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(For Trial Use)

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GUIDELINES FOR CATEGORIZING STRUCTURES, SYSTEMS, AND COMPONENTS IN NUCLEAR POWER PLANTS ACCORDING TO THEIR SAFETY SIGNIFICANCE

A. INTRODUCTION

The U.S. Nuclear Regulatory Commission (NRC) has promulgated regulations to permit power reactor licensees and license applicants to implement an alternative regulatory framework with respect to "special treatment," where special treatment refers to those requirements that provide increased assurance beyond normal industrial practices that structures, systems, and components (SSCs) perform their design-basis functions. Under this framework, licensees using a risk-informed process for categorizing SSCs according to their safety significance can remove SSCs of low safety significance from the scope of certain identified special treatment requirements.

The genesis of this framework stems from Option 2 of SECY-98-300, "Options for Risk-Informed Revisions to 10 CFR Part 50, 'Domestic Licensing of Production and Utilization Facilities'," dated December 23, 1998.[1] In that Commission paper, the NRC staff recommended developing risk-informed approaches to the application of special treatment requirements to reduce unnecessary regulatory burden related to SSCs of low safety significance by removing such SSCs from the scope of special treatment requirements. The Commission subsequently approved the NRC staff's rulemaking plan and issuance of an Advanced Notice of Proposed Rulemaking (ANPR) as outlined in SECY-99-256, "Rulemaking Plan for Risk-Informing Special Treatment Requirements," dated October 29, 1999.

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1 Commission papers cited in this trial regulatory guide are available through the NRC's public Web site at http://www.nrc.gov/reading-rm/doc-collections/commission/secys/, and the related *Federal Register* notices are available through the Federal Register Web site sponsored by the Government Printing Office (GPO) at http://www.gpoaccess.gov/fr/index.html.

The Commission published the ANPR in the *Federal Register* (65 FR 11488) on March 3, 2000, and subsequently published a proposed rule for public comment (68 FR 26511) on May 16, 2003. Then, on November 22, 2004, the Commission adopted a new section, referred to as §50.69, within Title 10, Part 50, of the *Code of Federal Regulations*, on risk-informed categorization and treatment of SSCs for nuclear power plants (69 FR 68008).

This trial regulatory guide describes a method that the NRC staff considers acceptable for use in complying with the Commission's requirements in §50.69 with respect to the categorization of SSCs that are considered in risk-informing special treatment requirements. This categorization method uses the process that the Nuclear Energy Institute (NEI) described in Revision 0 of its guidance document NEI 00-04, "10 CFR 50.69 SSC Categorization Guideline," dated July 2005.[2] Specifically, this process determines the safety significance of SSCs and categorizes them into one of four risk-informed safety class (RISC) categories.

The NRC issued a draft of this guide, Draft Regulatory Guide DG-1121, for public review and comment as part of the §50.69 rulemaking package in May 2003. The staff subsequently received and addressed public comments in developing the current regulatory guide. However, since this is a new regulatory approach to categorizing SSCs, to ensure that lessons learned from the initial applications are adequately addressed in the final guidance, the NRC decided to issue this guide for trial use. Therefore, this trial regulatory guide does not establish any final staff positions, and may be revised in response to experience with its use. As such, this trial guide does not establish a staff position for purposes of the Backfit Rule, 10 CFR 50.109, and any changes to this trial guide prior to staff adoption in final form will not be considered to be backfits as defined in 10 CFR 50.109(a)(1). This will ensure that the lessons learned from regulatory review of pilot and follow-on applications are adequately addressed in the final regulatory guide, and that the guidance is sufficient to enhance regulatory stability in the review, approval, and implementation of probabilistic risk assessments (PRAs) and their results in the risk-informed categorization process required by §50.69.

The NRC issues regulatory guides to describe to the public methods that the staff considers acceptable for use in implementing specific parts of the agency's regulations, to explain techniques that the staff uses in evaluating specific problems or postulated accidents, and to provide guidance to applicants. Regulatory guides are not substitutes for regulations, and compliance with regulatory guides is not required.

This regulatory guide contains information collections that are covered by the requirements of 10 CFR Part 50 which the Office of Management and Budget (OMB) approved under OMB control number 3150-0011. The NRC may neither conduct nor sponsor, and a person is not required to respond to, an information collection request or requirement unless the requesting document displays a currently valid OMB control number.

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[2] NEI 00-04, "10 CFR 50.69 SSC Categorization Guideline," is available through the NRC's public Web site at http://adamswebsearch2.nrc.gov/idmws/doccontent.dll?ID=052910091:&LogonId=2b2cbc48fd7897510347535dd7c30495, and through the NRC's Agencywide Documents Access and Management System (ADAMS), http://www.nrc.gov/reading-rm/adams/web-based.html, under Accession #ML052910035.

B. DISCUSSION

This trial regulatory guide provides interim guidance for complying with the NRC's requirements in §50.69, by using the process described in Revision 0 of NEI 00-04 to determine the safety significance of SSCs and place them into the appropriate RISC categories. The safety significance of SSCs is determined using an integrated decision-making process, which incorporates both risk and traditional engineering insights. The safety functions of SSCs include both the design-basis functions (derived from the safety-related definition) and functions credited for preventing and/or mitigating severe accidents. Treatment requirements are then commensurately applied for the categorized SSCs to maintain their functionality.

Figure 1 provides a conceptual understanding of the new risk-informed SSC categorization scheme. The figure depicts the current safety-related versus nonsafety-related SSC categorization scheme with an overlay of the new safety-significance categorization. In the traditional deterministic approach, SSCs were generally categorized as either "safety-related" (as defined in 10 CFR 50.2) or "nonsafety-related." This division is shown by the vertical line in the figure. Risk insights, including consideration of severe accidents, can be used to identify SSCs as being either safety-significant[3] or low-safety-significant (LSS) (as shown by the horizontal line in the figure). This results in SSCs being grouped into one of four categories, as represented by the four boxes in Figure 1.

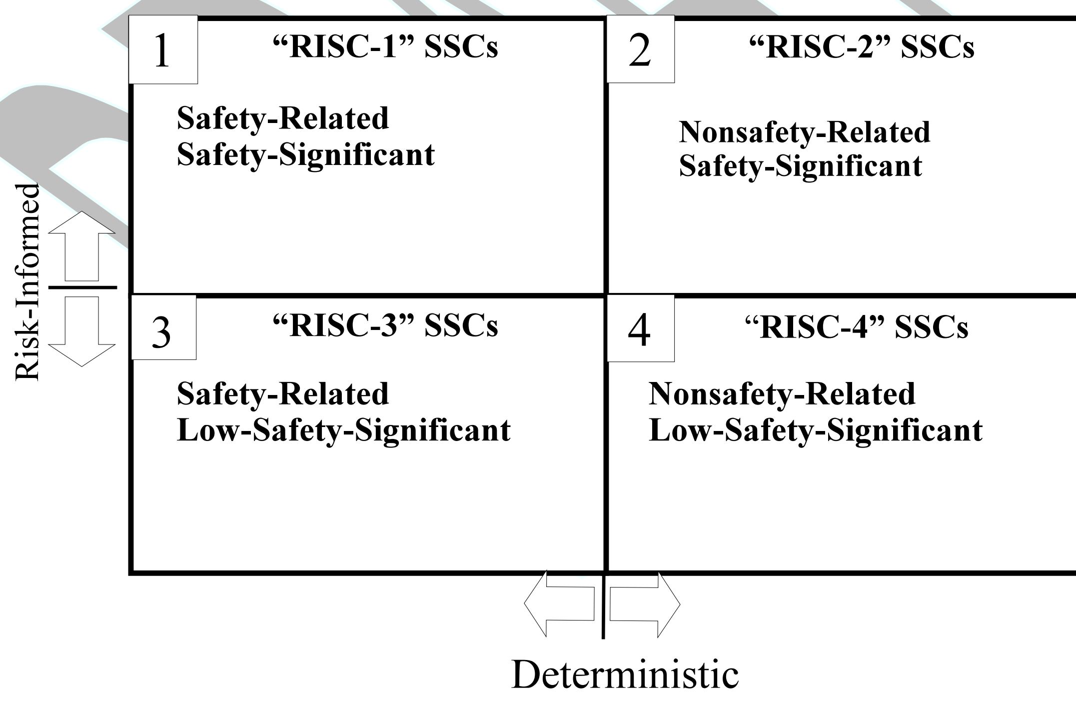

Figure 1. §50.69 RISC Categories

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[3] NEI 00-04 uses the term "high-safety-significant (HSS)" to refer to SSCs that perform safety-significant functions. The NRC understands HSS to have the same meaning as "safety-significant" (i.e., SSCs that are categorized as RISC-1 or RISC-2), as used in §50.69.

RISC-1 SSCs are safety-related SSCs that the risk-informed categorization process determines to be significant contributors to plant safety. Licensees must continue to ensure that RISC-1 SSCs perform their safety-significant functions consistent with the categorization process, including those safety-significant functions that go beyond the functions defined as safety-related for which credit is taken in the categorization process.

RISC-2 SSCs are those that are defined as nonsafety-related, although the risk-informed categorization process determines that they are significant contributors to plant safety on an individual basis. The NRC staff recognizes that some RISC-2 SSCs may not have existing special treatment requirements. As a result, the focus for RISC-2 SSCs is on the safety-significant functions for which credit is taken in the categorization process.

RISC-3 SSCs are those that are defined as safety-related, although the risk-informed categorization process determines that they are not significant contributors to plant safety. Special treatment requirements are removed for RISC-3 SSCs and replaced with high-level requirements. These high-level requirements are intended to provide sufficient regulatory treatment, such that these SSCs are still expected to perform their safety-related functions under design-basis conditions, albeit at a reduced level of assurance compared to the current special treatment requirements. However, §50.69 does not allow these RISC-3 SSCs to lose their functional capability or be removed from the facility.

Finally, RISC-4 SSCs are those that are defined as nonsafety-related, and that the risk-informed categorization process determines are not significant contributors to plant safety. Section 50.69 does not impose alternative treatment requirements for these RISC-4 SSCs. However, as with the RISC-3 SSCs, changes to the design bases of RISC-4 SSCs must be made in accordance with current applicable design change control requirements(if any), such as those set forth in 10 CFR 50.59.

The NRC staff believes that the guidance in NEI 00-04 provides an acceptable approach for the categorization of SSCs to support implementation of §50.69. Section C of this regulatory guide provides the NRC staff positions on NEI 00-04.

C. REGULATORY POSITION

This trial regulatory guide provides interim guidance for trial use of the process and criteria for determining the safety significance of SSCs using the categorization process described in Revision 0 of NEI 00-04, "10 CFR 50.69 SSC Categorization Guideline," dated July 2005.

1. Other Documents Referenced in Revision 0 of NEI 00-04

Revision 0 of NEI 00-04 references numerous other documents, but the NRC's endorsement of Revision 0 of NEI 00-04 does not constitute an endorsement of those other referenced documents.

2. Use of Examples in Revision 0 of NEI 00-04

Revision 0 of NEI 00-04 includes examples to supplement the guidance. The NRC's endorsement of Revision 0 of NEI 00-04 does not constitute a determination that the examples are applicable for all licensees. A licensee or applicant must ensure that a given example is applicable to its particular circumstances before implementing the guidance as described in that example.

3. Use of Methods Other Than Revision 0 of NEI 00-04

To meet the requirements of §50.69 for categorization of SSCs, licensees may use methods other than those set forth in Revision 0 of NEI 00-04. The NRC staff will determine the acceptability of such other methods by evaluating them against the requirements of §50.69.

4. Limitations of Types of Analyses Used in Implementing Revision 0 of NEI 00-04

In its Final Policy Statement on Use of PRA Methods in Nuclear Regulatory Activities, SP-95-146, dated August 16, 1995, the Commission determined that the use of PRA technology should be increased in all regulatory matters, to the extent supported by state-of-the-art PRA methods and data.[4] Implementation of risk-informed regulation is possible because the development and use of a quantitative PRA requires a systematic and integrated evaluation. Development of a technically defensible quantitative PRA also requires sufficient and structured documentation to allow investigations of all aspects of the evaluation. To meet the requirements of §50.69 for categorization of SSCs, licensees must use risk evaluations and insights that cover the full spectrum of potential events (i.e., internal and external initiating events) and the range of plant operating modes (i.e., full-power, low-power, and shutdown operations). Revision 0 of NEI 00-04 allows the use of non-PRA-type evaluations (e.g., fire-induced vulnerability evaluation (FIVE), seismic margins analysis (SMA), and NEI guidance in NUMARC 91-06, "Guidelines for Industry Actions to Assess Shutdown Management,"[5] to address shutdown operations), when PRAs have not been performed. Such non-PRA-type evaluations will result in more conservative categorization, in that special treatment requirements will not be allowed to be relaxed for SSCs that are relied upon in such evaluations. The degree of relief that the NRC will accept under §50.69 (i.e., SSCs subject to relaxation of special treatment requirements) will be commensurate with the assurance provided by the evaluation.

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[4] The Commission's Final Policy Statement on Use of PRA Methods in Nuclear Regulatory Activities, SP-95-146, announced in the Federal Register (60 FR 42622) on August 16, 1995, is available through the NRC's public Web site at http://www.nrc.gov/reading-rm/doc-collections/commission/policy/60fr42622.pdf.

[5] Copies of NUMARC 91-06, "Guidelines for Industry Actions to Assess Shutdown Management," dated December 1991, may be obtained from the Nuclear Energy Institute, Attention: Ms. Tonya Cameron, 1776 I Street, NW, Suite 400, Washington, DC 20006-3708 (phone: 202-739-8148).

5. Technical Adequacy Attributes of Analyses Implementing Revision 0 of NEI 00-04

The peer review process described in NEI 00-02, "Probabilistic Risk Assessment Peer Review Process Guideline,"[6] as amended to incorporate NRC comments provided in the NRC's letter to NEI, dated April 2, 2002,[7] and as endorsed in Regulatory Guide (RG) 1.200, "An Approach for Determining the Technical Adequacy of Probabilistic Risk Assessments," provides a mechanism for licensees to determine if their internal events PRA meets the attributes required for this application.[8] An alternative to NEI 00-02 is the American Society for Mechanical Engineers (ASME) Standard ASME RA-S-2002, "Standard for Probabilistic Risk Assessments for Nuclear Power Plant Applications,"[9] as amended to incorporate NRC comments and as endorsed in RG 1.200. Both NEI 00-02 and the ASME Standard are endorsed for trial use by the NRC in RG 1.200, with appropriate clarifications and exceptions. The licensee or applicant is expected to document the technical adequacy of their internal events PRA for this application per the above documents as endorsed in RG 1.200.

However, the above documents currently cover only internal events at full power. There is not currently a similarly endorsed standard for the external events, internal fires, and low-power and shutdown PRAs, and non-PRA-type analyses (e.g., FIVE, SMA, NUMARC 91-06), and only limited guidance is provided in Section 3.3 of Revision 0 of NEI 00-04 for determining the technical adequacy attributes required for these types of analyses for this specific application. Therefore, for §50.69 submittals received before standards are endorsed by the NRC for external events, internal fires, and low-power and shutdown PRAs, and non-PRA-type analyses, the NRC staff expects the licensee or applicant to document the bases for why the method employed is technically adequate for this application. The licensee or applicant will provide, as part of the plant-specific application requesting to implement §50.69, the bases supporting the technical adequacy of their external events, internal fires, and low-power and shutdown PRAs, and non-PRA-type analyses for this application.

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[6] Copies of NEI 00-02, "Probabilistic Risk Assessment Peer Review Process Guidance," Rev. A3, dated March 20, 2000, may be obtained from the Nuclear Energy Institute, Attention: Mr. Biff Bradley, 1776 I Street, NW, Suite 400, Washington, DC 20006-3708 (phone: 202-739-8083).

[7] The letter from Cynthia A. Carpenter (NRC) to Anthony R. Pietrangelo (NEI), dated April 2, 2002, concerns NRC staff review guidance for PRA results used to support Option 2 based upon NEI 00-04, supported by NEI 00-02. This letter is available electronically through the NRC's public Web site at http://adamswebsearch2.nrc.gov/idmws/doccontent.dll?ID=004066065:&LogonId=b1d7d050903b9714e6861221ea531aab, and through the NRC's Agencywide Documents Access and Management System (ADAMS), http://www.nrc.gov/reading-rm/adams/web-based.html, under Accession #ML020930632.

[8] Single copies of regulatory guides, both active and draft, and draft NUREG documents may be obtained free of charge by writing the Reproduction and Distribution Services Section, OCIO, USNRC, Washington, DC 20555-0001, or by fax to (301)415-2289, or by email to DISTRIBUTION@nrc.gov. Active guides may also be purchased from the National Technical Information Service (NTIS)on a standing order basis. Details on this service may be obtained by contacting NTIS at 5285 Port Royal Road, Springfield, Virginia 22161, online at http://www.ntis.gov, or by telephone at (703) 487-4650. Copies are also available for inspection or copying for a fee from the NRC's Public Document Room (PDR), which is located at 11555 Rockville Pike, Rockville, Maryland; the PDR's mailing address is USNRC PDR, Washington, DC 20555-0001. The PDR can also be reached by telephone at (301) 415-4737 or (800) 397-4205, by fax at (301) 415-3548, and by email to PDR@nrc.gov. Copies of certain guides and many other NRC documents are available electronically through the Public Electronic Reading Room on the NRC's public Web site, http://www.nrc.gov, and through the NRC's Agencywide Documents Access and Management System (ADAMS) at http://www.nrc.gov/reading-rm/adams.html.

[9] ASME RA-S-2002, "Standard for Probabilistic Risk Assessments for Nuclear Power Plant Applications," is available through the Web-based product catalog sponsored by the American Society for Mechanical Engineers at http://catalog.asme.org/Codes/PrintBook/RAS_2002_Probabilistic_Risk.cfm?CATEGORY=CS&StartRow=101.

Industry standards have been or are being prepared for external events, internal fires, and low-power and shutdown PRAs. For §50.69 submittals received after a standard is developed by the industry and endorsed by the NRC via revisions to RG 1.200, the NRC expects the licensee or applicant to use that standard to demonstrate the technical adequacy of the corresponding aspect of the PRA, if it is used to support the categorization. This is consistent with the Commission's phased approach to PRA quality.[10] The licensee or applicant should provide, as part of the plant-specific application requesting to implement §50.69, the bases supporting the technical adequacy of their PRAs for this application per the standards as endorsed by RG 1.200.

6. Uncertainty Considerations in Revision 0 of NEI 00-04

The staff notes that the purpose of the sensitivity studies performed as part of the risk categorization process is to address the impact of parameter and model uncertainties on the categorization. The staff understands the phrase "applicable sensitivity studies identified in the characterization of PRA adequacy" (in tables 5.2 through 5.5) in Revision 0 of NEI 00-04, as meaning those uncertainties not addressed by the other sensitivity studies in tables 5.2 through 5.5. These uncertainties are typically identified via PRA peer reviews or self-assessments, that are associated with the licensee's choice of specific models and assumptions, as discussed in Section 2.2.5.5 of Regulatory Guide 1.174, "An Approach for Using Probabilistic Risk Assessment in Risk-Informed Decisions on Plant-Specific Changes to the Licensing Basis."[11]

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10 SECY-04-0118, "Plan for the Implementation of the Commission's Phased Approach to Probabilistic Risk Assessment Quality," is available through the NRC's public Web site at and through the NRC's Agencywide Documents Access and Management System (ADAMS), http://www.nrc.gov/reading-rm/adams/web-based.html, under Accession #ML .

11 Single copies of regulatory guides, both active and draft, and draft NUREG documents may be obtained free of charge by writing the Reproduction and Distribution Services Section, OCIO, USNRC, Washington, DC 20555-0001, or by fax to (301)415-2289, or by email to DISTRIBUTION@nrc.gov. Active guides may also be purchased from the National Technical Information Service (NTIS)on a standing order basis. Details on this service may be obtained by contacting NTIS at 5285 Port Royal Road, Springfield, Virginia 22161, online at http://www.ntis.gov, or by telephone at (703) 487-4650. Copies are also available for inspection or copying for a fee from the NRC's Public Document Room (PDR), which is located at 11555 Rockville Pike, Rockville, Maryland; the PDR's mailing address is USNRC PDR, Washington, DC 20555-0001. The PDR can also be reached by telephone at (301) 415-4737 or (800) 397-4205, by fax at (301) 415-3548, and by email to PDR@nrc.gov. Copies of certain guides and many other NRC documents are available electronically through the Public Electronic Reading Room on the NRC's public Web site, http://www.nrc.gov, and through the NRC's Agencywide Documents Access and Management System (ADAMS) at http://www.nrc.gov/reading-rm/adams.html.

7. Common Cause Failure and Degradation Mechanism Considerations in Revision 0 of NEI 00-04

The NRC staff notes that mechanisms that could lead to large increases in core damage frequency (CDF) and large early release frequency (LERF), which could potentially invalidate the assumptions underlying the categorization process, including the risk sensitivity study, are the emergence of extensive common-cause failures (CCFs) impacting multiple systems and significant unmitigated degradation. However, for these types of impacts to occur, the mechanisms that lead to failure, in the absence or relaxation of treatment, would have to be sufficiently rapidly developing or not self-revealing, such that there would be few opportunities for early detection and corrective action. Section 12.4 of NEI 00-04 describes an acceptable performance-based approach to address these concerns.

Alternatively, those aspects of treatment that are necessary to prevent significant SSC degradation or failure from known mechanisms, to the extent that the results of the risk sensitivity study would be invalidated, could be identified by the licensee or applicant, and such aspects of treatment would be retained. This alternative approach would require an understanding of the degradation and common cause failure mechanisms and the elements of treatment that are sufficient to prevent them. As an example of how this alternative approach might be implemented, the known existence of certain degradation mechanisms affecting pressure boundary SSC integrity could be used to support retaining the current requirements regarding inspections or examinations or use of the risk-informed ASME Code Cases, as accepted by the NRC's regulatory process. As another example, changing levels of treatment on several similar SSCs that might be sensitive to potential CCF would require consideration of whether the planned monitoring and corrective action program, or other aspects of treatment, would be effective to sufficiently minimize the potential for CCFs impacting multiple systems, such that the categorization process (including the risk sensitivity study) remains valid.

8. Importance of, and Interrelationships within, the Processes Described in Revision 0 of NEI 00-04

The NRC staff notes that the implementation of all processes described in NEI 00-04 (i.e., Sections 2 through 12) is integral to providing reasonable confidence in the evaluations required by §50.69(c)(1)(iv). All aspects of the guidance are important and interrelated. Sections 2 through 7 and Section 10 of NEI 00-04 describe the processes used to determine the set of SSCs, for which unreliability is adjusted in the risk sensitivity study described in Section 8, which is used to confirm that the categorization process results in acceptably small increases to CDF and LERF. Section 9 describes the integrated decisionmaking panel (IDP) function of reviewing and ensuring that the system functions and operating experience have been appropriately considered in the process. Finally, Sections 11 and 12 describe the processes that provide reasonable confidence that the validity of the categorization process (including the risk sensitivity study) is maintained. Thus, all aspects of NEI 00-04 must be followed to achieve reasonable confidence in the evaluations required by §50.69(c)(1)(iv).

9. NRC Endorsement of Revision 0 of NEI 00-04; Specific Clarifications

Revision 0 of NEI 00-04 presents an approach that the NRC staff considers acceptable for use in meeting the categorization requirements set forth in §50.69, subject to the above regulatory positions and the following specific clarifications.

Section 1.2

The second paragraph of Section 1.2 discusses a third set of equipment referred to as "important-to-safety" and its relation to safety-related and nonsafety-related equipment. This usage is inconsistent with the NRC's regulatory usage. The NRC staff's general endorsement of NEI 00-04 does not constitute an endorsement of this usage of the term "important-to-safety." In the context of this guidance, the NRC staff understands this term as referring to nonsafety-related SSCs that have been determined to be important. These nonsafety-related SSCs will be categorized as either RISC-2 or RISC-4, as determined by their safety significance, in accordance with the §50.69 categorization process.

The fourth paragraph of Section 1.2 states that the integrated decision-making process "…blends risk insights, new technical information and operational feedback…." The NRC staff understands this phrase, and similar phrases (e.g., the third guiding principle in Section 1.3), as meaning that the integrated decision-making process must systematically consider the quantitative and qualitative information available regarding the various modes of plant operation and initiating events, including PRA quantitative risk results and insights (e.g., CDF, LERF, and importance measures); deterministic, traditional engineering factors and insights (e.g., defense-in-depth, safety margins, and containment integrity); and any other pertinent information (e.g., industry and plant-specific operational and performance experience, feedback, and corrective actions program) in the categorization of SSCs.

Section 1.3

The second guiding principle in Section 1.3 states that deterministic or qualitative information should be used if no PRA information exists related to a particular hazard or operating mode. This principle is not to be understood to mean that deterministic or qualitative information should be used ***only*** when no PRA information exists. The NRC staff believes that the integrated decision-making process must systematically consider the quantitative and qualitative information available regarding the various modes of operation and initiating events, including PRA quantitative risk results and insights; deterministic, traditional engineering factors and insights; and any other pertinent information in the categorization of SSCs.

Section 4.0

In Section 4.0 and Section 5.1, NEI 00-04 references ASME Code Case –660, "Risk-Informed Safety Classification for Use in Risk-Informed Repair/Replacement Activities," as an approach for addressing the pressure-retaining function or passive function of active components.[12] The version of ASME Code Case –660 that is acceptable to the NRC staff for use in this application is the version identified in RG 1.147, "Inservice Inspection Code Case Acceptability, ASME Section XI, Division 1," subject to any conditions or limitations specified therein. Alternatives to this Code Case may be submitted for NRC review and approval as part of a specific §50.69 application.

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[12] Code Cases associated with the ASME Boiler and Pressure Vessel Code are available through the Web-based ASME Digital Store sponsored by the American Society for Mechanical Engineers at http://store.asme.org/category.asp?catalog%5Fname=Codes+and+Standards&category%5Fname=Boilers+and+Pressure+Vessels&Page=1.

Section 6.2

In Section 6.2, the NEI 00-04 guidance contains criteria for confirming that an SSC is LSS (or recategorizing it as safety-significant) based on defense-in-depth considerations, which include criteria related to containment bypass, containment isolation, early hydrogen burns, and long-term containment integrity. The containment isolation criteria listed in this section of NEI 00-04 are applicable to containment penetrations. The NRC staff understands the use of the phrase "containment penetration" as including electrical penetrations, air locks, equipment hatches, and piping penetrations (including containment isolation valves). Further, the staff notes that the containment isolation criteria in this section of NEI 00-04 are separate and distinct from those set forth in §50.69(b)(1)(x). The criteria in §50.69(b)(1)(x) are to be used in determining which containment penetrations and valves may be exempted from the Type B and Type C leakage testing requirements in both Options A and B of Appendix J to 10 CFR Part 50, but the §50.69(b)(1)(x) criteria are not used to determine the proper RISC category for containment isolation valves or penetrations.

Section 8

The risk sensitivity study addresses the potential impact on the unavailabilities of the individual SSCs resulting from the change in treatment. Section 8 of NEI 00-04 includes commentary on the treatment of known degradation mechanisms and common cause interactions and failures in PRAs that includes the observation that intersystem common cause failures are not typically modeled because factors such as design diversity and different service environments ensure they are negligible contributors to risk. The discussion regarding common cause failure and degradation mechanisms in this section should not be relied upon by the licensee or applicant in establishing their treatment process. The NRC staff notes that because intersystem common cause failures and known degradation mechanisms are typically not included in PRA models, but rather are typically addressed by programmatic elements (e.g., erosion/corrosion program and motor-operated valve program with monitoring, feedback, and corrective action programs), the potential for their increased likelihood following changes in treatment cannot be addressed by the risk sensitivity study. Therefore, the alternative treatment and feedback requirements, including corrective action provisions, of §50.69 and discussed in Section 12 of NEI 00-04 are relied upon by the licensee or applicant to ensure that any significant intersystem common cause failure mechanisms would be identified and corrected so that the assumptions underlying the categorization are not invalidated.

Section 9.2

Section 9.2 of NEI 00-04 limits the IDP review of risk information to active functions and SSCs. The NRC staff believes that this limitation in review scope is attributable to the reliance of NEI 00-04 on ASME Code Case N–660 to address passive functions, which is performed by an expert panel. The expert panel used in performing ASME Code Case N–660 may be the same panel as the IDP used in the §50.69 categorization process; however, it is not required to be the same panel. As such, the IDP review of risk information should address both active and passive functions and SSCs.

Section 11.1

In addressing regulatory commitments associated with special treatment requirements listed in §50.69(b)(1) for RISC-3 SSCs, Revision 0 of NEI 00-04 specifies that licensees and applicants should ensure that any design-basis commitments for RISC-3 SSCs continue to be maintained. The NRC staff understands this guidance as applying to any commitments identified as explicitly addressing the design-basis functionality of RISC-3 SSCs (e.g., Generic Letter 96-05, "Periodic Verification of Design-Basis Capability of Safety-Related Motor-Operated Valves, September 18, 1996).

Section 11.2

The NEI 00-04 guidance allows licensees to implement different approaches, depending on the scope of their PRA (e.g., the approach if a seismic margins analyses is relied upon is different and more limiting than the approach if a seismic PRA is used). As part of the NRC's review and approval of a licensee's or applicant's application requesting to implement §50.69, the NRC staff intends to impose a license condition that will explicitly address the scope of the PRA and non-PRA methods used in the licensee's categorization approach. If a licensee or applicant wishes to change its categorization approach and the change is outside the bounds of the NRC's license condition (e.g., switch from a seismic margins analysis to a seismic PRA), the licensee or applicant will need to seek NRC approval, via a license amendment, of the implementation of the new approach in their categorization process. The focus of the NRC staff review and approval will be on the technical adequacy of the methodology and analyses relied upon for this application.

Section 12.1

The guidance in Section 12 of NEI 00-04 refers to the need to update the risk information and categorization process if the categorization results are "…more than minimally affected." The NRC staff understands this phrase as applying to the entire risk evaluation process (i.e., Sections 2 through 8 of NEI 00-04) and also understands that being "more than minimally affected" would include a situation in which there is indication that an SSC that is categorized as low safety significant would be changed to safety-significant. The NRC staff also recognizes that the licensee or applicant may change the categorization and/or treatment aspects of SSCs so that there is reasonable confidence that the cumulative risk increase from implementing §50.69 is maintained acceptably small.

Section 12.4

The guidance in Section 12.4 of NEI 00-04 defines CCF as "…the simultaneous failure of more than one SSC to perform its function, due to the same cause…," and Appendix B to NEI 00-04 provides a similar definition, but with "simultaneous" replaced by "during a short period of time." These definitions are derived from their use in a PRA context, where the emphasis is on failure of more than one SSC during a specified mission time. The staff notes that the licensee's or applicant's corrective action program associated with the implementation of §50.69 should address the potential for SSC failures at different times resulting from a common cause, even if they are revealed at different times.

In addition, the staff notes that the guidance in Section 12.4 that potential adverse trends need not be evaluated until the number of expected failures for a group of SSCs doubles may not be practical for SSCs with low failure rates assumed in the PRA.

D. IMPLEMENTATION

The purpose of this section is to provide information to applicants and licensees regarding the NRC staff's plans for using this trial regulatory guide. No backfitting is intended or approved in connection with the issuance of this guide.

Except in those cases in which an applicant or licensee proposes or has previously established an acceptable alternative method for complying with the categorization portion of §50.69, the methods described and/or endorsed in this guide will be used in evaluating licensee compliance with the requirements of §50.69 for the categorization of SSCs.

REGULATORY ANALYSIS

The NRC staff did not prepare a separate regulatory analysis for this trial regulatory guide. The regulatory analysis that was prepared for the rulemaking is still applicable, as is its value/impact statement. The regulatory analysis is available in the NRC's Agencywide Documents Access and Management System (ADAMS) at http://www.nrc.gov/reading-rm/adams.html, under Accession #ML022630028.