC ENERGY COMMISSION

REGULATORY GUIDE

DIRECTORATE OF REGULATORY STANDARDS

REGULATORY GUIDE 3.15

STANDARD FORMAT AND CONTENT OF LICENSE APPLICATIONS FOR STORAGE ONLY OF UNIRRADIATED REACTOR FUEL AND ASSOCIATED RADIOACTIVE MATERIAL

INTRODUCTION

Section 70.3, "License Requirements," of 10 CFR Part 70, "Special Nuclear Material," requires that an AEC license be obtained to receive and possess special nuclear material. The required content of a license application is described in general terms in Section 70.22 of 10 CFR Part 70. This guide presents a format and a description of content of an application for a license to authorize the receipt, possession, and storage of unirradiated fuel assemblies and associated radioactive materials for eventual use in a nuclear reactor that are acceptable to the AEC Regulatory staff.

STANDARD FORMAT AND CONTENT

PREFACE

This Standard Format and Content of License Applications for Storage Only of Unirradiated Reactor Fuel and Associated Radioactive Materials has been prepared by the AEC Regulatory staff to encourage a uniformity in such license applications and to provide detailed guidance as to the information that is to be provided in the applications. The information provided in the license application must be sufficient to permit a determination to be made of whether the applicant's proposed activities can be conducted without undue risk to the health and safety of the public and the common defense and security.

The Standard Format identifies the principal detailed information that the Regulatory staff needs for its evaluation of the application. In providing the information described in the Standard Format a narrative form of presentation should be used. Information contained in previous communications filed with the Commission by the applicant or the fuel supplier, including any information submitted in

connection with the construction permit or operating license application, may be incorporated into the application by reference, provided such references are clear and specific and the applicability of the referenced material is demonstrated. An application that is self-contained with respect to technical data can usually be processed more expeditiously than one requiring substantial referrals to other documents.

The application must provide the information required by §§ 70.22 and 70.24 (b) of Part 70. The applicant may request exemption from the requirements of § 70.24 as provided in § 70.24(d).

Eight copies of the application in letter form should be submitted. The application should be signed by a corporate officer but need not be notarized.

There is no license fee for a license issued for storage only of fuel to be used in a reactor for which a construction permit has been issued.

1.0 GENERAL INFORMATION

1.1 Reactor and Fuel

This section should provide information regarding the reactor and the fuel.

1. Identify the reactor, its geographic location, and the docket and construction permit numbers.
2. Describe the fuel assemblies, including materials of construction and dimensions.
3. State enrichment of uranium, maximum amounts of U-235, U-233, Pu, normal uranium, depleted uranium, and thorium per assembly, and the total weight of the assembly.
4. State the total number of fuel assemblies for which a license is requested and the total weight of U-235, U-233, Pu, normal uranium, depleted uranium, and thorium contained therein.

USAEC REGULATORY GUIDES

Regulatory Guides are issued to describe and make available to the public methods acceptable to the AEC Regulatory staff of implementing specific parts of the Commission's regulations, to delineate techniques used by the staff in evaluating specific problems or postulated accidents, or to provide guidance to applicants. Regulatory Guides are not substitutes for regulations and compliance with them is not required. Methods and solutions different from those set out in the guides will be acceptable if they provide a basis for the findings requisite to the issuance or continuance of a permit or license by the Commission.

Published guides will be revised periodically, as appropriate, to accommodate comments and to reflect new information or experience.

Copies of published guides may be obtained by request indicating the divisions desired to the U.S. Atomic Energy Commission, Washington, D.C. 20545, Attention: Director of Regulatory Standards. Comments and suggestions for improvements in these guides are encouraged and should be sent to the Secretary of the Commission, U.S. Atomic Energy Commission, Washington, D.C. 20545, Attention: Chief, Public Proceedings Staff.

The guides are issued in the following ten broad divisions:

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| 1. Power Reactors | 6. Products |
| 2. Research and Test Reactors | 7. Transportation |
| 3. Fuels and Materials Facilities | 8. Occupational Health |
| 4. Environmental and Siting | 9. Antitrust Review |
| 5. Materials and Plant Protection | 10. General |

1.2 Storage Conditions

This section should provide information regarding the storage conditions.

1. Provide scale drawings showing the areas where fuel assemblies will be stored and, if appropriate, inspected and channeled.
2. Describe the nature of activities conducted in adjacent areas and potential effects of such activities on the safety of storage.
3. Describe the storage facility structures, components, equipment, and systems (racks, cranes, inspection stands, etc.) and provide the design criteria used to assure structural integrity.
4. Describe the fire alarm and fire control systems.
5. Describe the controls for prevention of unauthorized access to areas where special nuclear material is stored.

1.3 Physical Protection

If the quantity of U-235 (contained in uranium enriched to 20% or more in the U-235 isotope), U-233, or plutonium to be possessed under the license is equal to or greater than the quantity specified in § 73.1 (b) of 10 CFR Part 73, "Physical Protection of Plants and Materials," the licensee must comply with the requirements of that regulation. Specific guidance for applicants regarding physical protection will be provided by the Commission.

1.4 Transfer of Special Nuclear Material

This section should provide the required information regarding the transfer of special nuclear material.

1. If the fuel fabricator or other organization is responsible for the shipment of fuel to the applicant, so state and identify the responsible shipper.
2. If the applicant is responsible for the packaging of fuel for delivery to a carrier for transport, information concerning the packaging and transfer should be provided in accordance with the provisions of 10 CFR Part 71, "Packaging of Radioactive Materials for Transport and Transportation of Radioactive Material Under Certain Conditions."

1.5 Financial Protection and Indemnity

Requirements for financial protection to be provided by licensees are set forth in 10 CFR Part 140, "Financial Protection Requirements and Indemnity Agreements." This section should provide the required information regarding financial protection.

1. Persons subject to Subpart B (private organizations) should furnish proof of financial protection (see § 140.15) in the amount required by § 140.13.
2. Persons subject to Subpart C (Federal agencies as defined in § 140.3(c)) are not required to furnish financial protection (see §§ 140.51 and 140.52).
3. Persons subject to Subpart D (nonprofit educational institutions) are not required to furnish financial

protection (see §§ 140.71 and 140.72). A statement should be submitted which certifies that the applicant is a nonprofit educational institution and that the license for which application is made will be used in connection with the conduct of educational activities.

Note: With respect to each category of licensee in Section 1.5 above, the Commission will execute and issue agreements of indemnity pursuant to the regulations in 10 CFR Part 140.

2.0 HEALTH AND SAFETY

2.1 Radiation Control

This section should provide information regarding the radiation control program.

1. Indicate the training and experience of person or persons responsible for radiation safety.
2. Describe the procedures and equipment for checking for contamination and the steps that will be taken if contamination is detected.
3. State the frequency and methods for calibration and testing of instruments.

2.2 Nuclear Criticality Safety

This section should provide the required information regarding nuclear criticality safety.

1. If fuel elements will be stored in shipping containers, so state and describe containers.
2. If elements will not be stored in their shipping containers, provide a nuclear safety analysis of the alternative storage method including a description of the physical means for maintaining safe-spacing of the elements (e.g., storage racks) and controls to be exercised over placing the elements in the storage location. In situations where nuclear safety depends on proper spacing, the integrity of storage fixtures should be analyzed from the standpoint of possible failure due to such factors as loading, shock, fire, corrosion, etc.
3. If nuclear safety is based on moderation control, sources of water (e.g., sprinkler systems) and the probability of flooding the storage area should be taken into account in the analysis. The nuclear safety analysis should demonstrate that fuel will be stored in such a manner that if the fuel were flooded and then drained, the fuel packaging would be such that water could not be retained around or within an assembly, or the results of water retention should be evaluated.
4. If elements will be removed from storage (e.g., for inspection purposes), describe in detail the activities to be performed and the controls to be exercised over removing and replacing the elements. The maximum number of fuel assemblies that will be out of approved shipping containers or approved storage racks at any one time should be stated, and this number justified, preferably on the basis that it is less than the minimum number required to achieve criticality under optimum conditions of spacing, moderation, and reflection. As an

alternative the applicant may justify the safety of a large number of assemblies on the basis of a nuclear safety analysis which includes the considerations in paragraphs 2 and 3 of this section.

5. If an exemption is not requested from the requirements of §70.24 as provided in § 70.24(d), the applicant should describe his plans for compliance with the requirements of §70.24 including instrumentation, location of detectors, and emergency procedures and drills.

2.3 Accident Analysis

This section should identify and evaluate potential accidents that could affect the safety of storage such as dropping fuel assemblies or other objects over the

storage area or dropping fuel assemblies at other places and the emergency plan of action if such events should occur.

3.0 OTHER MATERIALS REQUIRING AEC LICENSE

If source or special nuclear materials other than those contained in fuel assemblies or if byproduct materials are to be possessed at the storage site (e.g., fission chambers, startup sources, etc.), the following information should be provided.

1. Identify type and amount of material and conditions of storage.
2. Describe use if other than storage.
3. Describe radiation protection provisions.

REFERENCES

10 CFR Part 20 Standards for Protection Against Radiation

10 CFR Part 30 Rules of General Applicability to Licensing of Byproduct Material

10 CFR Part 40 Licensing of Source Material

10 CFR Part 70 Special Nuclear Material

10 CFR Part 71 Packaging of Radioactive Material for Transport and Transportation of Radioactive Material Under Certain Conditions

10 CFR Part 73 Physical Protection of Plants and Materials

10 CFR Part 140 Financial Protection Requirements and Indemnity Agreements