

NUCLEAR REGULATORY COMMISSION

10 CFR Part 50

[Docket No. PRM-50-112; NRC-2015-0213]

**Determining Which Structures, Systems, Components and Functions are
Important to Safety**

AGENCY: Nuclear Regulatory Commission.

ACTION: Petition for rulemaking; denial.

SUMMARY: The U.S. Nuclear Regulatory Commission (NRC) is denying a petition for rulemaking (PRM), dated July 20, 2015, and supplemented on August 31, 2015, submitted by Kurt T. Schaefer (the petitioner). The petition was docketed by the NRC on September 4, 2015, and was assigned Docket No. PRM-50-112. The petitioner requested that the NRC amend its regulations to define the term “important to safety” and provide a set of specific criteria for determining which structures, systems, components, and functions are “important to safety.” The NRC is denying the petition because the issue raised does not involve a significant safety or security concern, and the existing NRC regulations, guidance, and procedures adequately address the issue raised in the PRM. A prescriptive approach that defines criteria for structures, systems and components, and functions “important to safety” would likely have unintended consequences for the licensing bases of the current operating fleet and could reduce operational flexibility without providing a clear safety benefit. The NRC’s current regulations continue to provide for the adequate protection of public health and safety, environmental protection, and to promote the common defense and security.

DATES: The docket for the petition for rulemaking PRM-50-112 is closed on **[INSERT DATE OF PUBLICATION IN THE *FEDERAL REGISTER*]**.

ADDRESSES: Please refer to Docket ID NRC-2015-0213 when contacting the NRC about the availability of information for this action. You may obtain publicly-available information related to this action by any of the following methods:

- **Federal Rulemaking Website:** Go to <https://www.regulations.gov> and search for Docket ID NRC-2015-0213. Address questions about NRC dockets to Dawn Forder; telephone: 301-415-3407; email: Dawn.Forder@nrc.gov. For technical questions, contact the individual listed in the FOR FURTHER INFORMATION CONTACT section of this document.

- **NRC's Agencywide Documents Access and Management System (ADAMS):** You may obtain publicly-available documents online in the ADAMS Public Documents collection at <http://www.nrc.gov/reading-rm/adams.html>. To begin the search, select "Begin Web-based ADAMS Search." For problems with ADAMS, please contact the NRC's Public Document Room (PDR) reference staff at 1-800-397-4209, 301-415-4737, or by email to pdr.resource@nrc.gov. For the convenience of the reader, instructions about obtaining materials referenced in this document are provided in the "Availability of Documents" section.

- **Attention:** The PDR, where you may examine and order copies of public documents, is currently closed. You may submit your request to the PDR via email at pdr.resource@nrc.gov or call 1-800-397-4209 between 8:00 a.m. and 4:00 p.m. (EST), Monday through Friday, except Federal holidays.

FOR FURTHER INFORMATION CONTACT: Martha Barillas, Office of Nuclear Reactor Regulation, telephone: 301-415-2760, email: Martha.Barillas@nrc.gov. U.S. Nuclear Regulatory Commission, Washington DC 20555-0001.

SUPPLEMENTARY INFORMATION:

I. The Petition

Section 2.802 of title 10 of the *Code of Federal Regulations* (10 CFR), “Petition for rulemaking—requirements for filing,” provides an opportunity for any person to petition the Commission to issue, amend, or rescind any regulation. On July 20, 2015, the NRC received a petition for rulemaking (PRM) from Mr. Kurt T. Schaefer (the petitioner), which was supplemented on August 31, 2015. The NRC assigned this PRM the docket number of PRM-50-112. On January 6, 2016 (81 FR 410), the NRC published a notice of docketing and request for comment in the *Federal Register*. The petitioner requested that the NRC amend its regulations in § 50.2, “Definitions,” of 10 CFR part 50, “Domestic Licensing of Production and Utilization Facilities,” to include a definition with specific criteria for determining what structures, systems, components (SSCs) and functions are “important to safety.” The petitioner stated that “[t]he nuclear industry is on its third generation of engineers and regulators with no clear definition of what is ‘important to safety’” and that “there is no excuse for not having a concise set of functional criteria defining such a used term.”

The petitioner noted that the “NRC staff’s current position is that SSCs ‘important to safety’ consists of two subcategories, ‘safety-related’ and ‘non-safety-related.’” The petitioner stated that while safety-related SSCs are defined in § 50.2, “the regulations do

not provide an equivalent set of criteria for determining which non-safety-related SSCs are ‘important to safety.’” The petitioner noted that there is very little agreement about what “non-safety-related structures, systems and components (SSCs) should be categorized as ‘important to safety.’” Furthermore, the petitioner stated that “there is only a general description of what is ‘important to safety’ in 10 CFR part 50, appendix A, [‘General Design Criteria for Nuclear Power Plants,’] and the regulations do not provide a specific set of criteria for determining which SSCs are ‘important to safety.’” The petitioner stated that “NRC Generic Letter (GL) 84-01, “NRC use of the terms, ‘Important to Safety’ and ‘Safety-Related’,” and its attachments, clarified the NRC staff’s use of these terms, but did not “provide a specific set of criteria for determining which non-safety-related SSCs are to be categorized as ‘important to safety.’” The petitioner stated that, “there are regulations, regulatory guidance and routinely generated regulatory evaluations, based on SSCs with no specific criteria that determines what are the applicable SSCs.” In the petition, the petitioner recommended text and specific criteria for the definition of “important to safety.”

II. Public Comments on the Petition

On January 6, 2016, the NRC requested comments from the public on the petition. As part of the request for public comments, the NRC also requested (1) any new information and analysis that could provide the basis for changes to the NRC’s regulations, (2) specific examples where the lack of a formal NRC definition of the terms “safety related” and “important to safety” directly resulted in adverse consequences to external stakeholders, (3) the regulations that would require revision to reflect the new definition and the nature (objective) of the revision for each provision of the regulation

that must be revised, and (4) any guidance needed to implement the new definition, including what the scope should be, level of detail, and content of the guidance.

The comment period closed on March 21, 2016, and the NRC received 12 comment submissions containing a total of 102 individual comments. A *comment submission* is a communication or document submitted to the NRC by an individual or entity with one or more individual *comments* addressing a subject or issue. Seven of the public comment submissions opposed the petition, three supported the petition, and two were responses from the petitioner to other comment submissions. Three of the public comment submissions were received after the end of the comment period, but the NRC considered them in the comment analysis. All of the comment submissions received on this petition are available as indicated in the “Availability of Documents” section of this document and on <https://www.regulations.gov> under Docket ID NRC-2015-0213.

The NRC addressed the comments in a separate document, “NRC Response to Public Comments for PRM-50-112,” as listed in the “Availability of Documents” section of this document. A brief summary of these comments and the NRC’s responses is included here.

Several comment submissions opposing the petition indicate that nuclear power plant applicants and licensees have an existing understanding of the safety classification terms as applied to their nuclear power plants and do not see the need for a specific definition of “important to safety” for SSCs at all nuclear power plants in § 50.2. Several comment submissions opposing the petition also assert that the specification of a definition of “important to safety” in § 50.2 might result in confusion among nuclear power plant applicants and licensees over the classification of the SSCs at their nuclear power plants. Several comment submissions opposing the petition also indicate that significant costs might be involved with the development and implementation of a

definition of “important to safety” for SSCs at all nuclear power plants that would outweigh the benefits of such an effort.

Several comment submissions supporting the petition suggest that a specific definition for “important to safety” in § 50.2 for SSCs at all nuclear power plants would resolve uncertainty regarding the scope of SSCs classified as “important to safety” and help improve safety at nuclear power plants. Comment submissions supporting the petition also stated that a specific definition of “important to safety” in the NRC regulations would help reduce cost for nuclear power plant applicants and licensees by providing regulatory certainty. Several comment submissions supporting the petition recommend that a definition of “important to safety” should be consistent or compatible with the safety classification methods developed, or under development, by other organizations.

III. Reasons for Denial

The NRC is denying the petition because the issue raised in the petition does not involve a significant safety or security concern and because the existing NRC regulations, guidance, and procedures adequately address the issue raised in the petition. More specifically, the NRC is denying the petition because the proposed rulemaking effort to define “important to safety” in § 50.2 for SSCs and their functions at all nuclear power plants does not have a safety benefit for nuclear power plants under 10 CFR part 50 and part 52, “Licenses, Certifications, and Approvals for Nuclear Power Plants.” The NRC maintains that a strong regulatory framework including a clear understanding of regulatory terminology is important to provide adequate protection of public health and safety. The NRC’s current regulatory framework is supported by the

well-established understanding of terminology such as “important to safety,” as documented in regulatory guidance, policy, and licensee and applicant documentation.

The NRC agrees with the petitioner that a specific definition of “important to safety” for SSCs and their functions at all nuclear power plants is not provided in § 50.2. As noted by the petitioner, the history of the terms “important to safety” and “safety-related” has not been straightforward. However, as discussed, despite the complicated regulatory history surrounding the use of the term “important to safety,” the NRC is denying the petition. In sum, a rulemaking effort to define “important to safety” in § 50.2 for SSCs at all nuclear power plants does not present a safety benefit for nuclear power plants under 10 CFR parts 50 and 52 and the existing regulatory framework provides adequate protection.

Historic Guidance and Rulemaking Activity on Defining “Important to Safety”

The evolution of the different uses of safety classification terms at the NRC has a lengthy, complicated regulatory history. For example, the meaning of “important to safety” and “safety-related” was a topic of discussion following the accident at the Three Mile Island, Unit 2 (TMI-2) nuclear power plant in 1979 and during the subsequent litigation. Specifically, in the Atomic Safety and Licensing Appeal Board Decision in the Matter of Metropolitan Edison Company, et al, (Three Mile Island Nuclear Station, Unit No. 1) dated May 26, 1983 (ALAB-729, 17 NRC 814 (1983)), the Appeal Board confirmed the distinction between the use of the terms “important to safety” and “safety-related” during the litigation of the restart of the TMI-1 nuclear power plant.

After the TMI-2 accident evaluation, numerous NRC documents addressed the distinction between the “important to safety” and “safety-related” classifications of SSCs at nuclear power plants. For example, the NRC documented its position on the meaning of “important to safety” in a staff memorandum dated November 20, 1981, from Harold

R. Denton, Director, Office of Nuclear Reactor Regulation (NRR), to all NRR personnel. This memorandum specifies the proper use of “important to safety” and “safety-related” by the NRC staff. Specifically, the 1981 Denton memorandum states that “‘important to safety’ encompasses the broad class of plant features, covered (not necessarily explicitly) in the General Design Criteria, that contribute in [an] important way to safe operation and protection of the public in all phases and aspects of facility operation (i.e., normal operation and transient control as well as accident mitigation).” The 1981 Denton memorandum further states that “important to safety” includes “safety-related” as a subset. Subsequently, in December 1983, Harold R. Denton wrote a letter to the Utility Safety Classification Group restating the position taken in the 1981 memorandum and explaining the historical acceptance of the distinction between these terms. The 1983 Denton letter also stated that “NRC regulatory jurisdiction involving a safety matter is not controlled by the use of terms such as ‘safety related’ or ‘important to safety.’” Generic Letter 84-01 reiterated this distinction in terminology to nuclear power plant applicants and licensees and included the 1983 Denton letter as an enclosure.

Relatedly, in NUREG-0660, Volume 1, “NRC Action Plan Developed as a Result of the TMI-2 Accident,” dated May 1980, the NRC staff proposed numerous TMI-2 Action Plan items to provide assurance of nuclear power plant safety, including Item I.F, “Quality Assurance,” to improve the quality assurance (QA) program for design, construction, and operations to provide greater assurance that plant design, construction, and operational activities are conducted in a manner commensurate with their importance to safety. In Item I.F.1, “Expand QA list,” the NRC staff proposed the development of guidance for licensees to expand their QA lists to cover equipment “important to safety” and rank the equipment in order of its importance to safety. NUREG-0737, “Clarification of TMI Action Plan Requirements,” dated November 1980,

provided the list of TMI-2 Action Plan items that were subsequently approved by the Commission for implementation (which did not include Item I.F.1). As noted in NUREG-0933, "Resolution of Generic Safety Issues," Section 1, "TMI Action Plan Items," Item I.F.1 was considered resolved, with any further guidance to be addressed through the normal processes. Therefore, the list and ranking of "important to safety" equipment proposed in Item I.F.1 was not created because the NRC determined it was not needed at the time.

In Memorandum and Order (CLI-84-9), "In the Matter of Long Island Lighting Company (Shoreham Nuclear Power Station, Unit 1)," June 5, 1984, the Commission recognized that "the history of the use of the terms 'important to safety' and 'safety-related' is tortuous and somewhat inconsistent." The Commission directed the NRC staff to proceed with rulemaking on the use of the terms "important to safety" and "safety-related." In SECY-85-119, "Issuance of Proposed Rule on the Important to Safety Issue," dated April 5, 1985, the NRC staff provided to the Commission a proposed rule to define "important to safety" for SSCs at nuclear power plants. In the staff requirements memorandum (SRM) for SECY-85-119, "Issuance of Proposed Rule on the Important-to-Safety Issue," dated December 31, 1985, the Commission disapproved SECY-85-119 and provided direction to NRC staff for redrafting a proposed definition of "important to safety." In SECY-86-164, "Proposed Rule on the Important to Safety Issue," dated May 29, 1986, the NRC staff provided a revised version of a proposed definition of "important to safety" for Commission consideration, and also reviewed the existing use of this term in the NRC's regulations. By June 1987, three of four Commissioners voted 2-1 to disapprove the proposed rule, but no further action was taken. As documented in a memorandum dated June 24, 1991, from Samuel J. Chilk, SECY closed SECY-86-164 on the basis that informal discussions between the staff in

the NRC Office of the Executive Director for Operations (OEDO) and Office of the Secretary indicated that there may no longer be any need for the Commission to address the issues in SECY-18-164. Since that time, the NRC staff has not engaged in further rulemaking action to define “important to safety.”

Use of “Important to Safety” in NRC Regulations

The term “important to safety” first appeared in appendix A to 10 CFR part 50 published as a final rule in the *Federal Register* on February 20, 1971 (36 FR 03255). However, when appendix A and appendix B, “Quality Assurance Criteria for Nuclear Power Plants and Fuel Reprocessing Plants,” to 10 CFR part 50 were developed in the late 1960s and early 1970s, the NRC focused its regulatory activities on a deterministic approach for safety-related SSCs, and allowed licensees to address much of the design and treatment of other SSCs in licensee documents. For example, final safety analysis reports (FSARs) for nuclear power plants typically have described some SSCs that are “important to safety” but are not classified as “safety-related” and that have a reduced amount of NRC regulatory treatment compared with “safety-related” SSCs. Over time, the NRC developed regulations that address SSCs beyond those classified as “safety-related.” For example, the NRC specifies requirements for a wide range of SSCs, including SSCs that are important to safety but not classified as “safety-related”, in § 50.49, “Environmental qualification of electric equipment important to safety for nuclear power plants;” § 50.62, “Requirements for reduction of risk from anticipated transients without scram (ATWS) events for light-water-cooled nuclear power plants;” § 50.63, “Loss of all alternating current power,” and § 50.65, “Requirements for monitoring the effectiveness of maintenance at nuclear power plants.”

In addition, the term “important to safety” appears in several reactor fire protection regulations. The NRC regulations in § 50.48, “Fire protection,” require that

each operating nuclear power plant have a fire protection plan that satisfies General Design Criterion (GDC) 3, “Fire protection,” of appendix A to 10 CFR part 50. GDC 3 requires that SSCs that are “important to safety” be designed and located to minimize, consistent with other safety requirements, the probability and effect of fires and explosions. Section II.A of appendix R, “Fire Protection Program for Nuclear Power Facilities Operating Prior to January 1, 1979,” to 10 CFR part 50 in states that the fire protection program shall extend the concept of defense-in-depth to fire protection in fire areas that are “important to safety,” with the objectives of dealing with prevention, detection, and protection.

For conformance with fire protection requirements, § 50.48(c) permits operating plants to voluntarily transition their deterministic fire protection program to one based on risk-informed and performance-based requirements using National Fire Protection Association Standard (NFPA) 805, “Performance-Based Standard for Fire Protection for Light Water Reactor Electric Generating Plants,” 2001 Edition. Section 50.48(c) also establishes an alternative regulatory structure for fire protection and permits licensees to voluntarily adopt NFPA 805, which would allow licensees the option to use a risk-informed, performance-based approach to change the deterministic fire protection configurations and procedures of their operating reactors. Licensees adopting a risk informed approach for conformance with fire protection programs did not change the safety classification of their equipment – rather, they maintained fire protection areas that are considered “important to safety” (deterministic approach) within the scope of the program. Almost all nuclear power plants that transitioned to the § 50.48(c) regulatory structure performed plant modifications that resulted in a decrease in the plant core damage frequency. If the modifications required installation of non-safety-related equipment, the additional modifications were considered “important to safety,” as the

equipment was required to safely shutdown the plant following a fire event but not required to mitigate the consequences of an accident.

More recently, the NRC regulations in § 50.69, “Risk-informed categorization and treatment of structures, systems and components for nuclear power reactors,” allow nuclear power plant licensees to request, in a license amendment, the implementation of risk-informed categorization and treatment of SSCs at their nuclear power plants. The scope of § 50.69 extends beyond safety-related SSCs and addresses the wider range of SSCs, i.e., SSCs that would be considered “important to safety” at the specific nuclear power plant. Further, the NRC requires in § 50.55a(b)(3)(iii)(D) that certain licensees assess the operational readiness of pumps, valves, and dynamic restraints within the scope of the Regulatory Treatment of Non-Safety Systems (RTNSS) that are not classified as safety-related, but provide defense-in-depth for new reactors with passive cooling systems (such as the AP1000 reactor design) (see 82 FR 32934; July 18, 2017). The RTNSS components in new reactors with passive cooling systems would be considered “important to safety” at those specific nuclear power plants.

In sum, these issues provide additional examples of the consistent understanding and treatment of “important to safety” in the existing regulatory framework, and illustrate how licensees and applicants may identify the safety characterization of SSCs in their documentation without a set of prescriptive criteria for determining which SSCs are important to safety. As illustrated in the above discussion, the NRC has over time addressed SSCs classified as “important to safety” in different ways in its requirements, and doing so, has established a framework that uses this safety classification terminology without the need for a prescriptive definition in § 50.2.

Basis for Denial

Based on many years of experience with the current safety classification

terminology, nuclear power plant applicants and licensees under 10 CFR part 50 and part 52 have an established understanding of the importance to safety for all SSCs in nuclear power plants as documented in their specific licensing basis documentation (e.g., Final Safety Analysis Reports or Design Control Documents). In addition, the NRC and licensees have a common understanding of the foundation of what constitutes “important to safety” as demonstrated in the guidance documents and generic communications discussed above (e.g., the 1981 memorandum from Harold R. Denton to the NRR staff, 1983 letter from Harold R. Denton to the Utility Safety Classification Group, and Generic Letter 84-01). Moreover, the NRC reviews safety classification information in applications on a case-by-case basis. The petitioner has not provided, and NRC staff has not identified, a safety reason to create criteria, either prescriptive or performance based, defining “important to safety” in § 50.2.

As a result, a rulemaking effort to add a definition for “important to safety” for SSCs and their functions in § 50.2 does not have a safety benefit for nuclear power plants under 10 CFR parts 50 and 52. Further, the NRC’s current regulatory framework is supported by the well-established understanding and application of terminology such as “important to safety,” as documented in regulatory guidance, policy, and licensee and applicant documentation.

IV. Availability of Documents

The documents identified in the following table are available to interested persons through one or more of the following methods, as indicated.

DOCUMENT	ADAMS ACCESSION NO. / FEDERAL REGISTER CITATION
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Generic Letter 1984-01, "NRC Use of the Terms, 'Important to Safety' and Safety Related'," dated January 5, 1984	ML031150515
Letter dated December 19, 1983, from Harold R. Denton, Director, Office of Nuclear Reactor Regulation, to T.S. Ellis, III, Esq., on behalf of the Utility Safety Classification Group	ML17150A235
NUREG-0660, Volume 1, "NRC Action Plan Developed as a Result of the TMI-2 Accident," dated May 1980	ML072470526
NUREG-0737, "Clarification of TMI Action Plan Requirements," dated November 1980	ML051400209
NUREG-0933, "Resolution of Generic Safety Issues," Section 1, "TMI Action Plan Items"	https://www.nrc.gov/sr0933/
Staff memorandum dated November 20, 1981, from Harold R. Denton, Director, Office of Nuclear Reactor Regulation, to all NRR Personnel	ML111230453
SECY-85-119, "Issuance of Proposed Rule on the Important-To-Safety Issue," dated April 5, 1985	ML15322A002
SRM-SECY-85-119, "Issuance of Proposed Rule on the Important-To-Safety Issue," dated December 31, 1985	ML15322A003
SECY-86-164, "Proposed Rule on the Important-To-Safety Issue," dated May 29, 1986	ML15322A005
Memo from the Secretary of the Commission dated June 24, 1991, withdrawing the proposed rulemaking in SECY-86-164	ML15322A006
<i>Federal Register</i> Notice: PRM-50-112, Determining Which Structures, Systems, Components and Functions are Important to Safety, Petition for Rulemaking; Notice of Docketing and Request for Comment.	ML15266A002
PRM-50-112 Petition from Kurt Schaefer Determining Which Structures, Systems, Components and Functions are Important to Safety	ML15278A208
PRM-50-112 Supplement to Petition from Kurt Schaefer Determining Which Structures, Systems, Components and Functions are Important to Safety	ML15278A211
Memorandum and Order (CLI-84-9), "In the Matter of Long Island Lighting Company (Shoreham Nuclear Power Station, Unit 1)," June 5, 1984	ML20091K598

Three Mile Island Nuclear Station, Unit No. 1) dated May 26, 1983 (ALAB-729, 17 NRC 814 (1983))	ML16357A784
National Fire Protection Association Standard (NFPA)-805, "Performance-Based Standard for Fire Protection for Light Water Reactor Electric Generating Plants," 2001 Edition	https://www.nfpa.org/
Incorporation by Reference of American Society of Mechanical Engineers Codes and Code Cases (July 18, 2017)	82 FR 32934
NRC Responses to Public Comments for PRM-50-112	ML21123A223

The NRC may post materials related to this document, including public comments, on the Federal rulemaking website at <https://www.regulations.gov> under Docket ID NRC-2015-0213.

V. Conclusion

For the reasons cited in this document, the NRC is denying PRM-50-112. The petition did not present any significant new information or arguments that would warrant the requested amendment. Current requirements continue to provide for the adequate protection of public health and safety and to promote the common defense and security.

Dated: Month XX, 2021

For the Nuclear Regulatory Commission.

Annette L. Vietti-Cook,
Secretary of the Commission.