POLICY ISSUE
(Notation Vote)

SECY-00-0212

October 25, 2000

FOR: The Commissioners

FROM: William D. Travers /RA/
Executive Director for Operations

SUBJECT: REGULATORY GUIDE PROVIDING GUIDANCE AND EXAMPLES FOR IDENTIFYING 10 CFR 50.2 DESIGN BASES

PURPOSE:

To obtain the Commission's approval to publish Regulatory Guide (RG) 1.186 (Attachment 1).

SUMMARY:

The staff recommends that the Commission approve publication of RG 1.186, "Guidance and Examples for Identifying 10 CFR 50.2 Design Bases." RG 1.186 endorses Appendix B to the industry guideline document developed by the Nuclear Energy Institute (NEI), NEI 97-04, "Design Bases Program Guidelines," dated July 27, 2000 (Attachment 2), without exception. The staff believes that Appendix B to NEI 97-04 presents guidance and examples that are acceptable to the staff for determining what constitutes design bases information in accordance with 10 CFR 50.2.

BACKGROUND:

Part 50, "Domestic Licensing of Production and Utilization Facilities," Section 50.2, "Definitions," contains a definition of "design bases." Although the staff and the nuclear industry have agreed that it is important to understand what constitutes the design bases of a plant, there has been no agreement about the implementation of the definition in 10 CFR 50.2. The staff, in fact, has not been consistent in its implementation, as evidenced by the wide variance in the amount of information contained in licensee final safety analysis reports. In the mid-1980s, the staff conducted many system-specific engineering inspections and developed inspection findings that demonstrated that some licensees had not adequately maintained their design bases information as required by NRC regulation. In response to the problems identified during the NRC inspections and those identified by licensees, most reactor licensees initiated design bases reconstitution programs. These programs sought to identify missing design documentation and to selectively regenerate missing documentation.

In October 1990, the Nuclear Management and Resources Council (NUMARC) published its "Design Bases Program Guidelines," NUMARC 90-12. The staff concluded that these guidelines provided a useful standard framework for implementing design reconstitution programs. The guidelines briefly discussed the definition of "design bases information" but did not focus on it.

In 1996, the staff's findings during inspections and reviews began to identify broad programmatic weaknesses that resulted in design and configuration deficiencies at some plants. These design and configuration deficiencies had the potential to affect the operability of required equipment, raise unreviewed safety questions, or indicate discrepancies between the plant's updated final safety analysis report (UFSAR) and the as-built or as-modified plant or plant operating procedures. As a result of these findings, the staff issued a letter in accordance with 10 CFR 50.54(f) to all licensees requesting information to provide the NRC added confidence and assurance that the plants were operated and maintained within the design bases and any deviations were reconciled in a timely manner.

In addition to the § 50.54(f) letters and the inspection activities, the staff conducted lessons-learned reviews regarding Millstone and Maine Yankee. One of the conclusions of these reviews was that the definition of design bases should be clarified. In SECY-97-205, dated September 10, 1997, the staff provided the Commission with several options for an integrated approach to solving the problems identified during the lessons-learned reviews. In the staff requirements memorandum (SRM) on SECY-97-205, dated March 24, 1998, the Commission directed the staff to continue to develop guidance regarding design bases issues, such as specifying the type of information to be considered as design bases information. This effort was subsequently included in the staff's response to the Chairman's tasking memorandum of August 7, 1998.

In October 1997, NEI submitted NEI 97-04, which updated NUMARC 90-12, also titled "Design Bases Program Guidelines." NEI 97-04 gave additional examples of design basis information and directly addressed the reportability of conditions outside

the design basis of the plant. This submission initiated a series of letters and public meetings that led to the staff's proposal to endorse Appendix B to the NEI guidance. In SECY-00-0047, "Draft Regulatory Guide Providing Guidance and Examples for Identifying 10 CFR 50.2 Design Bases," dated February 23, 2000, the staff recommended that the Commission approve publication of a draft regulatory guide for public comment endorsing, with exceptions, the November 17, 1999, version of Appendix B to NEI 97-04. In an SRM dated March 27, 2000, the Commission gave its approval, and the draft guide DG-1093 was issued for comment on April 12, 2000.

DISCUSSION:

A total of 11 comment letters were received on DG-1093. Nine were from utilities, one from NEI, and one from the NRC's Region III office. The letters from the utilities all supported the draft guide and the comments submitted by NEI. The letter from Region III also supported the draft guide and suggested editorial improvements. The NEI comment letter, dated June 15, 2000, focused on alleviating the staff's concerns with the NEI guidance as expressed in the regulatory positions in the draft guide.

Subsequent to the public comment period, the staff proposed additional editorial changes to Appendix B to NEI 97-04 in a letter to NEI dated July 18, 2000. The comments on DG-1093 and the staff's proposed changes to the NEI guidance were discussed with NEI at a public meeting on July 27, 2000. Several issues were resolved at this meeting, and a summary was published on July 31, 2000. Most notably, the staff agreed that the revisions proposed by NEI to its guidance document were acceptable and that no exceptions or clarifications would be needed in the final regulatory guide. Also, NEI agreed to make a number of the editorial changes proposed by the staff.

The first issue for which the staff included a clarifying regulatory position in DG-1093 was defense in depth. The staff was concerned that the NEI guidance did not specifically address the treatment of designed defense in depth. The staff's position is that aspects of the designed defense in depth strategies, such as redundancy, diversity, and independence, are important aspects of the plant's principal design criteria, as specifically required by several regulations, especially the General Design Criteria. These criteria require that such capabilities be implemented for individual structures, systems, and components through plant design features, such as multiple components, independent power supplies, and physical separation. These criteria provide part of the standard for judging the adequacy of the plant's design bases.

In its comment letter, NEI noted that the discussion of topical design bases requirements and the examples provided in its guidance document are consistent with the philosophy and intent of the staff's position. The staff agrees with NEI and is proposing to move the discussion of defense in depth from the regulatory position section to the discussion section in the final regulatory guide.

The second issue involved the relationship of 10 CFR 50.2 design bases to UFSARs. The staff was concerned that the guidance did not make clear that the design bases for a plant may change as a result of new NRC requirements as well as licensee changes to ensure compliance with NRC requirements. In addition, the staff wanted to clarify that design values such as pressure or temperature are considered to be supporting design information unless they are associated with a design basis function.

In its comment letter, NEI proposed changes to the first paragraph of the section of its guidance entitled "Relationship of 10 CFR 50.2 Design Bases to Updated FSARs." The staff finds these changes acceptable and is not including a discussion of this issue in the final regulatory guide.

As a result of the discussions at the public meeting on July 27, 2000, NEI submitted a pre-publication draft of revised Appendix B to NEI 97-04 for NRC endorsement in a letter dated July 27, 2000.

CONCLUSIONS:

The staff finds that the July 27, 2000, version of Appendix B to NEI 97-04, "Guidance and Examples for Identifying 10 CFR 50.2 Design Bases," provides guidance and examples that are acceptable to the staff for providing a clearer understanding of what constitutes design bases information. Therefore, RG 1.186 endorses this version of Appendix B to NEI 97-04 without exception or clarification.

RESOURCES:

The resources necessary to complete the activities related to issuing the final regulatory guide are currently budgeted for Fiscal Year 2001. No additional staff resources are necessary for this effort.

COORDINATION:

OGC has no legal objection to this paper or to publication of the regulatory guide. OCFO has reviewed this Commission paper for resource implications and has no objection to its contents. The Advisory Committee on Reactor Safeguards was briefed on August 29, 2000, and provided a letter recommending publication of the regulatory guide on September 12, 2000. The Committee To Review Generic Requirements approved publication of the regulatory guide on September 30, 2000.

RECOMMENDATION:

The staff recommends that the Commission approve publication of the regulatory guide, RG 1.186, as one acceptable method for evaluating licensees' definition of what constitutes design bases information in accordance with 10 CFR 50.2.

/RA/

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Attachments:
1. Regulatory Guide 1.186
2. Appendix B to NEI 97-04