

10 CFR PART 71 REVISIONS AND CHANGE AUTHORITY FOR DUAL-PURPOSE PACKAGE CERTIFICATE HOLDERS

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ABSTRACT

The U.S. Nuclear Regulatory Commission (NRC) and the U.S. Department of Transportation (DOT) jointly published revisions to 10 CFR Part 71 [1] and 49 CFR Parts 172-173 [2], respectively, in January 2004 (69 FR 3698 and 69 FR 3632), with an effective date of October 1, 2004. These major revisions make United States' rules compatible with the International Atomic Energy Agency Safety Standards Series (TS-R-1), phase out some older package designs, redefine fissile material exemptions, and eliminate double containment for plutonium packaging. The rulemaking was highly successful in terms of interagency cooperation and included an unprecedented public participatory process.

One of the NRC-initiated issues was change authority for dual-purpose package certificate holders. It would have allowed certificate holders of certain dual purpose spent fuel storage and transport designs to make minor design changes to the transportation package without prior NRC approval. NRC received substantial comments on the proposed rule, including numerous comments on the proposed change authority rule. After further evaluation NRC determined that implementation of the proposed change authority rule would have resulted in new regulatory burdens and significant costs. Staff proposed removal of the proposed change authority rule from the final rule language.

In approving publication of the final rule, the Commission directed the NRC staff to obtain further input from stakeholders to resolve the proposed change authority rule. Subsequently, the NRC issued a discussion paper on March 15, 2004 (69 FR 12088), to facilitate discussions of the change authority rule and held a public workshop on April 15, 2004. Information collected from the public workshop as well as written comments received from the stakeholders were overwhelmingly against implementation of the change authority rule because the current Part 71 licensing process already provides a framework that allows licensees flexibility to make certain changes without prior NRC approval. It is less costly and less burdensome to make changes under the current Part 71 than under the proposed change authority rule. Consequently, the Commission approved the staff's proposal to withdraw the rulemaking on change authority.

RULEMAKING PROCESS

In the United States, the process of developing Federal regulations is known as rulemaking. Within the NRC, this process generally consists of a Proposed Rule and a Final Rule. The proposed rule is published in the *Federal Register* and typically contains

background information, an address for submitting comments, the length of the comment period (e.g., 30, 60, 75, or 90 days), an explanation of why the rule change is thought to be needed, and the proposed text of the regulations. For especially significant rules, one or more public meetings may be conducted to allow members of the public an opportunity to become more familiar with the issues and to make comments in person. Additionally, an Advanced Notice of Proposed Rulemaking (ANPR) may also be published in the *Federal Register* for important rules. The ANPR allows comments to be submitted well in advance of the proposed rulemaking stage. Once the comment period for the proposed rule has closed, the staff analyzes the comments and develops responses which are included in the final rule, makes changes, as appropriate, to the rule based on the comments, and forwards the Final Rule for final agency approval and publication in the *Federal Register*. While less complicated rules may go through this process in six to eight months, significant rules may take upwards of two to three years to complete their progression.

BACKGROUND FOR THE 10 CFR PART 71 REVISIONS

In June 2000, the NRC began its process to incorporate TS-R-1 into its regulations by (1) use of an enhanced public-participation process (consisting of a website and facilitated public meetings) to solicit public input on the Part 71 rulemaking, and (2) publication of the staff's Part 71 "Issues Paper" in the *Federal Register* (65 FR 44360) for public comment on July 17, 2000. The Issues Paper presented the NRC's plan to revise Part 71 and provided a summary for the changes under consideration. The NRC published the Issues Paper to begin an enhanced public-participation process designed to solicit public input on the Part 71 rulemaking. This process included establishing an interactive website and holding three facilitated public meetings in 2000.

After completion of the public meetings, the NRC developed a proposed rule. Oral and written comments received from the public meetings, by mail, and through the NRC website, in response to the Issues Paper, were considered in drafting the proposed changes. The NRC and DOT jointly published their proposed rules in the *Federal Register* on April 30, 2002 (67 FR 21389 and 67 FR 21327). A 90-day comment period was granted in order to allow ample time for the public and industry to review the proposed rule and provide comments. The comment period ended on July 29, 2002. Additionally, three public meetings were also conducted on the proposed rule in which both NRC and DOT participated. The Final Rules were published in the *Federal Register* on January 26, 2004 (69 FR 3698 and 69 FR 3632).

This paper briefly discusses the changes NRC made to 10 CFR Part 71 [1], which primarily bear upon Type B and fissile material transport. Many additional changes were made by the DOT and are not included in this discussion.

PAST REVISIONS TO NRC REGULATIONS BASED ON IAEA COMPATIBILITY

Recognizing that its international regulations for the safe transportation of radioactive material should be revised from time to time to reflect knowledge gained in technical and scientific advances and accrued experience, IAEA invited Member States to submit

comments and suggest changes to the regulations in 1969. As a result of this effort, the IAEA issued revised regulations in 1973 (Regulations for the Safe Transport of Radioactive Material, 1973 Edition, Safety Series No. 6). The IAEA also decided to periodically review its transportation regulations, at intervals of about 10 years, to ensure that the regulations are kept current. In 1979, a review of IAEA's transportation regulations was initiated that resulted in the publication of revised regulations in 1985 (Regulations for the Safe Transport of Radioactive Material, 1985 Edition, Safety Series No. 6).

The NRC and DOT also periodically revise U.S. regulations for the safe transportation of radioactive material to make them compatible with those of the IAEA and for other reasons. Compatibility in this regard means the NRC and DOT incorporate aspects of IAEA standards that make their respective regulations similar, but not necessarily identical to, the standards found in TS-R-1. In August 1983, the NRC published in the *Federal Register* (60 FR 35600; August 5, 1983) a final revision to Part 71, "Packaging and Transportation of Radioactive Material." That revision, in combination with a parallel revision of the hazardous materials transportation regulations of the DOT, brought U.S. domestic transport regulations into general agreement with the 1973 edition of IAEA transport regulations. The last revision to Part 71 was published on September 28, 1995 (60 FR 50248; September 28, 1995), to make Part 71 compatible with the 1985 IAEA Safety Series No. 6. The DOT also published its corresponding revision to Title 49 on the same date (60 FR 50291; September 28, 1995).

The last revision to the IAEA Safety Series No. 6 was named Safety Standards Series ST-1, published in December 1996, was revised with minor editorial changes in June 2000, and was redesignated as TS-R-1. This recent rulemaking effort by the NRC evaluated TS-R-1 for potential adoption in Part 71 regulations.

Historically, the NRC has coordinated its Part 71 revisions with DOT, because DOT is the U.S. Competent Authority for transportation of hazardous materials. "Radioactive Materials" are a subset of "Hazardous Materials" in Title 49 regulations under DOT authority. Currently, DOT and NRC co-regulate transport safety for radioactive material within or through the United States. NRC continued with its coordination efforts with the DOT in this rulemaking process.

SCOPE OF 10 CFRT PART 71 RULEMAKING

To start the TS-R-1 compatibility rulemaking, the NRC compared TS-R-1 to the previous version of Safety Series No. 6 to identify changes made in TS-R-1, and then identified affected sections of Part 71. Based on this comparison, the NRC identified eleven areas in Part 71 that needed to be addressed in this rulemaking process as a result of revisions in the IAEA standards.

The Part 71 rulemaking was coordinated with the DOT to ensure that consistent regulatory standards were maintained between NRC and DOT radioactive material transportation regulations and to ensure coordinated publication of the final rules by both agencies. In December 1999, the DOT published in the *Federal Register* (64 FR 72633;

December 28, 1999) an advance notice of proposed rulemaking regarding adoption of ST-1 in its regulations.

The following list indicates the IAEA-related issues that were considered in the revision to 10 CFR Part 71 [1]:

- Issue 1

Changing Part 71 to the International System of Units (SI) Only – The NRC did not adopt this provision. NRC will continue to use a dual-unit system (SI and customary) in Part 71.

- Issue 2

Radionuclide Exemption Values – The NRC adopted the radionuclide exemption values to assure continued consistency between domestic and international regulations for the definition of radioactive material. The individual radionuclide exemption values replaced the single 70 Bq/g value associated with transportation of radioactive material.

- Issue 3

Revision of A_1 and A_2 – The NRC adopted the new A_1 and A_2 values from TS-R-1. This is consistent with TS-R-1 and is based on IAEA's Q-System. Some exceptions for domestic transport of molybdenum-99 and californium-252 were also adopted.

- Issue 4

Fissile Uranium Hexafluoride Package Requirements – The NRC adopted a specific exception for UF_6 that supercedes the general exception that allows one to consider special features in criticality evaluations. The net effect is that the status quo will not change and water moderation will not be required for UF_6 packages that demonstrate special features (e.g., no contact between the valve body with the cylinder body under accident tests, and quality controls in place to demonstrate closure of the package prior to shipment). However, the exception adopted is limited to U-238 enrichments of 5% or less.

- Issue 5

Introduction of the Criticality Safety Index Requirements – The NRC adopted the Criticality Safety Index (CSI) for fissile material packages. The previously existing radiation transport index (TI) would remain unchanged. However, the current definition of Transport Index was split

to address the radiation control (TI) and the transport index for criticality control (CSI).

- Issue 6

Type C Packages and Low Dispersible Material – The NRC did not adopt the Type C package and Low Dispersible Material provision in Part 71. The NRC is not aware of a need for Type C packages for domestic commerce, thus no provision was viewed as needed in Part 71. However, NRC will be able to review revalidation requests to TS-R-1 requirements.

- Issue 7

Deep Immersion Test – The NRC adopted the deep immersion test requirement in Part 71 for packages with contents greater than $10^5 A_2$ quantities. Thus, an existing provision specific to irradiated fuel only was extended to very large quantity packages for all radioactive material.

- Issue 8

Grandfathering Previously Approved Packages – NRC adopted the provision to discontinue use of those packages approved to the Safety Series No. 6 (1967) standards. Use of these types of packages will discontinue 4 years after the effective date of the final rule (i.e., on October 1, 2008). Thus, those packages designated as B() will be phased out over time.

- Issue 9

Changes to Various Definitions – NRC adopted the definitions of Criticality Safety Index (CSI) from TS-R-1. Additionally, new definitions were added that are specific to the other Issues in the final rule.

- Issue 10

Crush Test for Fissile Material Package Design – The NRC adopted the crush test for fissile material packages, and eliminated the 1,000 A_2 provision for fissile materials.

- Issue 11

Fissile Material Package Design for Transport by Aircraft – The NRC adopted the provisions for transporting fissile material by air by incorporating the criticality evaluation for fissile material into Part 71.

Eight additional issues were considered in this rulemaking, although they were not associated with changes for compatibility with TS-R-1. These include:

- Issue 12

Special Package Authorizations – For one-time shipments of large components, the NRC adopted this provision. Applicants must ensure the package/shipment poses no threat to life, property, or the common defense and security

- Issue 13

Expansion of Part 71 Quality Assurance Requirements to Certificate of Compliance Holders – With the adoption of this issue, certificate holders and applicants for a Certificate of Compliance are added to Part 71, Subpart H. Additionally, NRC now has the ability to cite these parties with a Notice of Violation rather than a Notice of Nonconformance.

- Issue 14

Adoption of the American Society of Mechanical Engineers Code – This provision was not adopted in the Final Rule.

- Issue 15

Change Authority for Dual-Purpose Package Certificate Holders – No decision was made in the Final Rule. See discussion below for further information on the decision that was eventually made.

- Issue 16

Fissile Material Exemptions and General License Provision – With this issue, NRC adopted controls on fissile package mass limits combined with package fissile-to-nonfissile mass ratios. Additionally, licensees will now apply the CSI (Issue 5) for shipments of fissile material.

- Issue 17

Decision on Petition for Rulemaking on Double Containment of Plutonium – In the Final Rule, the NRC removed the double containment requirement for plutonium, but retained that for activity > 0.74 TBq (20 Curies), the material must be in solid form material.

- Issue 18

Contamination Limits as Applied to Spent Fuel and High Level Waste Packages – This issue was not adopted.

- Issue 19

Modifications of Event Reporting Requirements – Adoption of this issue conforms 10 CFR Part 71 to Part 50 event reporting schedules and reduces the reporting burden for 30 to 60 days.

As noted above, within the NRC January 26, 2004, Final Rule, the Commission did not reach a final decision on Issue 15 - Change Authority for Dual-Purpose Package Certificate Holders. Thus a separate discussion of this issue follows below.

CHANGE AUTHORITY FOR DUAL-PURPOSE PACKAGE CERTIFICATE HOLDERS

Change authority for dual-purpose package certificate holders was one of the eight additional issues identified in the 10 CFR Part 71 [1] rulemaking process for consideration. It was an NRC-initiated issue. The change authority rule would have created a new type of package certification, designated as Type B(DP), for dual-purpose (storage and transport) spent fuel casks. Holders of Type B(DP) certificates would have been allowed to make certain design changes to the transportation package without prior NRC approval. In general, the non-approved changes allowed would have been parallel to the 10 CFR 50.59 [3] process for reactors or the 10 CFR 72.48 [4] process for dry cask storage of spent nuclear fuel.

HISTORY OF CHANGE AUTHORITY FOR DUAL-PURPOSE PACKAGE CERTIFICATE HOLDERS

In 1999, 10 CFR Part 72 [4] (storage regulations) was revised for licensing spent fuel storage casks. The 1999 Part 72 rule expanded change authority provisions at 10 CFR 72.48 [4]. These provisions allowed licensees or certificate holders to make certain changes to the cask design or operations without prior NRC approval. This authority applies only to certain changes and does not apply to changes that would require a change in either technical specifications of a license or terms and conditions of a Certificate of Compliance (CoC).

At the same time, dual-purpose cask systems intended for spent fuel storage and transport were being designed and certificated under both Parts 71 and 72. One of the reasons for issuing separate CoCs under Parts 71 and 72 for dual-purpose cask systems is because Part 71 does not contain any similar provisions to permit a CoC holder to change the design of a Part 71 transportation package without prior NRC review and approval. This has created the situation where an entity holding both a Part 71 and Part 72 CoC would be allowed, under Part 72, to make certain changes to the design of a dual-purpose cask

without obtaining prior NRC approval. However, the entity would not be allowed, under Part 71, to make changes to the design of the same dual-purpose cask without obtaining prior NRC approval, even when the same physical component and change are involved (i.e., the change involves a component that has both storage and transportation functions). Consequently, analogous change authority provisions were considered for Part 71 and included as Issue 15 in the proposed revision of 10 CFR Part 71 [1] (67 FR 21389) rule which was published on April 30, 2002. It seemed logical at the time that since one cask could be used and certified under both Part 71 and Part 72 that similar provisions would be appropriate under both regulations. Issue 15 had included a proposal to create a new package designation to Part 71 for a dual-purpose spent fuel storage cask and transportation, namely, Type B(DP) transportation packages. It should be noted that Type B(DP) transportation packages would only have been applicable to dual-purpose packages that had already been certified under 10 CFR Part 72 [4]. Certificate holders of a Type B(DP) package would have been allowed change authority similar to that of Part 72. Requirements for a Type B(DP) package were contained in a new Subpart I to Part 71 in the proposed rule.

PROVISIONS OF CHANGE AUTHORITY FOR DUAL-PURPOSE PACKAGE CERTIFICATE HOLDERS

Proposed Subpart I specified requirements for applying for a Type B(DP) package approval, the contents of the applications, and the package description and evaluation. The proposed § 71.153 in Subpart I would require the application for a Type B(DP) package to include two parts. The first part, specified in the proposed § 71.153(a), is a package application which is the same as the application requirements currently in effect for a Type B(U) package, including essentially the same package evaluation and performance standards. The second part, specified in the proposed § 71.153(b), is a new safety analysis report that among other things includes an analysis of potential accidents, package response to these potential accidents, and any consequences to the public. In addition, to ensure consistency with Part 72, certificate holders for Type B(DP) packages were to be required to submit, and periodically update, a Final Safety Analysis Report (FSAR) describing the package's design. NRC would also have to review and approve a methodology in the FSAR. The applicant would not be able to change that methodology unless either it is approved by the NRC, or the changes provided equivalent or more conservative results. The cask would also have to be evaluated for its use and life over a 20-year period. Last, but not the least, certificate holders for the Type B(DP) package would have to describe those systems, structures, and components (SSC) that are important to safety in the FSAR.

CONCERNS WITH IMPLEMENTATION OF PROPOSED SUBPART I

The requirements in the proposed Subpart I represented a significant departure from the standard Part 71 package application (as described in § 71.153(a)) in that an applicant would have had to assess potential accidents and their consequences to the public. Currently, an applicant for the standard Part 71 transportation package has to demonstrate either by test or analysis, that a package design can withstand the mechanical and thermal

loading imposed by normal and accident conditions and still meet specific acceptance criteria. These conditions have been internationally accepted and have been shown to encompass spent fuel casks performance in severe accidents. They do not rely on a specific mode of transport or a specific location. Applicants need not assess environmental impacts as with Part 72 facilities, such as pathway analysis of radioactive material releases. Part 71 has an acceptance standard for release from a package after the cumulative effects of performance tests. As long as the cask meets the acceptance standards, applicants do not have to consider additional scenarios such as transportation accidents along particular rail routes or how a particular package would respond to every accident that could occur, etc. The proposed § 71.153(b) in Subpart I or the second part of the application, on the other hand, would have required an applicant to perform an independent analysis of potential transportation accidents specific to that design and plans for use; project package responses to “real world” transportation accidents; and determine the consequences to public from such accidents. The types of information needed for the transportation accident analysis would have included population densities by route; highway, vessel, and railway accident rates; and cask and vehicle performance in collisions and fires. This information may not be readily available, and could require significant expenditures for both applicants to produce this information and for the NRC to develop guidance documents, as well as to review the information.

In order to take advantage of the change authority provided in the proposed Subpart I, certificate holders of Type B(DP) packages would have to perform a documented evaluation to demonstrate that “changes” would not result in the increase of frequencies and consequences of potential “real world” transportation accidents or the likelihood and consequences of a malfunction of structures, systems, and components (SSCs) important to safety; or raise the possibility of an unevaluated accident or malfunction. To do this, the following items would have to be developed by the applicant: 1) the probabilities of those accidents analyzed under § 71.153(b); 2) a definition of the SSC important to safety in the package; 3), a definition of the design basis limit for a fission product barrier; and, 4) a baseline of the methods of evaluation used in establishing the design basis because an applicant can not deviate from methodology used in establishing the design basis. Since these items and the requirements of § 71.153(b) would have introduced additional, new requirements for the certificate holders for Type B(DP) packages, NRC concluded that implementation of proposed Subpart I would have resulted in new regulatory burdens and costs which could be significant, and that these costs were not fully considered in developing the proposed Subpart I.

CHANGES CURRENTLY AUTHORIZED UNDER PART 71

In addition to these concerns, the NRC recognized that the current Part 71 licensing process already provides a framework that allows licensees flexibility to make certain changes without prior NRC approval. The licensee can maximize such flexibility by writing Safety Analysis Reports that focus on the design features necessary to meet the regulatory requirements of Part 71. Typically, the NRC CoC references design drawings, specification of the authorized contents, operating procedures, and maintenance commitments. These drawings and documents identify the design and operational

features that are important for the safe performance of the package under normal and accident conditions. Therefore, the drawings and documents need to have sufficient detail to identify the package accurately and to provide an adequate basis for its evaluation. However, when licensees include features that do not contribute to the ability of the package to meet the performance standards in Part 71 in drawings and documents, they would limit their flexibility to make changes without prior NRC approval.

INPUT FROM STAKEHOLDERS

As a result of the above considerations, the NRC issued a discussion paper on March 15, 2004 (69 FR 3632) to facilitate discussions of the change authority rule and held a public workshop on April 15, 2004 to discuss the same proposed rule. The April 15, 2004, public workshop was attended by approximately 100 persons and involved presentations by NRC staff, as well as roundtable discussions involving representatives from industry, states, and public interest groups.

Information collected from the public workshop, as well as written comments received from the stakeholders after the workshop, were generally against implementation of the change authority rule. Only one commenter expressed support for the as-proposed rule. These comments differed significantly from the comments received before the discussion paper and workshop. NRC staff believes that the discussion paper and workshop were very successful in facilitating informed viewpoints from the stakeholders. There were some comments that suggested alternatives that were outside the scope of the proposed rule.

The major objection against implementation of the proposed Subpart I was that the proposed Subpart I would impose a substantial cost and burden on the dual-purpose cask vendors without a commensurate potential benefit. Subpart I, as proposed, would have required licensees to perform a fairly extensive and expensive analysis so that some day they may make minor changes to the cask design without prior NRC approval. However, information such as the transport routes and population distributions along the transport routes on which a specific design is intended to be used are required to evaluate potential accidents, package response, and consequences to the public as specified in the proposed Subpart I. Since this information is not readily available, stakeholders believe that it could require significant expenditures on the part of the applicant to produce such information. Some commenters thought that there was a "work-around" for this issue, in that a set of "standard" accidents could be developed. However, this was also recognized as resource-intensive, in terms of developing guidance. In addition, stakeholders also believe that, because of the lack of guidance on requirements that are new in the proposed Subpart I, NRC review would be time-consuming and thus, expensive. By comparison, most stakeholders believed that making changes under the current Part 71 would be a less costly and less burdensome path to go forward than the proposed change authority rule. Their experience indicated that for changes that do not significantly affect the design bases of the package, amendments can often be made in a timely fashion and do not require substantial resource expenditures. This view is consistent with the NRC discussion paper published for the workshop. Furthermore, experience from the dual-

purpose cask vendors also indicated that many changes made to a dual-purpose cask under the provisions of 10 CFR §72.48 [4] (the change authority of Part 72), may also be made without prior NRC approval in the current regulatory structure of Part 71, without explicit change authority.

REGULATORY SOLUTION AND PATH FORWARD

Based on the NRC evaluation and stakeholder input, the NRC has determined to withdraw the change authority provision. In a Commission paper dated October 1, 2004 (SECY-04-0178), the staff proposed to the Commission to approve the withdrawal of change authority provisions provided in proposed Subpart I. To supplement the withdrawal and to better communicate existing flexibility, the staff also proposed to develop Interim Staff Guidance (ISG) to inform the NRC staff reviewers and stakeholders about the flexibility that is available under the current provisions of Part 71. An ISG is an addendum, to the Standard Review Plan (SRP) for Parts 71 and 72 reviews, which will eventually be incorporated into the SRP.

The Commissioners have agreed with the October 1, 2004, staff proposal to permanently withdraw the proposed Subpart I. In a November 19, 2004, staff requirement memorandum (SRM), the Commission directed the staff to publish a Federal Register notice announcing withdrawal of the proposed Subpart I of 10 CFR Part 71 [1]. The SRM further directed the staff to develop ISG to inform the NRC staff reviewers and stakeholders about the flexibility that is available under the current provisions of Part 71 as proposed in the October 1, 2004, Commission paper .

SUMMARY

The revisions to 10 CFR Part 71 [1] and 49 CFR Parts 172-173 [2] rules have demonstrated the openness in the NRC regulatory process. Stakeholders are informed and involved in the regulatory process. The April 15, 2004, workshop was one of the forums used to involve stakeholders where the NRC and DOT staff presented the final rule changes to help facilitate communication on any implementation questions. The workshop was heavily attended and is viewed by NRC staff as a very successful meeting that facilitated peer-to-peer dialogue on rule implementation. Discussions at the workshop, collection of comments from users, and an internal review of the published final rule, resulted in the publication of an errata rulemaking by both NRC and DOT, to correct editorial and consistency problems in the Federal Register publication. The decision-making process for withdrawal the proposed change authority for dual-purpose package certificate holders has also demonstrated NRC's commitment to improve efficiency and effectiveness of the NRC's regulations. The NRC strives to impose only those requirements that are necessary to achieve the agency mission of protecting the public health and safety, and the environment. When self-assessments and feedback from stakeholders identify regulations or proposed regulations that do not affect safety or unnecessarily impede licensees and applicants, NRC may take actions to review those regulations and determine if there is a less burdensome alternative.

REFERENCES

1. United States Government, Office of the Federal Register, Code of Federal Regulations, Title 10, Energy, Part 71, "Packaging and Transportation of Radioactive Materials," United States Government Printing Office, Washington, DC, January 1, 2004 (the new 10 CFR Part 71 effective October 1, 2004, is expected to be published in January 1, 2005).
2. United States Government, Office of the Federal Register, Code of Federal Regulations, Title 49, Transportation, Part 172 , "Hazardous Materials Table, Special Provisions, Hazardous Materials Communications, Emergency Response Information, and Training Requirements," and Part 173, "Shippers—General Requirements for Shipments and Packagings," United States Government Printing Office, Washington, DC, October 1, 2003 (the new 49 CFR effective October 1, 2004, is expected to be published in October 1, 2005).
3. United States Government, Office of the Federal Register, Code of Federal Regulations, Title 10, Energy, Part 50, "Domestic Licensing of Production and Utilization Facilities," United States Government Printing Office, Washington, DC, January 1, 2004.
4. United States Government, Office of the Federal Register, Code of Federal Regulations, Title 10, Energy, Part 72, "Licensing Requirements for The Independent Storage of Spent Nuclear Fuel and High-Level Radioactive Waste," United States Government Printing Office, Washington, DC, January 1, 2004.