

**Enclosure 3**  
**Staff Responses to Public Comments on Draft Regulatory Guide DG-1170**  
**(Proposed Revision 1 of Regulatory Guide 1.189)**

| <b>Comments</b>  |                                |  | <b>NRC Comment Resolution</b>  |
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| <b>Originator</b>  | <b>DG-1170 Section</b>         | <b>Specific Comments</b>   |  |
| <p>Nuclear Energy Institute (NEI)<br/>12/22/2006<br/>letter<br/><small>(ADAMS Accession No. ML063610048)</small></p> | <p>general<br/>(comment 1)</p> | <p>The Commission disapproved the issuance of Generic Letter 2006-XX, "Post-Fire Safe-Shutdown Circuits Analysis Spurious Actuations." DG-1170 references this generic letter's technical content and process-oriented regulatory positions; therefore, DG-1170 should not be issued until resolution is achieved. BASIS: DG-1170 text references regulatory positions of the disapproved generic letter. Moving forward with DG-1170 as written appears to be inappropriate. (See additional discussion in NEI cover letter.)</p> | <p>The pending resolution of one aspect of fire protection does not warrant a delay in updating and reissuing the regulatory guide (RG). The revised RG does not contain specific guidance for evaluating multiple spurious actuations. It merely notes that cable fire testing has demonstrated that multiple spurious actuations may occur in rapid succession and that a one-at-a-time assumption for spurious actuations may not adequately address the potential risk from fire. The Commission based its disapproval of issuance of the generic letter (GL) at the present time on the lack of specific guidance for meeting the analysis needs and information demands of the draft GL and on its reservations regarding possible backfit considerations. The U.S. Nuclear Regulatory Commission (NRC) will work with the stakeholders to develop that guidance and address any backfit issues.</p> |

| Comments   |                     |   | NRC Comment Resolution   |
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| Originator | DG-1170 Section     | Specific Comments   |  |
| NEI        | general (comment 2) | References in the text of Revision 0 of RG 1.189 to GLs, information notices, memoranda, etc., provide clear traceability to past staff requirements and guidance. Removing these references makes the ability to take the new "guidance" and understand its regulatory applicability in the future more difficult. Recommend keeping the basis section and updating the information to include new generic correspondence, etc. It is often necessary to gain further understanding of NRC expectations. References provided in the earlier revision of RG 1.189 provided that clarification. New issues identified should have new references provided. For example, Section C.5.6, Shutdown/Low Power Operations, and Section 8, Fire Protection for New Reactors, are new to the RG and references should be provided to regulatory requirements or guidance to assist in providing clarifications. These sections by themselves, as written, do not provide the level of detail needed for a licensee or inspector to make informed decisions. The RG would thereby not be useful without these references. BASIS: Impacts general quality of document and effectiveness to industry and inspectors. | Many of the references in Revision 0 are to the branch technical position (BTP). The staff has added the BTP guidance to Revision 1 of the RG. The references section of the guide lists the other references for the content of Revision 1 of RG 1.189. This is consistent with other NRC RGs.  |
| NEI        | general (comment 3) | There is a relatively inordinate amount of technical detail on testing requirements for raceway fire barrier materials (a carryover from Revision 0 of RG 1.189). This is inconsistent with equally important topics addressed by the document. If the guidance can be communicated as effectively by referring to GL 86-10, Supplement 1, it is recommended that this detail be removed to provide consistency. An example of this occurrence is the brief discussion on fire-induced circuit failures and operator manual actions, two issues of equal or greater industry concern than raceway fire barrier materials (and also addressed by other generic correspondence), but not treated with the same level of detail within DG-1170. BASIS: Impacts general quality of document and effectiveness to industry and inspectors.   | The staff has included the technical information regarding fire barrier testing in the RG to reduce the number of separate documents that a licensee must reference for the fire protection program. Inclusion of this type of information is consistent with the use of an RG. However, in response to this comment, the staff has moved the text to an appendix to the RG. |

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| Originator | DG-1170 Section      | Specific Comments  |  |
| NEI        | general (comment 4a) | Numerous document consistency issues and editorial inconsistencies: Referral to compliance with III.L of Appendix R as a subrequirement of meeting III.G. This cross reference is not applied consistently throughout the document.  | See response to Comment 63.  |
| NEI        | general (comment 4b) | Numerous document consistency issues and editorial inconsistencies: "Spurious operation" vs. "spurious actuation."   | The staff has changed all occurrences of "spurious operation" to "spurious actuation."   |
| NEI        | general (comment 4c) | Numerous document consistency issues and editorial inconsistencies: Having documentation available for NRC "review/approval" vs. "audit."  | The staff has changed NRC "audit" and NRC "review" to NRC "inspection." The staff has retained the use of "review and approval" where required by regulations.   |
| NEI        | general (comment 4d) | Numerous document consistency issues and editorial inconsistencies: Need for submitting a "license amendment request" vs. "deviation" for a post-1979 plant.   | The document to be submitted to the NRC is a license amendment. The license amendment describes a deviation from the approved licensing basis. Section 1.8.4 explains this terminology. Also see the response to Comment 48.   |
| NEI        | general (comment 4e) | Numerous document consistency issues and editorial inconsistencies: Use of term "safe-shutdown" vs. "safe shutdown."   | When both words together form an adjective that modifies a noun (e.g., safe-shutdown circuit), a hyphen is appropriate. When "safe" is the adjective and "shutdown" is the noun, no hyphen is needed. This usage is in accordance with NRC technical editing guidelines.   |
| NEI        | general (comment 4f) | Numerous document consistency issues and editorial inconsistencies: Use of terms "alternate shutdown" vs. "alternative shutdown."  | The staff has changed "alternate" to "alternative."  |
| NEI        | general (comment 4g) | Numerous document consistency issues and editorial inconsistencies: "Hi/low" vs. "hi/lo" pressure interface.   | The staff has changed all to "high/low."   |
| NEI        | general (comment 5)  | The regulatory guidance for new reactor designs is interspersed within certain subsections of the RG without a clear demarcation or heading. For example, Section C.4.2.1 has a new reactor design paragraph between two paragraphs not related to new reactor designs. Because of the clear difference in regulatory requirements and guidance related to new reactors, it is recommended that all references to guidance for new reactors have separate headings in order to provide clarity. BASIS: Impacts general quality of document and effectiveness to industry and inspectors. | In general, the RG as a whole applies to new <u>and</u> existing reactor plants. Where sections of the RG include supplemental guidance applicable only to new reactors, the text notes that it applies to new reactors. In this way, the new reactor guidance appears in the context of the general guidance that is applicable to both new and existing plants. Putting all new reactor guidance in a separate section may mislead licensees to think that the rest of the RG is not applicable to new reactors. This comment provides an example of this problem, as the paragraphs before and after the paragraph on new reactor designs in Section C.4.2.1 <u>are</u> applicable to new reactors as well as to existing reactors. |

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| Originator | DG-1170 Section     | Specific Comments  |   |
| NEI        | general (comment 6) | The clarification provided in Appendix R to 10 CFR Part 50 on regulatory requirements for maintaining hot standby (for a PWR) and hot shutdown (for a BWR) are removed in this revision. The terms "hot standby" and "hot shutdown" are not used consistently throughout the document to reflect regulatory requirements and guidance. The interpretation in RG 1.189, Revision 0, that for safe shutdown capability (i.e., alternative and normal shutdown), separation and protection requirements are for hot standby for a PWR and hot shutdown for a BWR is the industry interpretation and aligns with Section III.L of Appendix R and interpretations in GL 86-10. BASIS: Technical implications on what equipment is required to be protected (scope of allowed operator actions, need for exemptions/license amendments, suppression, detection, etc.).   | Agree. By removing this guidance, the staff was not rejecting the industry's interpretation of hot shutdown or hot standby. As the commenter notes, the use of two different terms can lead to confusion. In addition, the definition of postfire safe shutdown and the systems and components required to achieve this condition are plant specific and included in the plant technical specifications, as noted in the glossary definition of "safe shutdown." The variations of these definitions from plant to plant were the reason for removing the definition of hot shutdown and hot standby from the RG.   |
| NEI        | general (comment 7) | There are inconsistencies throughout the document on engineering evaluations that had their origin in GL 86-10 (i.e., GL 86-10 evaluations). The document does not provide a concise consolidated reference for the use of evaluations described in GL 86-10. The title of Section 1.8.3 is "Appendix R Equivalency Evaluations," with a referral to Appendix A, "Equivalency." It is recommended that NEI 02-03 be reviewed in order to update RG 1.189 to provide a concise and complete listing of fire protection program features that can be addressed without prior NRC approval using the processes originally described in GL 86-10. For example, Section 1.8.7 discusses NFPA code and standard deviations, yet these are not referenced in Appendix A. BASIS: Impacts general quality of document and effectiveness to industry and inspectors. Impacts NRC approval of FAQ 06-0008 for NFPA 805 transitioning plants and can increase scope and complexity of transition if FAQ 06-0008 is not approved. | NEI 02-03 can provide useful guidance with respect to performing these change evaluations as noted in the August 27, 2003, letter from John Hannon to A. Marion of NEI. This letter stated that the staff had no comments on NEI 02-03 and that "using published guidance, such as NEI 02-03, for evaluating changes to the approved fire protection program should ensure consistent evaluations and will improve the efficiency and effectiveness of the regulatory process." The staff has added a reference to NEI 02-03, June 2003, to the RG and described it as providing useful guidance for change evaluations in accordance with the licensee's fire protection licensing basis and approved fire protection program. |

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| Originator | DG-1170 Section      | Specific Comments   |   |
| NEI        | general (comment 8)  | Section III.G.3 of Appendix R to 10 CFR Part 50 requires alternative shutdown capability for the “area, room, or zone under consideration” based upon certain prerequisites in the regulation. This is an important clarification with explanation in GL 86-10, because it defines the regulatory basis for detection, suppression, and fire damage. These terms are not reflected in DG-1170 and alternative/dedicated shutdown capability is referred to on a “fire area” basis. For example, Section III.G.3 of Appendix R is in Section C.5.4.1 of DG-1170 (p. 149 of redline markup). BASIS: Technical impact; adverse interpretations could potentially increase scope of detection and suppression coverage in ASD rooms/zones to area wide.   | There is a lengthy discussion of fire areas and fire zones in C.4.1.2.1 and C.4.1.2.2. The staff has revised the RG to refer to “areas/zones” in lieu of just “zones,” where appropriate. The staff has also revised the C.5.4.1 paragraph on detection and suppression to refer to areas/zones. The staff did <u>not</u> change all “areas” to “areas/zones” (III.G.2 and III.G.3 refer to redundant trains in the same fire <u>area</u> ). A room that is not a fire area is generally a zone.  |
| NEI        | general (comment 9)  | The terms “operator action” and “operator manual action” have different definitions in the glossary. However, they are not used consistently and appropriately throughout the document and the term “manual action” is also used. BASIS: Impacts general quality of document and effectiveness to industry and inspectors.  | Comment incorporated. The use of “manual action” was with respect to suppression system actuation; the staff has changed the term to “manual actuation.” The staff has made the use of operator manual action (OMA) and operator action consistent with the definitions.  |
| NEI        | general (comment 10) | Section 12(d) of Public Law 104-113, the “National Technology Transfer and Advancement Act of 1995,” requires that “all Federal agencies and departments shall use technical standards that are developed or adopted by voluntary consensus bodies, using such technical standards as a means to carry out policy objectives or activities determined by the agencies and departments.” This policy was further emphasized in OMB A-119 which was revised in 1998 to be consistent with Public Law 104-113. The policies of OMB Circular A-119 are intended to (1) encourage Federal agencies to benefit from the expertise of the private sector; (2) promote Federal agency participation in such bodies to ensure creation of standards that are useable by Federal agencies; and (3) reduce reliance on government-unique standards where an existing voluntary standard would suffice. The Act gives the agencies discretion to use other standards in lieu of voluntary consensus standards where use of the latter would be “inconsistent with applicable law or otherwise impractical.” However, in such cases, the head of an agency or department must send to OMB, through NIST, “an explanation of the reasons for using such standards.” | Although NEI 00-01 is not an industry consensus standard, the staff has already provided guidance on acceptable use of NEI 00-01 in Regulatory Issue Summary (RIS) 2005-30, “Clarification of Post-Fire Safe-Shutdown Circuit Regulatory Requirements,” and RG 1.205, “Risk-Informed, Performance-Based Fire Protection for Light Water Reactor Electric Generating Plants.” DG-1170 also references NEI 00-01.<br><br>The NRC has specifically endorsed an NFPA standard (NFPA 805, “Performance-Based Standard for Fire Protection for Light Water Reactor Electric Generating Plants”) via the rulemaking process. NFPA 804, like many other applicable NFPA codes, may be an acceptable standard when used in accordance with regulatory requirements. However, the staff has not yet completed a detailed review of the most recent edition of NFPA 804 (2006), and this standard can not replace RG 1.189 without the appropriate regulatory process. The issuance of RG 1.189, Revision 1, will not preclude an endorsement of NFPA 804 in the future. |

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| Originator | DG-1170 Section | Specific Comments   |                        |
|            |                 | <p>The Act states that beginning with fiscal year 1997, OMB will transmit to Congress and its committees an annual report summarizing all explanations received in the preceding year.</p> <p>Industry believes that a consensus standard and equivalent guidance exist pertaining to the content of DG-1170. The industry requests that the staff explain what portions of National Fire Protection Agency (NFPA) 804 ("Standard for Fire Protection for Advanced Light Water Reactor Electric Generating Plants") and NEI 00-01 ("Guidance for Post-Fire Safe-Shutdown Circuit Analysis") are acceptable and necessary for compliance with General Design Criterion (GDC) 3, "Fire Protection," in Appendix A, "General Design Criteria for Nuclear Power Plants," of Title 10, Part 50, "Domestic Licensing of Production and Utilization Facilities," of the <i>Code of Federal Regulations</i> (10 CFR Part 50) and 10 CFR 50.48, "Fire Protection," and document any exceptions or limitations according to Public Law 104-113.</p> <p>OMB A-119 states that all Federal agencies must use voluntary consensus standards in lieu of government-unique standards in their procurement and regulatory activities, except where inconsistent with law or otherwise impractical. In these circumstances, your agency must submit a report describing the reason(s) for its use of government-unique standards in lieu of voluntary consensus standards to the Office of Management and Budget (OMB) through the National Institute of Standards and Technology (NIST). (See additional discussion in NEI cover letter.)</p> |                        |

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| Originator | DG-1170 Section        | Specific Comments   |  |
| NEI        | Section B (comment 11) | Recommend including FR notice reference or date for the 1981 10 CFR 50.48(c) reference since it was removed and replaced by the NFPA 805 rulemaking. Editorial clarification. BASIS: Improves accuracy of document.   | Agree. The staff has added this to Section B.  |
| NEI        | Section B (comment 12) | Draft Regulatory Guide Text: "Following promulgation of 10 CFR 50.48 and Appendix R, the staff issued GL 81-12, 'Fire Protection Rule' (45 FR 76602, November 19, 1980), and later its associated clarification letter (March 22, 1982). In these letters, the staff identified the information necessary to perform its reviews of licensee compliance with the alternative or dedicated shutdown requirements of Section III.G.3 of Appendix R." The statement that GL 81-12 only applied to III.G.3, and that the NRC only requested or reviewed information related to III.G.3 does not appear to be consistent with industry perspective. BASIS: A complete review of GL 81-12 and its clarification in addition to random samplings of GL 81-12 licensee submittals and NRC SERs reinforce that the NRC considered GL 81-12 responses incomplete if they did not address non-III.G.3 fire areas. NRC historical inspection guidance, violations issued, and other historical documents, such as "A Historical Fire Protection Licensing Document Describing Requirements for Commercial Nuclear Power Plants Operating in the United States" (ADAMS Accession No. ML040340658) and "U.S. Department of Energy's Reactor Core Protection Evaluation Methodology for Fires at Soviet Designed RBMK and VVER Nuclear Power Plants" (DOE/NE-0113, Revision 1), purport to reflect how the NRC licensed U.S. nuclear power plant fire protection, and in the case of DOE/NE-0113, recommended that international units adopt the U.S. approach. They both indicate that the same method of analysis is applied to associated circuits, regardless of the fire area being III.G.2 or III.G.3. | The enclosure to RIS 2005-30 provides a detailed explanation of the application of GL 81-12 (and the associated clarification letter) to III.G.2 and III.G.3 areas and provides the basis for the explanation. DG-1170 reflects the staff's guidance provided by this RIS. |

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| Originator | DG-1170 Section        | Specific Comments  |   |
| NEI        | Section B (comment 13) | Draft Regulatory Guide Text: "GL 88-12, 'Removal of Fire Protection Requirements from Technical Specifications,' dated August 2, 1988, gave licensees additional guidance for implementing the standard license condition and removing the technical specifications associated with fire detection and suppression, fire barriers, and fire brigade staffing." Revise to read, "GL 88-12, 'Removal of Fire Protection Requirements from Technical Specifications,' dated August 2, 1988, gave licensees additional guidance for implementing the standard license condition and <del>relocating removing</del> the technical specifications associated with fire detection and suppression, fire barriers, and fire brigade staffing to a licensee-controlled document. BASIS: Technical specifications were not removed; they were relocated <u>to a licensee controlled document</u> . This process is clearly discussed in the license amendments filed to make the change in each site's license conditions.             | Agree. The staff will change as suggested.  |
| NEI        | Section B (comment 14) | Draft Regulatory Guide Text: "Licensees were to retain the technical specifications associated with safe-shutdown equipment and the administrative controls related to fire protection audits under the guidance of the generic letter." Delete this sentence. This sentence captured what GL 88-12 stated, but fails to capture the fact that simultaneously with this effort, the NRC and industry undertook various technical specification improvement initiatives that in many cases concluded that technical specifications for postfire safe-shutdown equipment discussed in GL 88-12 were not required by 10 CFR 50.36, and thus were not carried forward into later versions of plant's technical specifications. FP quality assurance programs have also been subsequently modified based on later staff provisions and individual agreements and have also been relocated from the technical specifications to other controlled documents (e.g., QA plans). BASIS: This sentence provides incomplete information. | The statement in DG-1170 is correct. This section is a summary of historical fire protection guidance. Fire protection program requirements have not changed. The comment takes the statement out of context and is misleading. GL 88-12 provided a means for licensees to move the fire protection system and fire brigade technical specifications into a plant technical requirements manual and thus make changes in accordance with the fire protection operating license. 10 CFR 50.36, "Licenses and Radiation Safety Requirements for Irradiators," requires technical specifications for the "lowest functional capability or performance levels of equipment required for safe operation of the facility." Certain equipment required to accomplish postfire safe shutdown may be necessary to meet the requirements of 10 CFR 50.36 and should be in the technical specifications. Fire protection audits are required to comply with 10 CFR 50.48(a). Undefined "staff provisions" and "individual agreements" have no regulatory standing. |



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| Originator | DG-1170 Section        | Specific Comments  |   |
| NEI        | Section B (comment 15) | Recommend including reference to NEI 04-02 in the first paragraph, along with an endorsement statement regarding RG 1.205. BASIS: Editorial clarification. Improves accuracy of document.  | Agree. The staff has incorporated the comment.  |
| NEI        | Section B (comment 16) | Draft Regulatory Guide Text: "In 1997, the NRC staff noticed that a series of licensee event reports (LERs) had identified plant specific problems related to potential fire-induced electrical circuit failures that could prevent operation or cause maloperation of equipment necessary to achieve and maintain hot shutdown. The NRC staff documented these problems in IN 99-17, 'Problems Associated with Post-Fire Safe-Shutdown Circuit Analysis.' Because of the number of similar LERs, the NRC treated the issue generically. In 1998, the NRC staff began interacting with interested stakeholders to understand the problem and develop an effective risk-informed solution to the circuit analysis issue." These statements are not historically accurate. The role of the Fire Protection Functional Inspection program in raising the "multiple spurious" actuation issue at River Bend and backfit claims by River Bend, Peach Bottom, and NEI (and others) regarding the multiple spurious issues raised by the staff were not included in this discussion. BASIS: Technical clarification. Improves accuracy of document. | The staff considers the DG-1170 description historically accurate. Information Notice (IN) 99-17 documents multiple examples of multiple spurious actuation problems. Only four Fire Protection Functional Inspections (FPFIs) were performed, and the issues in the IN are not the FPFi-identified issues. The notice accurately reflects industry reports. Both the Office of the General Counsel and the Committee to Review Generic Requirements, in their review of the draft GL on multiple spurious actuations, concluded that the staff's positions with respect to multiple spurious actuations are not a backfit. In response to the Commission's memo postponing the issuance of the GL, the staff will reassess potential backfit implications. |
| NEI        | Section B (comment 17) | Recommend rewording the paragraph beginning "In 2000...." This section does not appear to reference NRC involvement in the manual action issue. The tone of the statement seems to put a poor light on industry actions. BASIS: Many licensees had manual actions before Thermo-Lag activities. More than one licensee notified the NRC they would resolve Thermo-Lag in part through the use of manual actions. These intentions are reflected in licensee correspondence and NRC orders regarding Thermo-Lag. An alternate version of how plants got licenses is provided in "A Historical Fire Protection Licensing Document Describing Requirements for Commercial Nuclear Power Plants Operating in the United States" (ADAMS Accession No. ML040340658) and "U.S. Department of Energy's Reactor Core Protection Evaluation Methodology for Fires at Soviet Designed RBMK and VVER Nuclear Power Plants" (DOE/NE-0113, Revision 1).  | The DG-1170 description is accurate. The staff acknowledges that "many licensees had manual actions before Thermo-Lag activities." The regulations permit manual actions for alternative and dedicated shutdown systems, and the NRC approved some manual actions via the exemption process for specific plants and configurations.   |

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| Originator | DG-1170 Section        | Specific Comments  |  |
| NEI        | Section B (comment 18) | NFPA 805 transitioning plants still are required to meet 10 CFR 50.48(a). The discussion on p. 31 states that plants transitioning to 10 CFR 50.48(c) are not required to meet 10 CFR 50.48(a). This is technically incorrect and could lead licensees to violate 10 CFR 50.48. The statements of consideration for 10 CFR 50.48(c) provide detail on how implementation of 10 CFR 50.48(c) meets 10 CFR 50.48(a). Recommend including a summary of this information (June 2004, ADAMS Accession No. ML0413400860) in the 10 CFR 50.48 discussion for NFPA 805 transitioning plants. BASIS: Clarification. Improves accuracy of document. This is an area of debate that helps define the scope of the FP program post-NFPA 805 transition. This is an important clarification that helps licensees develop a new fire protection program. | Agree that this is misleading. The staff has clarified this issue. There is no need to provide more detail since this RG is not for 10 CFR 50.48(c) plants.  |
| NEI        | Section B (comment 19) | The "Shutdown and Decommissioned Plants" section fails to mention the 10 CFR 50.48(f) statement regarding plants that comply with NFPA 805. BASIS: Clarification. Improves accuracy of document.   | Agree. The staff has added a reference to 10 CFR 50.48(f) to this section.   |
| NEI        | Section B (comment 20) | The defense-in-depth discussion on p. 33 is different than that described in the Regulatory Position C.1.a, b, and c. What is the reason for the difference? Please provide a basis for the inconsistency in the description of fire protection defense-in-depth. Consider the following: "No one of these echelons can be perfect or complete by itself. Each echelon should meet certain minimum requirements; however, strengthening any one can compensate in some measure for weaknesses, known or unknown, in the others." The definition of "defense-in-depth" has been unchanging across numerous NRC and industry documents. There is no apparent justification provided for a change in the definition.  | Agree. The staff has changed both DG-1170 instances to be exactly like the version in Appendix R, "Fire Protection Program for Nuclear Power Facilities Operating Prior to January 1, 1979," to 10 CFR Part 50. The proposed additional statement would require the development and inclusion of specific guidance with respect to "certain minimum requirements," with respect to offsetting increases/decreases, etc. That guidance is outside the scope of this revision to the RG. |

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| Originator | DG-1170 Section        | Specific Comments  |   |
| NEI        | Section B (comment 21) | The "Postulated Fire" provides a "definition" of redundant trains that does not appear to have a previous regulatory basis in generic correspondence or regulations. The source and bases for this definition should be provided, since it could be used to provide a basis for compliance with Sections III.G.2 and III.G.3 of Appendix R to 10 CFR Part 50 and may not have regulatory precedent. BASIS: Technical impact; adverse interpretations could potentially increase scope of equipment requiring protection per Section III.G.2/III.G.3 of Appendix R. Definition of "redundant trains" should not be limited to the discussion provided in DG-1170. | The definition of redundant train is based on the GL 86-10, "Implementation of Fire Protection Requirements," response to Comment 3.8.3, "Redundant Trains/Alternate Shutdown." Licensees may propose alternative definitions for plant-specific conditions and configurations.   |
| NEI        | Section B (comment 22) | The discussion regarding severe natural phenomenon conflicts with the regulatory position stated in C.1.2: "Worst case' fires need not be postulated to be concurrent with non-fire-related failures in safety systems, other plant accidents, or the most severe natural phenomenon." Delete requirement to consider severe natural phenomenon when evaluating design capability of fire protection systems and features.   | Agree. The staff has deleted this guidance.   |
| NEI        | Section B (comment 23) | The discussion on station blackout states, "The risk of self induced SISBO may greatly exceed the actual risk posed by the fire..." Industry is not commonly aware of any quantification of this issue, and if it has not been quantified at one or more plants, it is recommended that these statements be reworded. Please provide the regulatory basis for this position.   | Since this is in the discussion section and not the regulatory position section, this statement is simply an observation. No quantification is needed to question whether shutting down all plant alternating current (ac) power could exacerbate the consequences of a fire. However, the staff has deleted the word "greatly." Also see the response to Comment 24. |

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| Originator | DG-1170 Section        | Specific Comments   |  |
| NEI        | Section B (comment 24) | Draft Regulatory Guide Text, SISBO discussion: "The acceptability of safe-shutdown procedures that voluntarily enter, or otherwise create, a SISBO condition is determined on a case-by-case basis." Delete this sentence. There is no regulatory basis for this statement, and there is no NRC criteria or mechanism that directs a SISBO user to obtain prior approval. Regarding SISBO, NUREG-1742 simply states, "No risk tradeoff studies have been documented, either in the IPEEEs or elsewhere, to assess whether or not risk has actually been lowered by adoption of these SISBO procedures." There is no evidence that the NRC has previously placed itself in the "previous approval" process for existing SISBO users (i.e., specific approval of a particular SISBO strategy), so the sentence in question will lead to a confusing situation for both licensees and inspectors trying to use the RG. | <p>The regulatory basis for this statement, which was confirmed by a Federal court decision, is the requirement that licensees using alternative shutdown (ASD) in accordance with Appendix R, Section III.G.3, must meet the requirements of Section III.L to accomplish ASD. Section III.L requires that "During the post-fire shutdown, the reactor coolant system process variables shall be maintained within those predicted for a loss of normal a.c. power." A postulated loss of "normal" ac power does not include loss of the standby diesel generators and, therefore, it is not a self-induced station blackout (SISBO).</p> <p>Licensees had to submit their ASD programs for staff review to meet the original 10 CFR 50.48(c). Guidance for the submittal was in GL 81-12 and its supplement. The post-1979 licensees had to submit the program in the initial licensing process to meet the guidance of Standard Review Plan (SRP) BTP 9.5-1. The NRC approved SISBO in some of these programs. Licensees may make changes to the approved program in accordance with their operating license condition. Typically, changes are allowed if they do not "adversely affect" the ability to achieve safe shutdown. The staff will carefully review a change from a program that did not include an approved SISBO to one that now has an unapproved SISBO to ensure that the change was incorporated in accordance with the plant license condition.</p> |
| NEI        | Section B (comment 25) | The "Conditions of Fire Occurrence" section states, "However, severe natural phenomena, such as earthquakes, may initiate a fire event and should be considered in evaluating the design capability of fire protection systems and features." Please provide the regulatory precedent and basis for this position. BASIS: Technical impact; adverse interpretations could potentially increase scope of fire protection program.  | Agree. The staff has incorporated the comment. Also see response to Comment 22.  |

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| Originator | DG-1170 Section        | Specific Comments   |   |
| NEI        | Section B (comment 26) | Section B on "Loss of Offsite Power/Station Blackout" states, "In evaluating the capability to accomplish safe shutdown after fires, the licensee should consider whether offsite power will be available. However, the licensee need not consider loss of offsite power for a fire in non-alternative or dedicated shutdown areas if it can show that offsite power cannot be lost because of a fire in that area." These statements are not clearly worded. It could be inferred that a fire in a dedicated shutdown area does not have to consider a loss of offsite power, contrary to the requirements of Section III.L of Appendix R. BASIS: Editorial clarification. Improves accuracy of document.  | Agree. The staff has changed "dedicated" to "nondedicated."   |
| NEI        | Section B (comment 27) | The "Postulated Fire" and "Post-Fire Safe-Shutdown" sections use different phrases and terminology. "Redundant trains" and "success paths" are used interchangeably and could present confusion and lead to misinterpretation of regulatory requirements and expectations. BASIS: Editorial clarification. Improves accuracy of document.   | Agree. Where appropriate, the staff has changed "trains" to "success paths." The glossary addresses the use of these two terms.   |
| NEI        | Section B (comment 28) | Draft Regulatory Guide Text, entire SISBO discussion: Delete or rewrite entire section. BASIS: From a practical standpoint, it may be impossible to distinguish between an intentional SISBO, a SISBO caused by some fire-induced circuit failure to which a reactive strategy is used for recovery, a SISBO caused by the electrical equipment that is on fire (bus, MCC, bus duct, or transformer), a SISBO caused by the control room operator deenergizing the attempt to stop a feed pump from overfeeding the reactor/steam generator, and a SISBO that is directed by the brigade leader in order to suppress a fire or deenergize a faulted component or bus. There are many reasons why a plant may choose to intentionally deenergize one or more busses. New reactors will likely still need to deenergize busses to terminate some types of inadvertent actuations (e.g., to stop an overfeeding feedwater pump). | The comment is not accepted. A licensee must comply with existing regulations and with its operating license condition. The requirement for ASD is that "During the post-fire shutdown, the reactor coolant system process variables shall be maintained within those predicted for a loss of normal a.c. power." If the licensee can show this with a brief SISBO, then it will meet the requirements. There is no regulatory difference between a self-induced station blackout (SBO) or a fire-induced SBO. If the licensee can not meet regulatory requirements, then prior staff approval is required or plant modification is necessary. See also the response to Comment 24 above. |

| Comments   |                             |  | NRC Comment Resolution   |
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| Originator | DG-1170 Section             | Specific Comments  |  |
| NEI        | C.1.1.f.iii<br>(comment 29) | The term “collateral responsibilities” is used with regard to fire brigade members. Can the term collateral be expanded to include examples of responsibilities that would not conflict with fire brigade responsibilities? BASIS: Technical clarification.  | A collateral responsibility would be a required action or decision that would adversely affect the fire brigade members’ ability to perform a required firefighting function. The staff added this additional guidance to this subsection. |
| NEI        | C.1.2<br>(comment 30)       | Delete requirement to “specify measures for alternative shutdown capability” since this will be covered in detail under the plant’s safe shutdown analysis. BASIS: Technical clarification.  | Agree. The staff has incorporated the comment.   |
| NEI        | C.1.3<br>(comment 31)       | Limit DG-1170 discussion of safe-shutdown analysis to simply include an Endorsement of NEI 00-01, Revision 1, and any exceptions that the staff might take to NEI 00-01. BASIS: The NRC indicated in RIS 2005-030 that “The deterministic methodology presented in NEI 00-01, when applied in accordance with the regulatory expectations described in this RIS, is one acceptable approach to the analysis of post-fire, safe-shutdown circuits.” | Section 5.3.1 of DG-1170 already provides the requested reference to NEI 00-01.  |
| NEI        | C.1.5<br>(comment 32)       | Changing the compensatory actions to be used to address nonconformances and unique situations, a licensee would have to change its FPP using the standard license condition in order to specify an alternate compensatory or required action. The draft wording implies that a licensee may specify an alternate compensatory action without actually changing the FPP. BASIS: Revise section to be consistent with RIS 2005-07.                   | Agree. The staff has revised this section to clarify the guidance and to make it consistent with RIS 2005-07, “Compensatory Measures to Satisfy the Fire Protection Program Requirements.”   |
| NEI        | C.1.5<br>(comment 33)       | With regards to compensatory measures, the term “reasonable timeframe” is used for completing the corrective action process. Can the term “reasonable timeframe” be better defined? Can the timeframe be tied into the cycles of the plant with regard to refueling outages or a definitive time period? BASIS: Technical clarification.   | Agree. The staff has deleted the reference to “reasonable timeframe.”  |
| NEI        | C.1.6.1.a<br>(comment 34)   | A fire protection engineer who is a Registered Professional Engineer in Fire Protection by the State the plant is located in should also be acceptable to the NRC. BASIS: At the time the Functional Responsibilities, Administrative Controls and Quality Assurance letter was created, States did not license FPEs. This is not true today. The FPE registration process is equally as robust as SFPE membership.                                | Agree. The staff has incorporated the comment.   |

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| Originator | DG-1170 Section            | Specific Comments  |  |
| NEI        | C.1.6.1.a<br>(comment 35)  | The eligibility requirements list “member,” but should it not say “member grade”? This term should be consistent with Section 1.7.10 for audits to be conducted by a fire protection engineer with member grade qualifications. BASIS: Technical clarification.  | Agree. The staff has incorporated the comment.   |
| NEI        | C.1.6.1.a<br>(comment 36)  | SFPE uses the term “professional member grade” currently to differentiate between varying levels of grade. This term should be revised to reflect the current grade status of SFPE, or member grade should be listed along with professional member grade. This term should be consistent with Section 1.7.10 for audits to be conducted by a fire protection engineer with member grade qualifications. BASIS: Technical clarification. | Agree. The staff has incorporated the comment.   |
| NEI        | C.1.6.4.1<br>(comment 37)  | For plants staffed with a dedicated professional fire department, clarify that the fire team advisor is not part of the fire department and therefore is not required to meet fire department training requirements specified in this document. BASIS: Technical clarification.  | The fire team advisor does not need to be a qualified fire brigade member. However, if the fire team advisor is not a qualified fire brigade member, there should be five available fire brigade members in addition to the team advisor. The staff has incorporated the response to the comment.                |
| NEI        | C.1.7.10.1<br>(comment 38) | Fire protection audit requirements were previously defined via ANSI N18.7. This has been updated to ANSI/ANS 3.2. Please provide basis for update. BASIS: Technical clarification.   | American National Standards Institute/American Nuclear Society (ANSI/ANS) 3.2 is the current standard. If the plant’s standard of record is ANSI N18.7, there is no need to commit to the later standard. The staff has added after the standard reference, “(or the comparable applicable standard of record).” |
| NEI        | C.1.7.10.3<br>(comment 39) | Remove the sentence referring to “outside consultant.” Utility personnel can be used as long as it is not the same group that performed the past inspection. BASIS: Technical clarification.   | The comment is not completely accurate. An outside consultant may be a utility employee from a different utility. The “outside consultant” should not be a member of the licensee’s staff. The staff has changed DG-1170 to reflect this response.   |

| Comments   |                         |   | NRC Comment Resolution  |
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| Originator | DG-1170 Section         | Specific Comments   |   |
| NEI        | C.1.8.1<br>(comment 40) | <p>(inclusive of all subsections) Draft Regulatory Guide Text: Not quoted due to length. Delete/revise entire section. This is a significant change that should not be performed at this time. It took the NRC and industry over 2 years to come to agreement on revised 10 CFR 50.59, and fire protection was “screened out” of 10 CFR 50.59 in part because the 10 CFR 50.59 questions (even the new 50.59 questions) are not a useful set of questions for evaluating changes in the FP program or SSCs. The NRC and industry should take this issue “off line” and resolve it independent of the RG 1.189 revision schedule. Doing so would not detract from RG 1.189 since the issue would still be moot until a new reactor received its operating license (5–10 years from now).</p> <p>Specific comments: The language “approved FPP without the Commission’s prior approval only if those changes would not adversely affect the ability to achieve and maintain safe shutdown in the event of a fire as documented in a safety evaluation” is incorrect because the NRC has substituted the term “safety evaluation” where the actual license conditions reads “in the UFSAR.” This is a significant change since it changes the meaning from requiring the licensee to maintain compliance with the UFSAR (a living document) to a previous NRC SER (a static document). The noun “safety evaluation” is used throughout this section, but is undefined in the context of the RG and undefined in 10 CFR 50.59. It appears to reflect “old 50.59” terminology that no longer exists in 10 CFR 50.59.</p> | <p>The Commission has indicated that it is undesirable to have a fire protection license condition for future licensees. Applying 10 CFR 50.59, “Changes, Tests, and Experiments,” to new reactors will eliminate the need for a separate license condition for fire protection to allow licensees to self-approve plant changes that impact the fire protection program. In addition, this change will bring the fire protection program in line with the rest of the plant in this respect. The methodology and acceptance criteria of 10 CFR 50.59 are equally applicable to fire protection and to the other systems in the plant.</p> <p>The staff has changed references to a “safety evaluation” to “change evaluation” or “evaluation,” as appropriate.</p> <p>The current issue of RG 1.189 issued in 2001 includes the guidance with respect to adverse effect and safety margins. Since the term “adverse effect” is subjective, this guidance provides licensees with one acceptable set of acceptance criteria for assessing “no adverse effect.” (The criterion quoted by the commenter merely provides another version of the same phrase and, consequently, provides no additional guidance.)</p> |



| Comments   |                                    |  | NRC Comment Resolution                                   |
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| Originator | DG-1170 Section                    | Specific Comments  |  |
|            |                                    | <p>The sentence, “Within the context of the standard fire protection license condition, the phrase ‘not adversely affect the ability to achieve and maintain safe shutdown in the event of a fire,’ means to maintain sufficient safety margins” is inaccurate. SECY-85-306B, GL 86-10, and individual license amendments granted while adopting the standard FP license condition define “not adversely affect the ability to achieve and maintain safe shutdown in the event of a fire” to mean “The licensee may not make changes to the approved fire protection program which would adversely affect the ability to achieve and maintain safe shutdown in the event of a fire without prior approval of the Commission” or “This requirement ensures that all facilities will be held to the level of protection required by Appendix R unless the Commission specifically allows otherwise after prior review.” BASIS: There are numerous problems with this section, as written. The approach the staff is taking (embedding new regulatory requirements in an RG) appears to be rulemaking, performed out of process. Also, the staff approach for new plants is in conflict with previous Commissioners’ decisions regarding the FP change process (SECY-85-306B). <b>For the 10 CFR 50.59 rulemaking itself, the NRC and the industry should work together to identify</b> what FP changes are important enough that the staff wants/needs to be involved in the process and what should be the “test” used to flag these changes for prior NRC review. Once these are agreed on, then a revision to 10 CFR 50.48 could be made to formalize this process for all licensees.</p> |  |
| NEI        | C.1.8.1 and C.1.8.1.2 (comment 41) | Reference NEI 02-03 under the discussion regarding standard license condition changes. BASIS: NEI 02-03 provides the necessary guidance to adequately document FPP changes under the standard license condition.   | Agree. See response to Comment 7.                        |
| NEI        | C.1.8.1 (comment 42)               | Will 10 CFR 50.59 be used to assess security and EP changes in new plants? BASIS: Technical clarification.   | This RG governs neither security nor emergency planning. |

| Comments   |                        |   | NRC Comment Resolution  |
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| Originator | DG-1170 Section        | Specific Comments   |   |
| NEI        | C.1.8.1 (comment 43)   | The term "safety evaluation" is no longer used and should be changed. See NEI 96-07 and RG 1.187. BASIS: Editorial clarification.   | Agree. See response to Comment 40.  |
| NEI        | C.1.8.1.2 (comment 44) | Reference to RG 1.174 implies that risk methods should be used in the process to evaluate safety margins in accordance with the standard license condition. This document should provide other references to evaluating safety margins. Referencing RG 1.174 could be misinterpreted by inspectors to mean that a risk analysis is required. BASIS: Technical clarification.  | Agree. The staff deleted the reference to RG 1.174, "An Approach for Using Probabilistic Risk Assessment in Risk-Informed Decisions on Plant-Specific Changes to the Licensing Basis." However, this section already specifically notes that a risk assessment is not required for a change evaluation performed in accordance with the standard license condition. |
| NEI        | C.1.8.1.2 (comment 45) | Discussion of NFPA codes infers <b>[implies]</b> that a licensee must be in compliance with the code to meet the safety margin criteria. Not maintaining this safety margin would then require NRC approval. This is consistent <b>[staff assumes this was meant to be "inconsistent"]</b> with Section 1.8.7 and GL 86-10. BASIS: Technical clarification.   | Agree. The staff has clarified this section to state that licensees may perform code equivalency evaluations without NRC review and approval as noted in Section 1.8.7.   |
| NEI        | C.1.8.1.4 (comment 46) | The use of the term "safety evaluation" should be avoided; if changes are being made in accordance with the standard license condition, the term should be FPP change process and reference NEI 02-03. The draft wording implies the need to utilize a 10 CFR 50.59 evaluation, which would not be appropriate under most FPP changes. BASIS: Technical clarification.  | Agree. See response to Comment 40.  |
| NEI        | C.1.8.2.c (comment 47) | Fire-retardant coatings are subcomponents of fire-rated assemblies and at times penetration seals. Adding this limitation affects other configurations. If it is intended not to use fire-retardant coatings for cable tray fire barriers, then that is what should be stated. That, however, would not appear to be appropriate as specific components or features used in an exemption request should not be prohibited or prescribed by the NRC. It is possible to utilize flame-retardant coatings combined with several other fire protection features to provide an adequate level of protection. This RG should not prescribe what not to credit. The exemption should be based on the specifics of the hazards and configuration. BASIS: Technical clarification. | Agree in principle. Bullet c. means that fire-retardant coatings may not be relied on as the only basis for an alternative but does not limit crediting these coatings to some extent. The staff has clarified the RG by noting that fire-retardant coatings alone may not be credited as equivalent to 1- or 3-hour fire barriers.                                 |

| Comments   |                      |  | NRC Comment Resolution  |
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| Originator | DG-1170 Section      | Specific Comments  |   |
| NEI        | C.1.8.4 (comment 48) | Existing words indicating that “deviations may require a license amendment” are unclear and lead to inconsistent interpretation. Provide additional guidance as to what constitutes a need for a license amendment for post-1979 plants. BASIS: Technical clarification.   | The authors of this section chose the terminology carefully. A deviation is an action whereby the licensee departs from an approved program element, whereas the license amendment is the document that is submitted to the NRC for approval of the departure from the licensing basis. Historically, the NRC used the term “deviation” for both the action and the document, similar to an exemption. Since the NRC does not have a document classification of deviation, the correct classification is license amendment. |
| NEI        | C.1.8.5 (comment 49) | The draft text states that an operability assessment should be performed for SSCs that are relied upon in the FPP. Many of these SSCs are not safety related; the proper term for this type of assessment for NSR SSCs is “functionality assessment.” BASIS: Technical clarification.  | Agree. The staff has deleted this section from the RG and will add the appropriate guidance to SRP Section 9.5.1.   |
| NEI        | C.1.8.5 (comment 50) | This section infers that substitution of manual suppression system for automatic suppression system is a planned activity. If that is the intent, use of operability assessment to assess change is not the correct process. This RG should reference RIS 2005-20 for conducting operability assessments. Since the RIS is not referenced, it is recommended that this section be deleted (and the RIS referenced) or compared directly to it. BASIS: Technical clarification.   | Agree. See response to Comment 49.  |
| NEI        | C.1.8.8 (comment 51) | The NRC discusses fire modeling and NRC endorsement of fire models. The bounds on the use of fire models for a plant that is not transitioning to NFPA 805 or not seeking NRC approval for a risk- informed, performance-based licensing action (e.g., RG 1.174) are not delineated. It is expected that licensees can use endorsed fire models as part of an engineering evaluation process. The RG should clearly state this. BASIS: Technical clarification. Improves accuracy of document and provides guidance where it is currently unclear. | Agree. The staff added this statement.  |

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| Originator | DG-1170 Section           | Specific Comments  |  |
| NEI        | C.3.2.2.a<br>(comment 52) | Section defines requirements to ensure that 100 percent capacity pump capability is available. As written, a licensee can provide diesel and electric driven pumps or seismically qualified pumps... thereby not mandating a seismically qualified pump capability. This is original RG text and not part of this change but appears to not meet NRC intent. BASIS: Technical clarification.   | Seismically qualified pumps are not required unless all are electric-motor driven or the pump provides the seismic Category I water supply to the seismic standpipes described in Regulatory Position 3.2.1.j.   |
| NEI        | C.3.2.3<br>(comment 53)   | NFPA 25 is referenced for guidance in this section but is also applicable to all other water-based suppression systems or components defined in Section 3.3. It is not defined as a guideline in 3.3. BASIS: Technical clarification.  | Agree. The staff has moved the reference to NFPA 25, "Standard for the Inspection, Testing, and Maintenance of Water-Based Fire Protection Systems," to Section 2.4 of the RG.   |
| NEI        | C.3.3<br>(comment 54)     | The discussion of heat collectors and the reference to IN 2002-24 in the text of the document is an inconsistent reference to generic correspondence. There are many generic correspondence documents related to fire protection and postfire safe shutdown (>100), and they are not specifically referenced. It is recommended that these documents (bases) be specifically referenced. BASIS: Editorial clarification. Improves accuracy of document.  | Agree. It is not practical to reference generic correspondence for each guideline and not consistent with other RGs. The staff has deleted the reference here for consistency.   |
| NEI        | C.3.4.5<br>(comment 55)   | Section III.G.3 of Appendix to 10 CFR Part 50 requires a fixed suppression system in the area, room, or zone under consideration. Section C.3.4.5 states, "Manual actuation is generally limited to water spray systems and should not be used for gaseous suppression systems except when the system provides backup to an automatic water suppression system." The technical and regulatory basis for a manually initiated gaseous system compliant with 10 CFR Part 50, Appendix R, Section III.G.3 being unacceptable should be provided. BASIS: Technical clarification. This appears to provide an interpretation of regulations that doesn't have a clear referenced basis. | Section III.G.3 requires fixed suppression without specifying that it be automatically or manually actuated. The technical basis for the DG-1170 guidance is that gaseous suppression systems are generally inferior to water-based suppression systems in suppressing a deep-seated fire. Consequently, a gaseous system should be discharged as soon as the fire is detected—before it becomes deep-seated. An automatically actuated system generally responds in less time than it takes for the fire brigade to respond to an alarm and manually actuate the system. The regulatory basis is GDC 3 in Appendix A to 10 CFR Part 50, which includes the requirement that "Fire detection and fighting systems of appropriate capacity and <u>capability</u> shall be provided and designed to <u>minimize</u> the adverse effects of fires on SSCs important to safety." Licensees may propose alternatives to the guidance in the RG. |

| Comments   |                           |   | NRC Comment Resolution  |
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| Originator | DG-1170 Section           | Specific Comments   |   |
| NEI        | C.4.1.3.1<br>(comment 56) | Draft Regulatory Guide Text: Cable design electric cable construction should pass the flame test in IEEE Standard 383, "IEEE Standard for Type Test of Class IE Electric Cables, Field Splices, and Connections for Nuclear Power Generating Stations," or IEEE Standard 1202, "IEEE Standard for Flame Testing of Cables for Use in Cable Trays in Industrial and Commercial Occupancies." Reference to IEEE-383 should reference the code year (e.g., 1974). Current edition of IEEE-383 does not have a flame test requirement, as it has been relocated to IEEE-1202. BASIS: Technical clarification. Improves accuracy of document.  | Agree. The staff has added a footnote that flame test requirements have been moved to Institute of Electrical and Electronic Engineers (IEEE)-1202.   |
| NEI        | C.4.2.1.2<br>(comment 57) | Draft Regulatory Guide Text: "Areas protected by automatic total flooding gas suppression systems should have electrically supervised self-closing fire doors or should satisfy option (a) above." Revise to read, "Areas protected by automatic total flooding gas suppression systems should satisfy option (a), (b), or (c) above." BASIS: NFPA 50 <b>[should be NFPA 80]</b> allows options a, b, and c. The NRC has previously allowed all three options for specific licensees it reviewed.   | NFPA 80, "Standard for Fire Doors and Other Opening Protectives," does not include any unique requirements for rooms with gaseous suppression systems. Because of the importance of room closure for gaseous suppression systems, a more reliable means of maintaining doors closed is appropriate for rooms protected by these systems. The method recommended by the RG is considered to provide the highest level of reliability of closure. Licensees may propose alternatives. |
| NEI        | C.4.2.1.3<br>(comment 58) | Draft Regulatory Guide Text: "This can be addressed by (1) type testing 'worst-case' airflow conditions of plant-specific fire damper configurations, (2) testing under airflow conditions all dampers installed in required fire barriers, or (3) administratively shutting down the ventilation systems to an area upon confirmation of a fire." Revise to read, "This can be addressed by (1) type testing 'worst-case' airflow conditions of plant-specific fire damper configurations, (2) <u>one time</u> testing under airflow conditions all dampers installed in required fire barriers, or (3) administratively shutting down the ventilation systems to an area upon confirmation of a fire." BASIS: Plants have shown that "one time" testing is sufficient to demonstrate that dampers successfully close under airflow. This is equivalent to "type testing." Operating experience has shown that repeatedly testing dampers under airflow (over many years) ultimately results in damage to the dampers. Excessive testing under flow also results in unnecessary HVAC system inoperability. | One-time testing may not be adequate. Corrosion of damper, dirt buildup, etc., could cause the damper to fail to close. Dampers should be periodically inspected, and if deterioration or fouling is evident, the damper's operation should be retested. It is unlikely that a one-time test will ensure operability for the 40–60 year life of the plant for all fire dampers in the plant. DG-1170 does not stipulate a test interval.  |

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| Originator | DG-1170 Section           | Specific Comments  |   |
| NEI        | C.4.2.3.2<br>(comment 59) | Draft Regulatory Guide Text: "Licensees should request an exemption or deviation, as appropriate, when relying on fire-rated cables to meet NRC requirements for protection of safe-shutdown systems or components from the effects of fire." This paragraph should be deleted. "Shearon Harris Nuclear Power Plant, Unit No. 1—Partial Withdrawal of an Amendment Request (TAC No. MC8134)," dated July 31, 2006 (ADAMS Accession No. ML061950109) indicates that an exemption/deviation is not required. Fire-resistant cable types that have successfully passed a qualification test meet the RG definition of "Free of Fire Damage," so no exemption/deviation is required. If the NRC is aware of particular qualification test protocols that it has reviewed and accepted, those test protocols should be discussed and endorsed in this RG. | While the regulatory requirements of Appendix R to 10 CFR Part 50 are based on providing reasonable assurance that one postfire, safe-shutdown train will remain free of fire damage, a pre-1979 plant must provide the protection required by Appendix R to be in compliance or else submit an exemption or license amendment. Fire-rated cables are not one of the Appendix R protection methods. Shearon Harris is a post-1979 plant and, therefore, can perform an evaluation that demonstrates that an alternative to Appendix R protection methods has no adverse effect on safe shutdown without submitting an exemption request. The staff has revised the referenced statement to provide clarification. |
| NEI        | C.4.3.4.1<br>(comment 60) | Draft Regulatory Guide Text: "Comparison of the fire barrier internal time-temperature profile measured during the fire endurance test to existing cable performance data, such as data from EQ tests, could be proposed to the staff as a method for demonstrating cable functionality." The language "could be proposed to the staff" should be deleted. The remainder of the paragraph states that the method described is acceptable to the staff. BASIS: Paragraph should not state that something should be "proposed to the staff" when it is in fact acceptable to the staff.  | Agree. The staff revised the text to eliminate reference to staff approval.   |
| NEI        | C.5<br>(comment 61)       | The term "backup shutdown" is used in the guide. This term is not defined in the glossary or used in other regulatory documents or in general practice in the industry. This term should be clearly defined with its regulatory and technical basis or be removed from the document. BASIS: Editorial clarification. Improves accuracy of document.  | Agree. The staff has removed "backup" from the RG with respect to "shutdown."   |

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| Originator | DG-1170 Section    | Specific Comments   |   |
| NEI        | C.5.1 (comment 62) | The first sentence under this section is only applicable to alternate shutdown in accordance with Sections III.G.3 and III.L. It is not applicable to redundant shutdown in accordance with Section III.G.2. Change this first sentence to be consistent with Section B, Post-Fire Safe-Shutdown Reactor Safety/Performance Goals, under Power Operation (“The reactor safety and performance goals for safe shutdown after a fire should ensure that the specified acceptable fuel design limits are not exceeded.”) BASIS: Technical accuracy and consistency.  | Agree. See response to Comment 63. The staff has deleted the first sentence.  |
| NEI        | C.5.1 (comment 63) | Section C.5.1 of DG-1170 states, “As noted in IN 84-09, ‘Lessons Learned from NRC Inspections of Fire Protection Safe-Shutdown Systems (10 CFR Part 50, Appendix R),’ the post-fire safe-shutdown performance goals are the same for both redundant success paths and alternative/dedicated shutdown systems.” This statement is contrary to discussions by NRC staff at the June 9, 2006, public meeting on operator manual actions (ADAMS Accession No. ML061950327). This statement is also contrary to NRC agreement with the Boiling Water Reactors Owners’ Group (BWROG) Appendix R Committee (late 1990s) that IN 84-09 can not legally impose specific instrumentation requirements or performance goals on the “redundant shutdown” trains without rulemaking, which was never performed. The final agreement between BWROG and the NRC was that the IN 84-09 is only applicable to Appendix R of 10 CFR Part 50, Sections III.G.3 and III.L (“Fire protection of safe shutdown capability” and “Alternative and dedicated shutdown capability,” respectively). DG-1170 should adopt the same language as provided in paragraph 3.1.2.5 of NEI 00-01 (or reference this section of NEI 00-01): | Agree. The staff has incorporated the comment and identified the Section III.L performance goals as pertaining to alternative/dedicated shutdown. |

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| Originator | DG-1170 Section | Specific Comments   |                        |
|            |                 | <p><b>3.1.2.5 Process Monitoring</b></p> <p>The process monitoring function is provided for all safe shutdown paths. IN 84-09, Attachment 1, Section IX, "Lessons Learned from NRC Inspections of Fire Protection Safe Shutdown Systems (10 CFR 50 Appendix R)" provides guidance on the instrumentation acceptable to and preferred by the NRC for meeting the process monitoring function. This instrumentation is that which monitors the process variables necessary to perform and control the functions specified in Appendix R, Section III.L.1. Such instrumentation must be demonstrated to remain unaffected by the fire. The IN 84-09 list of process monitoring is applied to alternative shutdown (III.G.3). IN 84-09 did not identify specific instruments for process monitoring to be applied to redundant shutdown (III.G.1 and III.G.2). In general, process monitoring instruments similar to those listed below are needed to successfully use existing operating procedures (including abnormal operating procedures).</p> <p>BWR</p> <ul style="list-style-type: none"> <li>— Reactor coolant level and pressure</li> <li>— Suppression pool level and temperature</li> <li>— Emergency or isolation condenser level</li> <li>— Diagnostic instrumentation for safe shutdown systems</li> <li>— Level indication for tanks needed for safe shutdown</li> </ul> <p>PWR</p> <ul style="list-style-type: none"> <li>— Reactor coolant temperature (hot leg/cold leg)</li> <li>— Pressurizer pressure and level</li> <li>— Neutron flux monitoring (source range)</li> <li>— Level indication for tanks needed for safe shutdown</li> <li>— Steam generator level and pressure</li> <li>— Diagnostic instrumentation for safe shutdown systems</li> </ul> |                        |



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| Originator | DG-1170 Section      | Specific Comments  |   |
|            |                      | The specific instruments required may be based on operator preference, safe shutdown procedural guidance strategy (symptomatic vs. prescriptive), and systems and paths selected for safe shutdown. BASIS: Technical impact; adverse interpretations could apply more stringent criteria in assessment of plant response to fire (t-h analyses modeling spurious actuations). (See additional discussion in NEI cover letter.)   |   |
| NEI        | C.5.2 (comment 64)   | Section C.5.2 states, "The combination of an automatic depressurization system and low-pressure safety injection system can provide cold shutdown capability. The application of regulatory allowance for repairs or manual actions for cold shutdown systems does not extend to these systems when they are credited for achieving and maintaining hot shutdown." This statement is believed to be new regulatory guidance and is unclear. There is no provision for an allowance for operator manual actions, although Section C.5.3.3 has allowances (e.g., second success path, etc.). These allowances should also be applicable to this section. In addition, "combination of automatic depressurization system and low-pressure safety injection" implies that only ADS and RHR-LPCI are methods of shutdown. Manual RPV depressurization using the SRVs and low-pressure core spray can be used to accomplish similar shutdown scenarios and should be addressed/ enveloped by this section. BASIS: Technical clarification. | Agree. The staff has deleted this statement.  |
| NEI        | C.5.3.2 (comment 65) | Section C.5.3.2 states (in discussing separation requirements for high-low pressure interface components), "b. For each set of redundant valves identified, verify that the redundant cabling (power and control) has adequate physical separation as stated by Regulatory Position 5.3 of this guide." This does not include a separation/protection provision for cables inside of containment. If separation of cabling is required inside of containment for this configuration, it should be stated. BASIS: Technical clarification.  | Agree. The staff has added a reference to Regulatory Position C.6.1.1.1 to this item. |

| Comments   |                         |   | NRC Comment Resolution  |
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| Originator | DG-1170 Section         | Specific Comments   |   |
| NEI        | C.5.3.3<br>(comment 66) | <p>Section C.5.3.3 states, "If one of the redundant success paths in the same fire area is maintained free of fire damage by the specified means in Appendix R, Section III.G.2, then the use of operator manual actions, or means necessary, to mitigate fire-induced operation or maloperation to the second success path may be considered in accordance with the licensee's FPP and license condition because Section III.G.2 has been satisfied (e.g., to stop a pump that spuriously starts and could prevent or adversely impact safe shutdown if allowed to continuously operate). Operator manual actions may also be credited when alternate or dedicated shutdown capability is provided." The information in this section does not provide enough clarification to adequately interpret and implement this regulatory guidance or refer to a document that does provide this clarification. There were public meetings, correspondence from the NRC, and NEI 04-02 Frequently Asked Questions attempting to provide this clarification, yet none of these are referenced (FAQ 06-0012, Rev. 1, October 26, 2006, ADAMS Accession No. ML063170362; NRC Comments on FAQ 06-0012, Rev. 1, November 30, 2006, ADAMS Accession No. ML063350442; Public Meeting Notice 20060609 on Manual Action Clarifications, May 26, 2006, ADAMS Accession No. ML061390156; Draft NRC Response to May 3, 2006, NEI letter, May 26, 2006, ADAMS Accession No. ML061440251; Draft NRC Response to March 29, 2006, EPM letter, May 26, 2006, ADAMS Accession No. ML061950327; RIS 2006-10, Regulatory Expectations With Appendix R Paragraph III.G.2 Operator Manual Actions, June 30, 2006, ADAMS Accession No. ML061650389; NRC Meeting Summary of 06-09-06 OMA Meeting, July 19, 2006, ADAMS Accession No. ML061950327; NRC Revision to Draft Response to EPM March 2006 letter, July 19, 2006, ADAMS Accession No. ML061980016; NRC Revision to Draft Response to NEI May 2006 letter, July 19, 2006, ADAMS Accession No. ML061980035). BASIS: Technical clarification. Improves accuracy of document and provides guidance where it is currently unclear. FAQ 06-0012 is attempting to obtain clarification, but this is a 'compliance' issue rather than an NFPA 805 transition issue (other than for scope of RI-PB change evaluation) and needs clarification.</p> | <p>Agree. RIS 2006-10, "Regulatory Expectations with Appendix R paragraph III.G.2 Operator Manual Actions," provides the appropriate detailed guidance with respect to OMAs and is referenced in this section. This RIS provides the most current NRC-approved guidance for OMAs.</p> |

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| Originator | DG-1170 Section         | Specific Comments  |  |
| NEI        | C.5.3.3<br>(comment 67) | The paragraph starting with "RIS 2006-10..." provides several examples that imply that the use of operator manual actions requires detection and automatic suppression. These references to detection and suppression in this document are inappropriate and appear to use an RG in lieu of the appropriate regulatory process such as rulemaking. The following statement is in Section C.5.3.3: "Use of operator manual actions does not obviate the detection and automatic suppression capabilities that are required by the regulations. In addition, the omission or elimination of these capabilities in an area containing SSCs (including circuits) important to safety would generally be considered an adverse effect on safe shutdown since it would reduce, at a minimum, fire protection defense-in-depth." This statement is inappropriate and does not provide sufficient basis. There are a number of plant-specific variables that could validate or invalidate the conclusions of that statement. A generality such as an "adverse effect on safe shutdown" should not be provided in a guidance document. Industry has been unable to locate any language in the regulations that requires detection and automatic suppression. BASIS: Technical impact; adverse interpretations could potentially increase scope of suppression/detection as part of operator manual action resolution. | The regulatory requirements for detection and suppression referred to in this section are those in Appendix R to 10 CFR Part 50, Sections III.G.2.b and III.G.2.c. The staff has added references to these subsections in this section of the RG to provide clarification. Since detection/suppression is one of the three primary components of defense-in-depth, elimination of detection and suppression means a reduction in defense-in-depth. Since plant safety with respect to fire is based on defense-in-depth, a significant reduction (e.g., elimination of one of the three aspects of defense-in-depth) would generally be considered to have an adverse effect on safe shutdown in an area where both safe-shutdown redundant trains are subject to the same fire, i.e., a III.G.2 area. |
| NEI        | C.5.3.3<br>(comment 68) | This section makes no reference to "second success paths" where redundant trains/success paths are not located in the same fire area (i.e., Section III.G.1.a of Appendix R). This is an important interpretation that needs to be clarified. BASIS: Technical impact; adverse interpretations could potentially increase scope of equipment requiring protection.   | Agree. The guidance is the same as for III.G.2. The staff has added III.G.1 to this guidance.  |
| NEI        | C.5.3.3<br>(comment 69) | This section is missing the important distinction that the manual actions which the NRC is concerned about in this section are associated with "hot shutdown." Otherwise, a reader could infer that manual actions are also not permissible for "cold shutdown." References to "hot shutdown" should be added where appropriate. BASIS: Technical clarification.   | Agreed. The staff has clarified this section to indicate that it applies to hot shutdown or hot standby, as applicable, and that OMAs may be credited for cold shutdown.   |

| Comments   |                         |   | NRC Comment Resolution  |
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| Originator | DG-1170 Section         | Specific Comments   |   |
| NEI        | C.5.3.3<br>(comment 70) | <p>Draft Regulatory Guide Text: "Because the fire protection requirements, including the protection of safe-shutdown capability and the prevention of radiological release, can be integrated in the planning and design phase, a new reactor plant should have minimal reliance on operator manual actions and alternative/dedicated shutdown systems (protection for fires in the main control room will require alternative shutdown capability)." The phrase "a new reactor plant should have minimal reliance on operator manual actions..." should be deleted or revised to agree with SECY-90-016. SECY-90-016 indicates that operator actions are acceptable for evolutionary LWRs, but adds the new stipulation that reentry into the fire area for operator actions and repairs should not be permitted.</p> <p>BASIS: New language in DG-1170 does not agree with SECY-90-016 (and SRM). Use of the verb "avoided" is unclear as to its intent and applicability. Language from SECY-90-016 is quoted verbatim in the following paragraph 8.2, which also creates an internal conflict in guidance with this sentence.</p> | <p>In reference to OMAs in SECY-90-16 (other than with respect to the area affected by the fire where OMAs may explicitly not be credited in accordance with the enhanced fire protection for new reactors), the staff could find only the statement "Additionally, the evolutionary ALWR designers must ensure that smoke, hot gases, or the fire suppressant will not migrate into other fire areas to the extent that they could adversely affect safe shutdown capabilities, including operator actions." This statement acknowledges only that some operator actions (including those in the control room) may be necessary in the event of a fire. The SECY does not define "operator actions" or provide any further guidance on where they may be credited. If the commenter has concluded that this statement gives licensees approval to credit an unlimited number of OMAs, that conclusion is incorrect. The guidance in DG-1170 for minimal reliance on OMAs is consistent with the concept of enhanced (as compared to existing) fire protection. The RG can not and does not prohibit the crediting of OMAs outside of the fire area where full 3-hour barrier separation is provided between redundant trains. However, the plant risk posed by fire may increase proportionally with the number of required OMAs. In addition, there may be areas of the plant where full 3-hour barrier separation may not be possible or feasible. Use of the terms "avoided" and "minimal reliance" is intended to provide licensees flexibility in their designs. It would be impossible to provide specific guidance on the number of operator actions or ASD trains that would cover multiple designs, and specific guidance of this nature would unnecessarily and inappropriately limit the design of the plant.</p> |

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| Originator | DG-1170 Section         | Specific Comments  |  |
| NEI        | C.5.3.4<br>(comment 71) | Section C.5.3.4 states, "Although some licensees have based this analysis on the assumption that multiple spurious actuations will not occur simultaneously or in rapid succession, cable fire testing performed by the industry had demonstrated that multiple spurious actuations occurring in rapid succession (without sufficient time to mitigate the consequences) have a relatively high probability of occurring." This statement is an improper generalization of industry testing. The approach described above relies heavily on the NRC's interpretation of the results of the EPRI/NEI tests (EPRI Technical Report 1003326, "Characterization of Fire-Induced Cable Faults: Results of Cable Fire Testing") which did not reach this conclusion. To state that "multiple spurious actuations occurring in rapid succession...have a relatively high probability of occurring" is misleading, because a spurious actuation is dependent on cable damage and on a number of other factors. These other factors include ignition frequency, severity factor, probability of nonsuppression, circuit function, proximity of other circuits within the same damage area, limits of fire damage to mitigating systems, importance of the damaged components to safe shutdown, etc. None of these factors are mentioned in DG-1170. BASIS: Industry perspective. (See additional discussion in NEI cover letter.) | Agree. The staff has revised the text of this section to read, "...had demonstrated that multiple spurious actuations occurring in rapid succession (without sufficient time to mitigate the consequences) may have a relatively high probability of occurring based on multiple factors including cable insulation/jacketing materials and cable configurations. The success path SSCs must be protected from fire damage that could prevent safe shutdown in accordance with 10 CFR 50.48(a)(2)(iii)." In addition, the staff has added a footnote to this section in response to the Commission's December 15, 2006, memorandum on the draft GL for spurious actuations. See the response to Comment 91 for the text of the footnote. |
| NEI        | C.5.4<br>(comment 72)   | Section C.5.4 addresses alternative and dedicated shutdown capability. Included in this discussion are associated circuits and associated circuits of concern. A similar section on associated circuits was included in the fire protection of safe shutdown capability section in RG 1.189, Revision 0, but was moved to a section on alternative/dedicated shutdown capability in DG-1170. No guidance or applicability of associated circuits is provided on nonalternative shutdown fire areas (fire areas governed by Sections III.G.1 and III.G.2 of Appendix R). BASIS: This appears to be a new interpretation where implications are not clear. It appears to indicate that GL 81-12 topics regarding associated circuits have never been applicable to "non III.G.3" fire areas.   | The staff has incorporated the guidance provided in RIS 2005-30 in DG-1170. There are no unique guidelines for "associated" circuits in III.G.1 and III.G.2 areas—any circuit whose fire-induced failure could prevent safe shutdown must be protected. The last statement in the comment BASIS is correct. Refer to RIS 2005-30 for further discussion of this issue.   |

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| Originator | DG-1170 Section      | Specific Comments   |  |
| NEI        | C.5.4.2 (comment 73) | Section C.5.4.2 states, "Associated circuits of concern are defined as those cables (safety-related, nonsafety-related Class 1E and non-Class 1E) that have a physical separation less than that specified in Regulatory Positions 5.3.a through 5.3.c of this guide, and have one of the following..." Regulatory Positions 5.3.a through 5.3.c only apply to fire areas outside of primary containment. Does this definition and guidance only apply to fire cables outside of containment? If so, what guidance is to be used for similar cables inside of containment? BASIS: Technical clarification.  | Agree. The staff has incorporated the comment and changed the RG text to note that the definition of associated circuits of concern includes cables inside a noninerted containment that have a physical separation less than that specified in Regulatory Position 6.1.1.1 of the guide.  |
| NEI        | C.5.4.2 (comment 74) | Section C.5.4.2 states, "For ungrounded dc circuits, if the licensee can show that at least two hot shorts of the proper polarity without grounding are required to cause spurious operation, no further evaluation is necessary except for any cases involving Hi/Lo pressure interfaces. However, two proper polarity faults in ungrounded multiconductor dc circuits should be considered." This statement is unclear and appears contradictory. If the intention is to assume that two proper polarity dc hot shorts should be considered in the same multiconductor cable (intracable shorts), then it should be clearly defined and stated as such. The last statement implies a limit of "two" on the number of proper polarity faults in ungrounded multiconductor dc circuits. If this is the intention, it should be clearly stated, and if not the intention, the sentence should be reworded for clarification. BASIS: Technical clarification. | Agree. The staff has deleted the second sentence from the RG. Note that Bin 1 (Items to be Considered During Inspection), Item C of RIS 2004-03, "Risk-Informed Approach for Post-Fire Safe-Shutdown Circuit Inspections," Revision 1, states that "for cases involving dc control circuits, consider the potential spurious operation due to failures of the control cables (even if the spurious operation requires two concurrent hot shorts of the proper polarity, e.g., plus-to-plus and minus-to-minus). Consider potential spurious actuations when the source and target conductors are each located in the same multiconductor cable." This Bin 1 item makes no distinction between grounded and ungrounded circuits. The staff is not aware of any testing that demonstrates a difference between grounded and ungrounded direct current (dc) circuits in this respect. |
| NEI        | C.5.4.3 (comment 75) | Section C.5.4.3 states, "The shutdown capability may be protected from the adverse effect of damage to associated circuits of concern by the separation and protection guidelines of Regulatory Position 5.3 of this guide or, alternatively, by the following methods as applied to each type of associated circuit of concern." Regulatory Positions 5.3.a through 5.3.c only apply to fire areas outside of primary containment. If so, what guidance is to be used for similar cables inside of containment? BASIS: Technical clarification.  | Agree. The staff has incorporated the comment.   |

| Comments   |                         |   | NRC Comment Resolution  |
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| Originator | DG-1170 Section         | Specific Comments   |   |
| NEI        | C.5.4.4<br>(comment 76) | Section C.5.4.4, addressing control room fires, states, “b. Offsite power is lost as well as automatic starting of the onsite ac generators and the automatic function of valves and pumps with control circuits that could be affected by a control room fire.” However, the guidance in Section B, p. 34 (related to loss of offsite power/station blackout), implies that the availability of offsite power may “increase the potential for circuit interactions” and “may impact the ability to control the safe shutdown of the plant.” These statements are in apparent contradiction to each other and should be clarified with respect to additional guidance. This section appears to be a rewrite of GL 86-10, Section 3.8.4. Industry’s understanding is that GL 86-10 positions 3.8.4 and 5.3.10 together define the set of acceptable “boundary conditions” for performing a transient analysis (e.g., thermo-hydraulic analysis) of the alternative shutdown scenario, to demonstrate the adequacy of the alternative shutdown system(s) in satisfying the Appendix R III.L performance goals. BASIS: Industry perspective. (See ADAMS Accession Nos. ML050330417 and ML050310098, Attachment 2.) | The comment does not consider the regulatory requirements. In accordance with Appendix R to 10 CFR Part 50, Section III.L.3, ASD must consider both situations where offsite power is lost and when it is not lost. The licensee must consider both situations in its evaluation. This section is a restatement of the GL 86-10 response to question 3.8.4 and is included in RG 1.189, April 2001. The GL 86-10 response to question 5.3.10 provides certain criteria for the design transient which the ASD must be able to overcome. |
| NEI        | C.5.5.1<br>(comment 77) | Section C.5.5.1 states, “Post-fire safe-shutdown operating procedures should be developed for those areas where alternative or dedicated shutdown is required. For other areas of the plant, shutdown would normally be achieved using the normal operating procedures or plant emergency operating procedures.” Given the significant industry dialogue on fire-related operator manual actions and documentation on feasibility and reliability, it is clear that postfire operator manual actions are in widespread use in the industry and that procedures to implement this capability would utilize additional guidance other than “normal operating procedures or plant emergency operating procedures.” It is recommended that this section be updated to reflect guidance consistent with the industry implementation. BASIS: Technical clarification.   | Agree. The staff has incorporated the comment.  |

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| Originator | DG-1170 Section         | Specific Comments   |  |
| NEI        | C.5.5.2<br>(comment 78) | Draft Regulatory Guide Text: "These procedures should also address necessary actions to compensate for spurious operations and high-impedance faults if such actions are necessary to effect safe shutdown." The section discussing multiple high-impedance faults (MHIF) should be relocated to a section applicable to both "safe" and "alternative" shutdown. The NRC uses DG-1170 to endorse the MHIF evaluation methodology provided in Appendix B.2 to NEI 00-01, as well as other evaluation methods previously proposed by licensees and accepted by the staff on individual dockets. The requirements and guidance for addressing MHIFs are not adequately described in this document. The only reference to MHIFs is in Section 5.5.2 (Remote Shutdown Procedures) and in the glossary. It is understood that MHIFs were considered Bin 3 in RIS 2004-03, Revision 0, but the requirement (or analytical guidance) to consider and evaluate MHIFs is not clear. A method to analyze MHIFs in Appendix B to NEI 00-01 is provided. However, it is not clear if the endorsement of certain sections of NEI 00-01 includes or envelops this approach. BASIS: Technical clarification. Improves accuracy of document and provides guidance where it is currently unclear. Discussion of MHIF is nested within a section specific to "Remote Shutdown." GL 86-10 question 5.3.8 indicates that MHIF should be considered both for III.G.2 and III.G.3. This calls into question the reorganization of the document from the previous revision of RG 1.189 (relocating all associated circuit topics under III.G.3 applicability only). | Agree. The staff has moved the reference to MHIFs to Section 5.5.2 which applies to both "safe" and "alternative" shutdown. The approach for analyzing MHIFs described in Appendix B to NEI 00-01, is one acceptable method for evaluating MHIFs; however, according to each licensee's fire protection licensing basis, an exemption or license amendment may be required for staff approval. |
| NEI        | C.5.5.2<br>(comment 79) | Section title "Remote Shutdown Procedures" and use of the term "remote shutdown" within this and other sections. The terms "alternative and dedicated shutdown" should be substituted throughout the document as necessary to reflect actual regulatory language. BASIS: The term "remote shutdown" has no defined meaning in the context of fire protection regulations.   | Agree. The staff has incorporated the comment.   |



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| Originator | DG-1170 Section        | Specific Comments  |  |
| NEI        | C.6.1.1.2 (comment 80) | Draft Regulatory Guide Text: “The licensee should place adequate self-contained breathing apparatuses near the containment entrances for firefighting and damage control personnel. These units should be independent of any breathing apparatuses or air supply systems provided for general plant activities and should be clearly marked as emergency equipment.” This paragraph should be clarified to apply to noninerted containments only. BASIS: Manual firefighting inside an inerted containment should not be necessary.  | Agree. The staff has incorporated the comment and added the following guidance to this section:<br><br>For normally inerted containments, self-contained breathing apparatuses need only be staged near the containment hatches when the containment is not inerted, such as during maintenance outages.   |
| NEI        | C.6.1.1.2 (comment 81) | Draft Regulatory Guide Text: Two statements appear to be in conflict—“However, inerted containments should have manual firefighting capability, including standpipes, hose stations, and portable extinguishers, to provide protection during refueling and maintenance operations” and “For BWR drywells, standpipe and hose stations should be placed outside the drywell with adequate lengths of hose, no longer than 30.5 m (100 ft), to reach any location inside the drywell with an effective hose stream.” The two sentences appear to conflict regarding the need for standpipes in BWR drywells. BASIS: Text is self-conflicting. | The first statement describes <u>what</u> should be provided for inerted containments and the second statement describes <u>where</u> the standpipes should be located (outside the drywell to support firefighting inside the drywell).   |
| NEI        | C.6.1.2 (comment 82)   | Draft Regulatory Guide Text: “Peripheral rooms in the control room complex should have automatic water suppression....” This requirement should be removed. BASIS: This requirement creates the possibility for flooding in the main control room. The NRC has previously accepted plants without automatic suppression in the peripheral rooms (e.g., Limerick).  | The risk of flooding is so low as to not, by itself, justify removing this guidance. The regulatory basis is Section III.G.3 of Appendix R to 10 CFR Part 50, which applies if the rooms are not separated by a 3-hour barrier from redundant postfire safe-shutdown circuits. That being said, each licensee’s fire hazards analysis for the control room complex and the appropriate licensing action taken as determined by the plant licensing basis may determine the need for this protection. The NRC has also accepted new reactor designs without sprinklers in the main control room peripheral rooms on the condition that the final fire hazards analysis supports the exclusion. Because of the Appendix R requirement, the guidance in the RG will not change. |

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| Originator | DG-1170 Section           | Specific Comments  |   |
| NEI        | C.6.1.2.2<br>(comment 83) | Draft Regulatory Guide Text: "Smoke detectors should be provided in the control room, cabinets, and consoles." Remove requirement for detection in "cabinets" and "consoles" unless smoke is somehow physically prevented from setting off the control room area detectors. Existing language is verbatim from previous BTP 9.5-1 editions; however, despite this, a large number of plants without in-cabinet detection have been approved based on the fact that smoke would escape the cabinet and be observed by the operators or set off the detectors. The NRC has only required detectors in specific cases (1) where detection is needed to trigger a suppression system; or (2) where an in-cabinet HVAC system prevents smoke from reaching the greater main control room smoke detectors. | There are advantages to having detectors inside individual cabinets. Time is of the essence for a control room fire. Detectors in cabinets would likely detect an in-cabinet fire in less time than ceiling-mounted detectors. When the fire is generating only invisible products of combustion, detectors will respond before visible smoke alerts the operators to the fire. More importantly, in-cabinet detectors provide plant personnel with the precise location of the fire, thus avoiding the need to open multiple cabinets to find the fire. Also note that Section 10.3.8 of NFPA 804, 2006 Edition, states, "Smoke detectors shall be provided in the control room complex, the electrical cabinets, and the consoles." The NRC has accepted new reactor designs without cabinet detectors on the condition that the final fire hazards analysis supports the exclusion. This is primarily because new reactor digital control systems are expected to require far fewer large electrical cabinets in the control room. |
| NEI        | C.6.1.4<br>(comment 84)   | This position needs to be excluded or rewritten for plants that use digital control systems such as the Westinghouse AP1000. There will be servers performing safety-related functions throughout the plant. They will be in rooms with nonsafety components. Compliance will not be possible. BASIS: Technical clarification and impact.  | Agree. The staff has incorporated the comment and added the following paragraph to this section:<br><br>New reactor designs with individual digital control system servers located throughout the plant should include 3-hour fire barrier protection between redundant servers performing functions that are important to safety; however, nonsafety-related servers outside the control room complex do not need to be separated from plant areas important to safety by fire barriers and servers that are important to safety do not need to be protected by detection and suppression unless required by the fire hazards analysis.<br><br>The industry should address the potential for spurious actuations caused by the effects of fire on these servers.   |
| NEI        | C.6.2.6<br>(comment 85)   | There is a typo in "Cooling towers should be...." BASIS: Editorial clarification.  | Agree. The staff has incorporated this comment.   |

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| Originator | DG-1170 Section       | Specific Comments  |   |
| NEI        | C.7.5<br>(comment 86) | Draft Regulatory Guide Text: "A permit system should be required for use of acetylene-oxygen gas storage cylinders in areas of the plant important to safety." This statement should be removed. BASIS: The NFPA 55 code cited as the basis does not require a "permit system" for use. The terms "use" and "storage" are not clearly defined. Requirements governing "hot work" are present in other sections of the RG; therefore, there is no need for repetition.  | Agree. The staff deleted this sentence from this section.   |
| NEI        | C.8.1<br>(comment 87) | Draft Regulatory Guide Text: "reliance on localized electrical raceway fire barrier systems should be minimized." This statement should be removed. BASIS: Neither SECY-90-016, SECY-93-087, SECY-94-084, nor SECY-95-132 directs the staff to prohibit the use of raceway fire barriers. Use of the verb "minimized" is unclear as to its intent and applicability. Language from SECY-90-016 is quoted verbatim in the following paragraph 8.2, which also creates an internal conflict in guidance with this sentence.  | See response to Comment 70. Both industry and the NRC use the terms "minimal" and "minimized" as an acceptance criteria (e.g., NEI 04-02, GDC 3, and 10 CFR 50.59). The purpose of an RG is to provide a set of acceptance criteria that represents one acceptable approach to meeting the regulations for the majority of plants. Licensees may propose alternative approaches, including more specific acceptance criteria. |
| NEI        | C.8.1<br>(comment 88) | Draft Regulatory Guide Text: "Similarly, when practical, reliance on operator manual actions should be avoided...." This statement should be revised to agree with SECY-90-016. SECY-90-016 indicates that operator actions are acceptable for evolutionary LWRs, but adds the new stipulation that reentry into the fire area for operator actions and repairs should not be permitted. BASIS: New language in DG-1170 does not agree with SECY-90-016 (and SRM). Use of the verb "avoided" is unclear as to its intent and applicability. Language from SECY-90-016 is quoted verbatim in the following paragraph 8.2, which also creates an internal conflict in guidance with this sentence. | See response to Comments 70 and 87.   |

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| Originator | DG-1170 Section       | Specific Comments  |   |
| NEI        | C.8.4<br>(comment 89) | Draft Regulatory Guide Text: "The standards of record related to the design and installation of fire protection systems and features required to satisfy NRC requirements in all new reactor designs are those NFPA codes and standards in effect 180 days before the submittal of the application under 10 CFR Part 50 or 10 CFR Part 52." This statement is unclear as to whether it refers to the design certification under 10 CFR Part 52 or the COL application under 10 CFR Part 52. It's plausible that a change in code could occur that dramatically affects a feature already approved under the 10 CFR Part 52 design certification. AP-600, CE system 80+, and ABWR all have their design certification approvals (under previous NRC guidance). AP-1000 and ESBWR are planned to get design certifications under current NRC guidance. It appears there is a high probability that new requirements will overlay on the COL process by issuing DG-1170. Since the NRC has (or will have) already approved the plants under other guidance, it is not appropriate to add new requirements in the construction phase to items that were already approved in the design phase. BASIS: DG-1170 language is unclear. Technical clarification and impact. (See additional discussion in NEI cover letter.) | Agree. The staff added the following clarification to this section:<br><br>For COL applications that reference a certified design, the standards of record will be those approved for the certified design, except for FPP features that are not included in the certified design, such as unique site-specific fire protection systems or equipment. FPP features that are not addressed in the certified design, including the programmatic aspects of the FPP, should be in accordance with those NFPA codes and standards in effect 180 days before the submittal of the COL application. |

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| Originator | DG-1170 Section       | Specific Comments   |  |
| NEI        | C.8.7<br>(comment 90) | Draft Regulatory Guide Text: "License applications for new reactors should also address any special provisions to ensure that, in the event of a fire during a nonpower mode of operation, the plant can be maintained in safe shutdown." The NRC has previously approved both operating plants and advanced plant designs (e.g., AP-600, ABWR) without this regulatory position. For a plant with passive cooling systems, this regulatory position would create the need for analyzing additional fire protection of numerous "active" systems that must be used when the plant is too cold for normal reliance on "passive" cooling design. This new regulatory position is not described in sufficient detail in the draft RG to convey the acceptable method for performing such an analysis. SECY-97-168-SRM directed the staff to cease activity on the "Shutdown Rule." Since the Commission concluded in SECY-97-168-SRM that this is not required to meet fire protection regulations, it should not be in the RG. This regulatory position also appears to conflict with Regulatory Position 8.3, "Passive Plant Safe-Shutdown Criteria." (See additional discussion in NEI cover letter.) | The staff was unable to find any specific references to fire protection in SECY-97-168-SRM, nor does it consider this SECY to be an appropriate basis for the comment. The Commission's decision not to authorize the proposed rule on plant shutdown in 1997 has no bearing on the guidance in DG-1170. Licensees must have a fire protection program that maintains plant safety in the event of a fire for all plant states from full-power operation to permanent shutdown, regardless of the method of achieving and maintaining safe shutdown. Note that the industry consensus standard NFPA 805, 2001 Edition, which 42 existing plants have submitted letters of intent adopting, states, "The nuclear safety goal is to provide reasonable assurance that a fire during any operational mode and plant configuration will not prevent the plant from achieving and maintaining the fuel in a safe and stable condition." (The staff recognizes that NFPA 805 is applicable only to existing plants; however, the overall nuclear safety goal of this standard is appropriate for all reactor designs and this standard has been endorsed by rule.) If a fire during shutdown can cause the plant to be unsafe, the applicant must address the issue either in the design certification document or in the combined license (COL) application. In addition, the staff does not agree that this guidance conflicts with Section 8.3 of the DG. |

| Comments   |                       |   | NRC Comment Resolution  |
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| Originator | DG-1170 Section       | Specific Comments   |   |
| NEI        | Glossary (comment 91) | The following is provided in the glossary: “ <b>One-at-a-Time</b> —An approach to post-fire safe-shutdown circuit analysis that assumes only one spurious operation can occur in any single fire or that multiple spurious operations will occur only one-at-a-time, permitting any required mitigation to achieve and maintain safe shutdown to be performed on an individual basis without consideration of possible simultaneous spurious operations. This approach does not comply with fire protection regulatory requirements.” There are two issues—(1) the term is not used in the text, so it should not be explained in the glossary, and (2) the last sentence is a new interpretation that does not have technical or regulatory backup. The glossary is not an appropriate location for regulatory requirements. BASIS: Technical clarification. This seems to be a subtle reference with significant implications. No technical basis is provided or interpretation of GL 86-10 provided (sizing of the ASD/DSD system argument). | The staff has removed this term from the glossary and added the following footnote to Regulatory Position C.5.3.4:<br><br>Specific acceptable methodologies and acceptance criteria for performing post-fire safe-shutdown analyses that address the potential for multiple spurious actuations to occur in rapid succession are being developed by the NRC based on the results of cable fire tests performed by the industry and the NRC. Pending the promulgation of these methodologies and acceptance criteria, licensees should note that a one-at-a-time assumption for spurious actuations may not adequately address the potential risk due to fire.                                     |
| NEI        | Glossary (comment 92) | Radiant energy (heat) shield is described, including a provision for use in the main control room. This provision is not described elsewhere in the document. Its relevance and regulatory guidance are unclear. BASIS: Technical clarification.  | Agree. Radiant heat shields are used to separate redundant circuits in close proximity in areas where it is not feasible to provide other means of separation. Section III.G.2.f of Appendix R to 10 CFR Part 50 identifies noncombustible radiant energy shields for areas inside containment. The RG now contains this requirement in response to a comment above. The staff has removed the reference to the use of radiant heat shields in the control room.  |
| NEI        | Glossary (comment 93) | The definition for success path includes mention of instrument sensing lines. Instrument sensing lines are not described elsewhere in the document. The regulatory guidance applicable to instrument sensing lines is unclear. BASIS: Technical clarification.  | The applicant should identify and adequately protect any component of a success path that can be impacted by the fire to the extent that the required postfire safe-shutdown function will not be performed. For example, if exposure of the instrument sensing line tubing to the heat of the fire would prevent a required instrument function, the applicant should provide protection or an alternative. To avoid misapplication of the guidance, the staff has removed all mention of specific components of a success path from the rest of the RG. Refer to NEI 00-01, Subsections 3.2.1.7 and 3.4.1.8, for additional guidance on postfire safe-shutdown evaluation of instrument tubing. |

| Comments   |                         |   | NRC Comment Resolution  |
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| Originator | DG-1170 Section         | Specific Comments   |   |
| NEI        | Appendix B (comment 94) | Draft Regulatory Guide Text: "However, the U.S. Nuclear Regulatory Commission (NRC) must review and approve the proposed methodologies, including the acceptance criteria, before the implementation of the plant change." NRC review and approval of PRA methodologies is not a requirement. Suggest alternative wording to reflect staff position. BASIS: Editorial clarification. Improves accuracy of document. | Agree. The staff has changed "must" to "should."  |
| NEI        | Appendix B (comment 95) | Last paragraph: Recommend including an exemption request per 10 CFR 50.12 as an example of the use of PRA and risk in support of changes to the plant licensing basis. BASIS: Editorial clarification. Improves accuracy of document.   | Agree. The staff has added exemption requests to this paragraph as another use of probabilistic risk assessment (PRA) and risk. |

**Enclosure 3**  
**Staff Responses to Public Comments on Draft Regulatory Guides DG-1094 and DG-1097**  
**(Proposed Revision 1 of Regulatory Guide 1.189)**  
Selected Industry Comments Regarding Backfit Application  
Previously Submitted August 18, 2000

| Comments   |  |   | NRC Comment Resolution   |
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| Originator   | DG-1094 and DG-1097 Sections               | Specific Comments   |  |
| Industry Comments Regarding Backfit Application to DG-1094 and DG-1097 (industry Comments) 8/18/2000<br><b>letters</b><br><small>(ADAMS Accession No. ML063260060)</small> | Comment No. 1097-1-3, page 81, Section 5.3 | Appendix R III.L criteria (“Alternative/Dedicated Shutdown”) have been interspersed throughout this section. These prescriptive criteria do not apply to safe shutdown capability (Appendix R III.G.1 and III.G.2). This may be considered a backfit. This section references an internal staff memo (End note No. 322). It is not clear if this memo is publicly available. Also, due to the wide variations of systems provided in various vintages of BWRs, many systems listed in this section do not exist at various plants. This could lead to additional confusion. Suggest that the NRC reference a suitable document which provides this same information while at the same time reflecting the variations that exist between.... | Agree that clarification is needed. See response to NEI’s Comment 63 from its December 22, 2006, letter. |



| <b>Comments</b>   |   |   | <b>NRC Comment Resolution</b>   |
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| <b>Originator</b> | <b>DG-1094 and DG-1097 Sections</b>       | <b>Specific Comments</b>  |   |
| Industry Comments | Comment No. 1097-1-8, page 101, Section D | <p>We are concerned about how the NRC plans to implement DG-1097 provisions at existing facilities and programs. Section A, INTRODUCTION, states that this regulatory guide is a “guidance” document and that “compliance with regulatory guides is not required.” However, Section D, IMPLEMENTATION, states, “the methods to be described in the active guide reflecting public comments will be used in the evaluation of submittals in connection with fire protection programs at operating nuclear power plants.” This statement seems to imply that the NRC would attempt to impose the provisions of DG-1097 on a licensee through review of a submittal involving the fire protection program, such as a request for the NRC review of a proposed fire protection plan revision. Utility X is concerned that DG-1097 would be used as the basis for approving the plan revisions. Utility X is further concerned that the NRC would attempt to implement the DG-1097 provisions at facilities through inspections of the fire protection program. It is suggested that Section D be revised to state that the RG will be used only in the review of fire protection programs that are part of new applications for operating licenses. Many of the provisions specified in DG-1097 would be classified at Plant X as backfits in accordance with 10 CFR 50.109. As such the NRC would have to follow the process described in 10 CFR 50.109 to impose certain of the provisions of DG-1097. Any attempt to impose DG-1097 provisions by review of submittals or by inspection would be circumventing the required process delineated in 10 CFR 50.109.</p> | <p>The guidance in Regulatory Guide (RG) 1.189 will not be imposed as a backfit on any plants as described in the Backfit Analysis section of the original issue of the RG. For existing plants, the staff will use this guidance in accordance with Standard Review Plan (SRP) Section 9.5.1 as the basis for assessing exemption requests, license amendments, etc., as one acceptable approach to meeting regulatory requirements for fire protection. The guidance does not define compliance, and the licensee may propose alternative approaches and demonstrate their acceptability.</p> |

| Comments          |  |  | NRC Comment Resolution   |
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| Originator        | DG-1094 and DG-1097 Sections               | Specific Comments  |  |
| Industry Comments | Comment No. 1097-1-11, page 101, Section D | The RG should be carefully reviewed for any backfit implications. In some cases, simply restating a requirement can have broad sweeping impacts on licensees, since implementation of various requirements may be based on the verbatim text of the requirement. Simply replacing a verbatim requirement with a more generalized "conceptual" requirement may mean a great difference in terms of a requirement's scope of applicability, or how it must be implemented.   | As above. The staff has carefully reviewed changes made for this revision to the RG for backfit implications.  |
| Industry Comments | Comment No. 1097-1-16, page 101, Section D | This section states, "The purpose of this section is to provide information to applicants and licensees regarding the NRC staff's plans for using this draft Regulatory Guide. This proposed Guide has been released to encourage public participation in its development. Except in those cases in which an applicant or licensee proposes an acceptable alternative method for complying with the specified portions of the NRC's regulations, the methods to be described in the active guide reflecting public comments will be used at operating nuclear power plants." This tends to indicate that the RG will be used to evaluate future licensee submittals (presumably exemption requests and deviations submitted for staff concurrence). Historically, the NRC staff has not evaluated submittals made under 10 CFR 50.59. <b>If the staff intends to perform some new kind of evaluation in the future under which submittals would be expected, that expectation should be clarified here.</b> As it stands, the expectation regarding what kind of submittals the RG would be used to evaluate is extremely unclear. | This RG does not introduce any new kind of evaluation. The guidance that exceeds what is specifically stated in the regulatory documents is the staff's recommendation of one approach to meeting the documented regulatory requirements. Licensees are free to adopt alternative approaches that meet the regulatory requirements for fire protection in accordance with their plant licensing basis and approved fire protection program. This is not a backfit as discussed above. The RG is not a basis for noncompliance. |

|            |                              | Comments  | NRC Comment Resolution |
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| Originator | DG-1094 and DG-1097 Sections | Specific Comments   |                        |
|            |                              | <p>This section conflicts with statements the staff has made verbally at ACRS meetings (January 20, 1999, Fire Protection Subcommittee) and at a recent public meeting with the BWR Owner's Group and NEI (July 26, 2000). This section is also in conflict with the <i>Federal Register</i> notice which issued DG-1097 for comment (Vol. 65, No. 121, Thursday, June 22, 2000, Notice 38867). The <i>Federal Register</i> notice states, "This guide is being developed to provide a comprehensive fire protection guidance document and to identify the scope and depth of fire protection that the NRC staff has determined to be acceptable for operating nuclear plants." At the July 26, 2000, meeting with the BWROG and NEI, the NRC staff indicated that this RG would be used as part of the inspection process, and that in cases where a plant's licensing basis on a subject area covered in the RG was not well documented, the guidance in the RG would be applied.</p> <p>The discussions in the January 20, 1999, ACRS Fire Protection Subcommittee meeting indicate that implementation of this RG will not be simple, and that the staff will have to accommodate plants of various licensing vintages within the RG. The comments made by the staff on July 26, 2000, and the discussion contained in the <i>Federal Register</i> notice are of concern, since they don't acknowledge any consideration for the licensing vintage of various plants, including the fact that plants may have been licensed to widely disparate requirements and staff positions. Nevertheless, in each case, the staff has found that GDC-3 has been satisfied at each facility as well as the applicable implementing documents (Appendix R to 10 CFR 50; APCSB 9.5-1, Appendix A; APCSB 9.5-1; NUREG-0800 BTP 9.5-1; Regulatory Guide 1.120).</p> <p>The NRC took great care in clearly defining which set of staff positions was applicable to a specific facility. Similarly, at each facility, it was clearly understood that the NRC's approval of the fire protection program (based on whatever set of branch technical positions) signified that the facility was</p> |                        |

|            |                              | Comments  | NRC Comment Resolution |
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| Originator | DG-1094 and DG-1097 Sections | Specific Comments   |                        |
|            |                              | <p>in compliance with GDC-3. Variations in the implementing documents are partly based on differences in construction and separation practices in effect across the various vintages of plants, as well as what features the staff could justify under backfit analysis. Creating and enforcing a “one size fits all” (or a “most conservative case”) RG, without acknowledging these variations and evolutions does not benefit the industry, the NRC staff, or the NRC inspectors. <b>Wherever the RG has taken the “most conservative case” from the variations in guidance, an explanation should be provided, explaining how the guidance evolved, and what safety basis the staff has found for selecting that case.</b> Examples of other compliance strategies utilized by licensees (and accepted by the staff) would round out the document, and go a long way towards making it truly a “best practices” document. A major concern is that the NRC states that the RG will apply to situations where the licensing basis of a facility is not clear. Since the staff has found that each facility is in compliance with GDC-3, the licensing bases are clear. <b>To try to apply the RG on top of the existing, approved fire protection programs is a backfit.</b> As discussed in the January 20, 1999, ACRS meeting, the staff is aware of these backfit issues, but has yet to address them in a substantive manner. Furthermore, the licensing basis for a plant licensed to APCSB 9.5-1 or APCSB 9.5-1 Appendix A would obviously be silent on items subsequently added to NUREG-0800. Every plant’s licensing basis will be silent regarding any “new text” contained in the RG. <b>Using this document to determine compliance would lead to endless questions regarding topics with which a plant does not have to comply.</b> Responding to questions that are not applicable to the licensing vintage of the plant results in man-years of work with no safety benefit (backfit). More discussion should be made with regard to this document not delineating “requirements” but rather identifying good practices. It should be clear that plants should not be measured against the RG.</p> |                        |

| Comments          |  |  | NRC Comment Resolution   |
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| Originator        | DG-1094 and DG-1097 Sections   | Specific Comments  |  |
| Industry Comments | Comment No. 1094-3-1, page 8, Section A                                  | The guide states that “as appropriate, new guidance is provided where the existing guidance is weak or non-existent.” There are 55 end notes that reference "new text" as the source for the requirement. So, in at least 55 cases, the guide provides new guidance, potentially above what any plant may be committed to. These should be individually flagged to ensure that proper “backfit” analysis is performed.   | The staff addresses claims of new guidance in DG-1170 in the first group of comments. The RG does not impose requirements.   |
| Industry Comments | Comment No. 1094-3-4, refs to new text removed, page 21, Section B-4.2.3 | Sections 4.2.3, 4.2.4, and 4.4.2 contain new text related to self-imposed SBO without a reference to new text in the List of References. This raises a concern that new wording is being injected into some sections which may not receive the appropriate “backfit” review.   | See responses to NEI Comments 23 and 24 from its December 22, 2006, letter.  |
| Industry Comments | Comment No. 1094-3-7, page 23, Section B-4.4.2                           | Section B.4.4.2, “Shutdown and Refueling Operations,” is new and should be evaluated as new guidance/ requirements according to existing NRC backfit policy guidelines.  | See response to NEI Comment 90 from its December 22, 2006, letter.   |
| Industry Comments | Comment No. 1094-3-11, page 41, Section C-2.1.4                          | Section 2.1.4, “External/Exposure Fire Hazards,” states that for miscellaneous exterior areas (shops, warehouses, auxiliary boilers, etc.), smoke effects must be considered along with fire effects. The potential for smoke infiltration via the fresh air intakes of the ventilation system would need to be addressed. This could become a significant issue for some plants, particularly those that have compact sites. These types of reviews are typically contained within the UFSAR descriptions of the site’s general characteristics, including special site-wide concerns such as transportation accidents. To reperform these evaluations using new criteria promulgated in the DG is clearly a backfit. | If an evaluation has been performed that addresses control room habitability and the impact from external fires on safe shutdown, the evaluation does not need to be reperfomed. General Design Criterion (GDC) 3, “Fire Protection,” states, “SSCs important to safety shall be designed and located to minimize, consistent with other safety requirements, the probability and effect of fires and explosions.” |

| Comments          |   |  | NRC Comment Resolution  |
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| Originator        | DG-1094 and DG-1097 Sections                      | Specific Comments  |   |
| Industry Comments | Comment No. 1094-3-24, page 67, Section C-4.1.4.2 | Section 4.1.4.2, "Smoke Removal," opens up a new regulatory area that should be treated as a backfit issue. The effort to address smoke control and removal for safe-shutdown activities may be valid but will likely involve considerable effort. In the past, many plants used fire area or fire zone boundaries as smoke boundaries as well. However, depending on the expectations of the NRC, this may not be adequate. The NRC should be very clear on what level of analysis is expected for smoke impacts on postfire operator actions. NFPA 204 is not a standard that most licensees are committed to. The imposition of specific requirements for smoke removal at this time is inappropriate.  | Agree. DG-1170 relaxed the guidance on smoke control (e.g., changed "should provide" to "should consider"). This is also consistent with the changes made to National Fire Protection Association (NFPA) 804, "Standard for Fire Protection for Advanced Light Water Reactor Electric Generating Plants," in the latest (2006) edition. No additional change is needed. |
| Industry Comments | Comment No. 1094-3-29, page 69, Section C-4.1.6.2 | Section 4.1.6.2, "Emergency Lighting Post-Fire Safe Shutdown," Item A, also includes the need for testing of the emergency lighting units. While the words seem fairly consistent with what the industry is already doing for the most part, this does add an increased burden that was not in the original rule. This section also states, "Where a licensee has provided emergency lighting per Section III.J Appendix R, the licensee should verify by field testing that this lighting is adequate to perform the intended tasks." Imposition of a specific testing approach (i.e., blackout testing) is not the subject of any previous NRC requirement, but has been recommended by GL 86-10. Industry standards (e.g., Illumination Engineering Society of North America) contain sufficient technical guidance for lighting system design, without recourse to blackout testing. The imposition of blackout testing as the only means of satisfying the regulations is unnecessary and is a backfit (see 10 CFR 50.109(a)(7)). | This RG does not impose (or even suggest) "a specific testing approach (i.e., blackout testing)." No change is needed.  |

| Comments          |   |  | NRC Comment Resolution  |
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| Originator        | DG-1094 and DG-1097 Sections  | Specific Comments  |   |
| Industry Comments | Comment No. 1094-3-34, page 81, Section C-5.2, bulleted items (6) and (7) | The generic requirement for hot standby (PWR) or hot shutdown (BWR) equipment to have the capability to be powered by an onsite emergency power system is inappropriate. This is a requirement in excess of the Rule and should be subjected to the backfit process. In addition, if the Rule requires that cold shutdown be achieved within 72 hours, there is no basis for requiring a capability to maintain hot standby, or hot shutdown, in excess of 72 hours. | <p>The statement concerning hot standby/hot shutdown is correct in that for alternate shutdown (ASD), the capability must consider situations both where offsite power is available and where it is not available. For III.G.2, offsite power should be considered as not available only if the postulated fire could cause loss of offsite power. DG-1170 does not include this requirement.</p> <p>Appendix R, Section III.G.1.b, states, "Systems necessary to achieve and maintain cold shutdown from either the control room or emergency control station(s) can be repaired within 72 hours." However, for ASD, Appendix R, Section III.L.5, states, "Equipment and systems comprising the means to achieve and maintain cold shutdown conditions shall not be damaged by fire; or the fire damage to such equipment and systems shall be limited so that the systems can be made operable and cold shutdown can be achieved within 72 hours." Some licensees have received staff approval to maintain hot shutdown slightly beyond 72 hours because of plant requirements. Other licensees have programs that require cold shutdown well before 72 hours, as hot shutdown systems may not be able to maintain hot shutdown for 72 hours. The 72 hours is a maximum time to achieve cold shutdown without staff approval.</p> |
| Industry Comments | Comment No. 1094-3-42, page 100, Section C-7.1                            | This is a new section that could be viewed as a backfit. These cables are not necessarily SR or SSD cables, but they could expose SR or SSD components. This section requires that these cables be protected with an automatic water-based suppression system and the area containing the cables be provided with smoke venting. This could be a significant burden on plants, particularly in the turbine building.   | The staff will remove this section from the DG before its issuance as RG 1.189.   |

|                   |   | Comments  | NRC Comment Resolution  |
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| Originator        | DG-1094 and DG-1097 Sections  | Specific Comments   |   |
| Industry Comments | Comment No. 1097-2-5, page 12, Section B, <b>Prevention of Radiological Release</b> | <p>This section states, “The fire protection program, including the fire hazards analysis, should demonstrate that the plant will maintain the ability to minimize the potential for radioactive releases to the environment in the event of a fire. Fires are expected to occur over the life of a nuclear power plant and thus should be treated as anticipated operational occurrences. Requirements for protection against radiation during normal operations are in 10 CFR Part 20. Anticipated operational occurrences should not result in radiological consequences, and the exposure criteria of 10 CFR Part 20 apply.”</p> <p>The applicable text from Appendix R to 10 CFR Part 50 (Section II.B.2) reads, “Determine the consequences of fire in any location on the ability to safely shut down the reactor or on the ability to minimize and control the release of radioactivity to the environment.”</p> <p>The RG contains a slight wording change from Appendix R. Appendix R requires that the consequences be understood, while the RG goes the additional step of prescribing a specific limit. The RG goes an additional step by providing an apparent “after the fact” rationalization for prescribing 10 CFR Part 20 criteria to fire protection design and analysis. This is all new text, which has no basis in industry experience. It should be noted that Appendix R Section II.B.2 was not backfit on any plant, and that radiation control expectations have not previously been well defined in the various BTPs. Industry experience has shown that since the implementation of Appendix R, very few fires have occurred that had any significant impact on plant equipment, beyond the equipment actually involved in the initial failure. Therefore, to conclude that 10 CFR Part 20 applies to the small number of fires that actually resulted in a plant impact is not realistic.</p> | NFPA 805, “Performance-Based Standard for Fire Protection for Light Water Reactor Electric Generating Plants,” is a consensus standard that at least 42 existing nuclear plants have declared their intent to adopting in accordance with 10 CFR 50.48(c). Paragraph 1.5.2 of NFPA 805 references 10 CFR Part 20, “Standards for Protection Against Radiation,” as the criterion for acceptable release of radioactivity. |



| Comments          |  |  | NRC Comment Resolution   |
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| Originator        | DG-1094 and DG-1097 Sections                                 | Specific Comments  |  |
|                   |  | This logic implies that every plant in the country has at least one fire a year that damages plant SSCs not intimate with the initial fire. Industry experience does not support such a finding. To the contrary, few if any fires (including Browns Ferry) have resulted in any release of radiation. This suggests that a lower frequency should be assigned for consequential fire events, and that the relaxed criteria of 10 CFR Part 100 should be applied. Furthermore, the use of 10 CFR Part 100 criteria for "consequential" fire events has previously been accepted by the NRC in evaluations of "High/Low Pressure interfaces." To now specify more conservative criteria is a backfit. |  |
| Industry Comments | Comment No. 1097-2-9, page 14, Shutdown/Refueling Operations | This is new information that the NRC has not been successful in implementing in other forms. It is being placed in here without any backfit considerations.  | See response to NEI Comment 90 from its December 22, 2006, letter.   |
| Industry Comments | Comment No. 1097-2-76, page 90, Section C5.7.1               | This section implies that the normal shutdown capability is made up of two normal paths of shutdown systems. If the NRC intends to limit licensees to two strategies for shutting a plant down, then this is a backfit. GL 86-10 provides a satisfactory recommendation regarding procedures in Attachment 2, items 5.2.1 and 5.2.2. Although these are not "requirements" per se, they are satisfactory guidance. The NRC should consider retaining their information via some form of guidance in DG-1097.   | DG-1170 does not include the "two normal paths" guidance. Section 5, "Alternative and Dedicated Shutdown Capability," of Enclosure 2 of GL 86-10, "Implementation of Fire Protection Requirements," applies to alternative/dedicated shutdown capability. No change is needed. |

| Comments          |  |  | NRC Comment Resolution   |
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| Originator        | DG-1094 and DG-1097 Sections             | Specific Comments  |  |
| Industry Comments | Comment No. 1094-1-15, page 8, Section A | <p>The stated purpose of DG-1094 is as follows: “This regulatory guide was developed to provide a comprehensive fire protection guidance document, and to identify the scope and depth of fire protection that the staff has determined to be acceptable for operating nuclear plants. This guide may be used for licensee self-assessments and as the deterministic basis for future rulemaking.” This scope statement itself is misleading, since in fact the NRC has accepted the Fire Protection Programs of many facilities, even though they do not meet all of the aspects of this RG. Previous NRC attempts to implement a comprehensive set of staff positions on fire protection has resulted in backfit appeals which ultimately resulted in the promulgation of Appendix R to 10 CFR Part 50 and the specific backfit of varying portions of Appendix R at each facility. Licensee’s contentions regarding the merits of back-fitting aspects of BTP APCS 9.5-1 (and Appendix A to APCS 9.5-1) remain valid. By republishing those same staff positions via an RG, the NRC puts the industry at risk of “double jeopardy” by not acknowledging that the NRC did not have the regulatory authority to impose the majority of APCS 9.5-1 criteria on operating plants, and at the same time, rewriting history to reflect that plants have in fact embraced these criteria, so that their backfit analysis for the DG shows that there is no impact to the industry.</p> | <p>The conclusion reached in the backfit analysis section of the original issue of RG 1.189 is still applicable for DG-1170.</p> |