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Public Comment on Draft Regulatory Guide DG-1152 (Proposed Revision 4 of Regulatory Guide 1.26, dated February 1976).

Gentlemen:

I submit a set of administrative questions, five substantive comments, and four editorial comments regarding DG-1152.

Administrative Questions:

1) Acceptable Alternative: An industry effort seeking NRC endorsement for ANSI/ANS-58.14-1993 "Safety and Pressure Integrity Classification Criteria for Light Water Reactors" is in progress. Does the NRC staff consider the provisions set forth in Chapter 6 of ANSI/ANS-58.14-1993 to be an acceptable alternative to the proposed guidance set forth in DG-1152? If so, will the NRC staff endorse ANSI/ANS-58.14-1993 Chapter 6 in addition to publishing Regulatory Guide 1.26 Rev 4? If not, what additional information must an applicant submit in order to demonstrate that pressure integrity classifications performed to ANSI/ANS-58.14-1993 Chapter 6 contribute an equivalent degree of safety to the design, fabrication, erection and testing of nuclear power plant structures, systems, and components?

Substantive Comments:

2) Misleading Title: DG-1152 continues the existing title of Regulatory Guide 1.26, "Quality Group Classifications and Standards for Water-, Steam-, and **Radioactive-Waste-Containing** Components of Nuclear Power Plants." However, DG-1152 footnote 3 states that specific guidance on quality group classification of radioactive waste management systems is instead provided by Regulatory Guide 1.143. Moreover, radioactive waste management systems do not fall within the defined scopes of Quality Group A or B, and are explicitly exempted from Quality Group C by regulatory position (2)(d). To the extent that radioactive waste is normally contained in the various radioactive waste management systems, the existing title does not appear consistent with the actual scope of Regulatory Guide 1.26. **Recommendation:** revise the title of Regulatory Guide 1.26 to eliminate confusion: "Quality Group Classifications and Standards for **Components of Water-, Steam-, and Potentially Contaminated Fluid Systems** of Nuclear Power Plants."

3) Inaccurate footnote: DG-1152 footnote 3 states "Regulatory Guide 1.143, "Design Guidance for Radioactive waste Management Systems, Structures, and Components Installed in Light-Water-Cooled Nuclear Power Plants," provides specific guidance **on the quality group**

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classification of radioactive waste management systems.” In fact, Regulatory Guide 1.143 states many different design requirements and cites a variety of design standards pertinent to radioactive waste management systems, but contains **no** guidance on the quality group classification of radioactive waste management systems, structures or components.

Recommendation: strike the phrase “the quality group classification of” from DG-1152 footnote 3.

4) Technical Content – Component Supports: DG-1152 omits any explicit discussion of the extent to which component supports, which generally do NOT contain water, steam, radioactive waste or radioactive materials, are subject to Quality Group classification guidance. Draft Revision 3 to Regulatory Guide 1.26 was also silent on this point. However, NRC staff correspondence has documented the staff position that both components **and component supports** are addressed by Regulatory Guide 1.26. For example, see RAI No. 3.2-2 in the table for ESBWR Design Control Document (DCD) Sections 3.2.1 and 3.2.2, enclosure 1 to the letter from L. Rossbach (Office of Nuclear Reactor Regulation) to D.H. Hinds (General Electric Company) dated August 8, 2006, subject Request for Additional Information Letter No. 51 Related to ESBWR Design Certification Application [Accession no. ML062190291].

Recommendation: Revise DG-1152 wording to explicitly include component supports as subject to same Quality Group classification in accordance with the established staff position.

5) Technical Content – GSI 191: The wording of 10 CFR 50 Appendix A General Design Criterion 1 encompasses **all** structures, systems, and components important to safety. However, by title and exposition, Regulatory Guide 1.26 implicitly applies only to **pressure-retaining** water-, steam-, and radioactive-waste-containing components; DG-1152 also shares this trait. In the event of a Loss of Coolant Accident (LOCA), the Emergency Core Cooling System (ECCS) of many plants includes provisions for recirculation of the released coolant from a collecting sump. Because the LOCA event will generate debris, and the flow of released coolant through containment will transport some of that debris to the collecting sump, a screen structure is commonly used to filter debris from the ECCS recirculation stream. By design, ECCS sump debris screens are **not** pressure-retaining components; yet they must function in order for the ECCS to perform its safety function throughout the recirculation phase. Although Regulatory Guide 1.82, “Water Sources for Long-Term Recirculation Cooling Following a Loss-of-Coolant Accident” and the NRC SER of NEI 04-07 [see ML043280631, ML043280007, ML043280008, etc.] address the importance of the ECCS to safety, they do not discuss the quality group classification of ECCS sump debris screens or impose quality standards on the design, fabrication, erection and testing of those screens. While ECCS sump debris screens cannot -- by design -- meet hydrostatic test requirements, they can meet many other relevant aspects of design invoked by reference under ASME B&PV Code Section III, such as material composition and certification, determination of material strength properties used in the evaluation allowable stresses at design loads, and the qualification and control of welding techniques used in fabrication. **Recommendation:** Revise DG-1152 to explicitly include safety-related but non-pressure retaining fluid system fittings and structures, particularly ECCS sump suction screens, in Quality Group B, and to apply relevant standards to the design, fabrication, erection, and testing of these components.

6) Ambiguous Scope for Regulatory Position 3: DG-1152 continues the existing title of Regulatory Guide 1.26, “Quality Group Classifications and Standards for Water-, Steam-, and **Radioactive-Waste-Containing** Components of Nuclear Power Plants.” In contradiction, DG-1152 footnote 3 states that specific guidance on quality group classification (sic) of radioactive waste management systems is instead provided by Regulatory Guide 1.143. Moreover, radioactive waste management systems do not fall within the defined scopes of Quality Group A or B, and are explicitly exempted from Quality Group C by regulatory position (2)(d). However, DG-1152 regulatory position 3 can be construed as applying, or potentially applying, to components of the liquid or gaseous radioactive waste management systems. Components of these systems contain water or steam (i.e., water vapor) respectively; they are not part of the reactor coolant pressure boundary; they are not included in Quality Groups B or C; but they are part of systems that contain radioactive material. **Recommendation:** Revise DG-1152 regulatory position (3) to include wording that excludes radioactive waste management systems, similar to the wording used in regulatory position (2)(d).

Editorial Comments:

7) Inconsistent footnote citations: DG-1152 regulatory positions (1)(b), (1)(e), (2)(a), (2)(b), and (2)(c) cite footnote 4 following the phrase “systems or portions of (those) systems”. Comparison of these provisions to the equivalent sections of Draft Rev 3 to Regulatory Guide 1.26, and to DG-1152 regulatory position (1)(a), suggests that the reference in DG-1152 for each of these five sections should instead cite footnote 5. **Recommendation:** correct the footnote citation for DG-1152 regulatory positions (1)(b), (1)(e), (2)(a), (2)(b), and (2)(c) to cite footnote 5.

8) Typographical error: DG-1152 regulatory position (2)(a) identifies four different types of cooling water and auxiliary feedwater systems; two of these groups are designated with a Roman numeral (ii) and none of them are designated with a Roman numeral (iii). **Recommendation:** correct the designation for post accident containment atmosphere cleanup to a Roman numeral (iii).

9) Logical exposition: DG-1152 regulatory position (2)(a) states an exception to the Quality Group C classification for some portions of cooling and auxiliary feedwater systems. The exception is logically valid for portions of such systems that are required for their safety functions and that do not operate during any mode of normal reactor operation and that cannot be tested adequately. The exception indicates that the portions of cooling and auxiliary feedwater systems that meet these additional criteria should be classified as Quality Group B. **Recommendation:** revise DG-1152 regulatory positions (1)(a) and (1)(b), OR add an additional position (1)(f), to explicitly include the portions of cooling water and auxiliary feedwater systems that are required to function in order to support the required safety functions of (i) emergency core cooling, (ii) post accident containment heat removal, (iii) post accident containment atmosphere cleanup, or (iv) residual heat removal from the reactor and from the spent fuel storage pool systems, but that do not operate during any normal mode of reactor operation and that cannot be tested adequately, as part of Quality Group B.

10) Inconsistent footnote citation: DG-1152 regulatory position (2)(d) contains a reference to footnote 2 following the phrase “radioactive waste management systems.” Comparison of this provision to the equivalent section of Draft Rev 3 to Regulatory Guide 1.26 suggests that DG-1152 regulatory position (2)(d) should instead refer to footnote 3. **Recommendation:** correct the footnote citation for DG-1152 regulatory position (2)(d) to cite footnote 3.

Sincerely,

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