

April 12, 2007

Mr. Robert E. Brown
General Manager, Regulatory Affairs
General Electric Company
3901 Castle Hayne Rd MC A-45
Wilmington NC 28401

SUBJECT: REQUEST FOR ADDITIONAL INFORMATION LETTER NO. 96 RELATED TO
ESBWR DESIGN CERTIFICATION APPLICATION

Dear Mr. Brown:

By letter dated August 24, 2005, General Electric Company (GE) submitted an application for final design approval and standard design certification of the economic simplified boiling water reactor (ESBWR) standard plant design pursuant to 10 CFR Part 52. The Nuclear Regulatory Commission (NRC) staff is performing a detailed review of this application to enable the staff to reach a conclusion on the safety of the proposed design.

The NRC staff has identified that additional information is needed to continue portions of the review. The staff's request for additional information (RAI) is contained in the enclosure to this letter. This RAI concerns Chapters 5, 6, 7, 9, 10, 14, 16, and 21 of the ESBWR Design Control Document.

Chapter 5: 5.2-61
Chapter 6: 6.2-154 and 6.3-78 thru 6.3-80
Chapter 7: 7.1-47 thru 7.1-50
Chapter 9: 9.1-27, 9.1-28, and 9.5-44 thru 9.5-57
Chapter 10: 10.4-13 and 10.4-14
Chapter 14: 14.3-146 thru 14.3-149
Chapter 16: 16.2-112 thru 16.2-119
Chapter 21: 21.6-102

To support the review schedule, you are requested to respond to this RAI by May 10, 2007.

If you have any questions or comments concerning this matter, please contact Marlayna Vaaler at (301) 415-3178 or mgv@nrc.gov, or me at (301) 415-2875 or aec@nrc.gov.

Sincerely,

/RA/

Amy Cabbage, Senior Project Manager
ESBWR/ABWR Projects Branch 1
Division of New Reactor Licensing
Office of New Reactors

Docket No. 52-010

Enclosure: As stated

cc: See next page

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Enclosure: As stated

cc: See next page
ACCESSION NO. ML070920099

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**Requests for Additional Information (RAIs)
ESBWR Design Control Document (DCD), Revision 3**

Chapter 5, Reactor Coolant System and Connected Systems

RAI Number	Reviewer	Question Summary	Full Text
5.2-61	Thomas G	Revise the DCD to include "The COL applicant is required to submit an overpressure protection analysis for the actual core for the initial start-up" as a COL action item.	<p>The following statement in the DCD, Tier 2, Revision 1, Section 5.2.6, COL Information, was deleted in Revision 2 (without describing the reason for the deletion):</p> <p>"The COL applicant is required to submit an overpressure protection analysis for core loadings different than the reference ESBWR core loading".</p> <p>Staff believes that the COL action item should have been revised (rather than deleted) to state that:</p> <p>"The COL applicant is required to submit an overpressure protection analysis for the actual core for the initial start-up."</p> <p>Please respond as to whether or not GE agrees to staff's position that the above statement should be a COL action item, and if so, revise the DCD accordingly.</p>

Chapter 6, Engineered Safety Features

RAI Number	Reviewer	Question Summary	Full Text
6.2-154	Goel R Notafrancesco A	Describe how the design pressure for the main steam tunnel was determined.	<p>DCD, Tier 2, Rev. 3, Section 3G.1.5.2.1.10 states that “[t]he design pressure in the [reactor building] main steam tunnel to account for a main steam line break is 76.0 kPag (11.0 psig).”</p> <p>Please describe how you determined the design pressure for the main steam tunnel.</p>
6.3-78	Thomas G Klein V	Expand on revision to the GDCS Check Valve Design.	<p>In DCD Tier 2, Revision 3, Section 6.3.2.7.2, the “Biased open check valve” name is changed to “GDCS check valve,” and Figure 6.3-3, which was showing the “Biased Open Check Valve,” is deleted. The Description of Change provided with DCD Revision 3 states: “Revised description of GDC check valve.” It does not explain why the valve design was changed, although it seems there was a significant change in the design of the check valve. The check valve will be normally open instead of biased-open. Please address the following:</p> <ul style="list-style-type: none"> A. Describe the design differences between the old and the new design. B. Add the typical check valve figure in the DCD as before. C. Confirm that the check valves used for injection and equalization are of different types. D. Provide additional information demonstrating that the core remains covered considering failure of GDCS check valves as the single active failure for design basis LOCA events. Provide this information for the cases where reactor vessel pressure is higher than that of the GDCS and the check valve fails to close.

RAI Number	Reviewer	Question Summary	Full Text
6.3-79	Thomas G	Confirm long term cooling capability with a single passive failure in the ECCS.	<p>The Standard Review Plan (SRP), Section 6.3, Draft Rev. 3, April 1996, in Chapter III, "Review Procedures", No. 20, states that "the long term cooling capacity is adequate in the event of failure of any single active or passive component of the ECCS."</p> <p>Please state if the ESBWR design takes credit for any passive component during long term post LOCA (i.e., beyond 72 hours) cooling. If so, confirm that the ESBWR design meets the requirements of the reference given above.</p>
6.3-80	Klein V	Clarify changes between 1994 ANS Decay Heat model standard and methods used in LOCA analyses for Revision 3 of the DCD.	<p>In DCD Tier 2, Revision 3, Chapter 6.3, the decay heat curve presented in Figure 6.3-39 changed from that presented in Revision 2 of the DCD. GE indicated that the reason for this is that GE "updated the ANS decay heat standard." Please address the following:</p> <p>A. Explain why the ECCS performance analyses presented in Figures 6.3-7a to 6.3-38b and summarized in Table 6.3-5 and Figure 6.3-6 are unchanged.</p> <p>B. The staff reviewed your decay heat model in detail during an audit of TRACG as applied to ESBWR LOCA in December 2006. Provide a detailed explanation of the differences between the method used to generate the decay heat curve used for the ECCS performance analyses in Revision 3 of the DCD Tier 2 and the method which the staff audited in December 2006.</p>

Chapter 7, Instrumentation and Controls

RAI Number	Reviewer	Question Summary	Full Text
7.1-47	Li H	Update the DCD Section 7.1 to demonstrate that the ESBWR design has complied with RG 1. 209.	The NRC issued Regulatory Guide (RG) 1.209, "Guidelines for Environmental Qualification of Safety-Related Computer-Based Instrumentation and Control Systems in Nuclear Power Plants," in March 2007. Update the DCD Section 7.1 to demonstrate that the ESBWR design has complied with RG 1. 209.
7.1-48	Li H	Update the DCD to address the plant-specific requirements identified in Section 5.2 of the NRC SER on Triconex Topical Report 7286-545-1-A, "Qualification Summary Report."	<p>By letter MFN 07-101, dated March 2, 2007, GE stated that GE intends to apply the Triconex architecture for the ESBWR ECCS/ESF function. Triconex Topical Report 7286-545-1-A, "Qualification Summary Report," March 8, 2002, is a generic requirements specification for qualifying a commercially available PLC for safety-related applications.</p> <p>Although this topical report was approved by NRC, the staff safety evaluation defines the basis for acceptance of the report. In the staff's SER section 5.2, 18 items were identified as plant-specific requirements. The DCD should address each of these requirements.</p> <p>Update the DCD Section 7.3 to demonstrate that the ESBWR design has satisfied all the plant-specific requirements identified in Section 5.2 of the NRC safety evaluation report (SER) on Triconex Topical Report 7286-545-1-A, "Qualification Summary Report." Appropriate ITAAC acceptance criteria should be proposed to verify the completion of these plant-specific requirements.</p>

RAI Number	Reviewer	Question Summary	Full Text
7.1-49	Li H	Provide a copy of Reference documents 8-1 through 8-17 as listed in NEDO-33288, Section 8.	<p>By letter MFN 07-160, dated March 21, 2007, GE submitted Topical Report NEDO-33288, Revision 0, "Application of Nuclear Measurement Analysis and Control (NUMAC) for ESBWR Reactor Trip System" for NRC review and approval.</p> <p>The staff needs all the related reference documents to complete their review. Please provide a copy of Reference documents 8-1 through 8-17 as listed in NEDO-33288, Section 8.</p>
7.1-50	Li H	Propose appropriate design acceptance criteria (DAC or ITAAC) to verify the completion the NMS/RPS NUMAC design.	<p>By letter MFN 07-004, dated January 20, 2007, GE intended to submit Revision 1 of NEDO-33288 – providing the basic structure and overview of the NMS/RPS NUMAC – in October 2007, and Revision 2 of NEDO-33288 – providing qualification reports – in March 2008.</p> <p>Since the Revision 1 and Revision 2 submittals will occur beyond the design certification stage, appropriate design acceptance criteria (DAC or ITAAC) should be proposed. Propose appropriate design acceptance criteria (DAC or ITAAC) to verify the completion the NMS/RPS NUMAC design.</p>

Chapter 9, Auxiliary Systems

RAI Number	Reviewer	Question Summary	Full Text
9.1-27	Sastre-Fuente E	Demonstrate that material compatibility is in accordance with Appendix B to Title 10 of the Code of Federal Regulations Part 50.	<p>Reference: Generic Letter 96-004, "Boraflex Degradation in Spent Fuel Pool Storage Racks."</p> <p>Demonstrate the compatibility and chemical stability of the materials in the spent fuel pool racks that are wetted by the water in the spent fuel pool in accordance with Appendix B to Title 10 of the Code of Federal Regulations Part 50.</p>
9.1-28	Sastre-Fuente E	Provide details of the program for monitoring the effectiveness of the neutron poison present in the neutron absorbing panels.	<p>Reference: Generic Letter 96-004, "Boraflex Degradation in Spent Fuel Pool Storage Racks."</p> <p>Section 9.1.2 states that the spent fuel racks will be constructed in accordance with a quality assurance program that ensures the design, construction and testing requirements are met.</p> <p>Please provide a description of the program used for monitoring the effectiveness of the neutron poison present in the neutron absorbing panels.</p>

RAI Number	Reviewer	Question Summary	Full Text
9.5-44	Radlinski R	Include a COL Action Item for the Post-Fire Safe Shutdown Circuit Analysis.	<p>The following item should be included in the COL Action Items for the ESBWR fire protection program. A detailed description of this aspect of the ESBWR fire protection program is required to adequately determine that the design meets regulatory requirements. However, the final design for this aspect of the program has not been developed sufficiently at the DCD stage to be described in adequate detail to conclude that the design is acceptable.</p> <p>Post-Fire Safe Shutdown Circuit Analysis - The ESBWR post-fire safe-shutdown circuit analyses have not been developed for the certified design. These analyses will be developed as part of the plant-specific fire protection program and include final design details, including cable materials, raceway design and configurations for separation of redundant divisions of electrical circuits for post-fire safe shutdown where more than one redundant division is located in the same fire area. A summary description and the results of this circuit analysis should be included in the COL.</p>
9.5-45	Radlinski R	Include a COL Action Item for the Fire Hazards Analysis for all areas of the plant that contain SSCs important to safety.	<p>The following item should be included in the COL Action Items for the ESBWR fire protection program. A detailed description of this aspect of the ESBWR fire protection program is required to adequately determine that the design meets regulatory requirements. However, the final design for this aspect of the program has not been developed sufficiently at the DCD stage to be described in adequate detail to conclude that the design is acceptable.</p> <p>Fire Hazards Analysis - Provide the final fire hazards analysis for all areas of the plant that contain SSCs important to safety (the DCD includes a COL Action Item for the fire hazards analysis for the yard areas only).</p>

RAI Number	Reviewer	Question Summary	Full Text
9.5-46	Radlinski R	Include a COL Action Item for the Special Cases described in DCD Section 9A.6.	<p>The following item should be included in the COL Action Items for the ESBWR fire protection program. A detailed description of this aspect of the ESBWR fire protection program is required to adequately determine that the design meets regulatory requirements. However, the final design for this aspect of the program has not been developed sufficiently at the DCD stage to be described in adequate detail to conclude that the design is acceptable.</p> <p>Special Cases - Provide verification that the final Fire Protection Program (FPP) is in accordance with the assumptions and bases for acceptance of each of the Special Cases described in DCD Section 9A.6.</p>
9.5-47	Radlinski R	Include a COL Action Item for Alternative/Dedicated Shutdown instances where exception is taken to the BTP SPLB 9.5-1 requirements for circuit routing and separation in accordance with DCD Section 9.5.1.3.	<p>The following item should be included in the COL Action Items for the ESBWR fire protection program. A detailed description of this aspect of the ESBWR fire protection program is required to adequately determine that the design meets regulatory requirements. However, the final design for this aspect of the program has not been developed sufficiently at the DCD stage to be described in adequate detail to conclude that the design is acceptable.</p> <p>Alternative/Dedicated Shutdown - Identify and describe any instances, other than for the main control room fire, where redundant post-fire safe shutdown divisions cannot be separated by a 3-hour barrier, and alternate means of control or indication are credited and exception is taken to the BTP SPLB 9.5-1 requirements for circuit routing and separation in accordance with DCD Tier 2, Section 9.5.1.3.</p>

RAI Number	Reviewer	Question Summary	Full Text
9.5-48	Radlinski R	Include a COL Action Item for Spill Control to verify compliance with the NFPA 804 requirements or describe alternative means to provide adequate containment for spill control.	<p>The following item should be included in the COL Action Items for the ESBWR fire protection program. A detailed description of this aspect of the ESBWR fire protection program is required to adequately determine that the design meets regulatory requirements. However, the final design for this aspect of the program has not been developed sufficiently at the DCD stage to be described in adequate detail to conclude that the design is acceptable.</p> <p>Spill Control - The design bases for spill control containment in the ESBWR DCD are acceptable and follow NFPA 804 requirements. However, these design bases may result in unacceptably high walls for some applications to contain the design-basis quantity of fire suppression water. The COL application should verify compliance with the NFPA 804 requirements or describe alternative means to provide adequate containment for spill control.</p>
9.5-49	Radlinski R	Include a COL Action Item for the implementation schedule for the FPP.	<p>The following item should be included in the COL Action Items for the ESBWR fire protection program. A detailed description of this aspect of the ESBWR fire protection program is required to adequately determine that the design meets regulatory requirements. However, the final design for this aspect of the program has not been developed sufficiently at the DCD stage to be described in adequate detail to conclude that the design is acceptable.</p> <p>Implementation schedule for the Fire Protection Program (FPP) - The implementation milestones for programmatic aspects of the FPP should be included in the COL within the license condition on operational program implementation.</p>

RAI Number	Reviewer	Question Summary	Full Text
9.5-50	Radlinski R	Clarify if the statement regarding a fire in the wetwell is incorrectly stated (DCD Tier 2, Section 9A.4.1).	<p>The third paragraph of Section 9A.4.1 in DCD Tier 2, Appendix 9A, Revision 3, includes the statement “A fire in the wetwell does prevent either the RWCU/SDC or FAPCS from providing core cooling.”</p> <p>Should the word “not” be inserted between “does” and “prevent”? If the statement is correct as-is, please provide an explanation of how the plant will be safely shut down in the event of a fire in the wetwell.</p>
9.5-51	Radlinski R	Clarify the first sentence in DCD Section 9.5.1.15.	Editorial Comment: The first sentence in DCD Tier 2, Revision 3, Section 9.5.1.15 needs to be revised. It does not make sense as written. Please clarify.
9.5-52	Radlinski R	Update the description of fire protection defense in depth included in DCD Section 9.5.1.15 in accordance with RG1.189.	<p>The description of fire protection defense in depth included in DCD Section 9.5.1.15 should include the third element of the standard definition of fire protection defense in depth: to provide protection for SSCs important to safety so that a fire that is not promptly extinguished by the fire suppression activities will not prevent the safe shutdown of the plant.</p> <p>This is in accordance with Regulatory Position 1 of Regulatory Guide 1.189. Please update the description of fire protection defense in depth included in DCD Section 9.5.1.15 in accordance with RG 1.189.</p>
9.5-53	Radlinski R	Update classroom instruction to include incorporation of plant changes that impact the fire protection program.	The fire protection program will include a plant change process that evaluates changes for their impact on the fire protection program. Classroom instruction for the fire brigade training described in DCD Tier 2, Revision 3, Section 9.5.1.15.4.2, should include a review of the process for incorporation of plant changes into the fire fighting plans. Please update Section 9.5.1.15.4.2 to include this information.

RAI Number	Reviewer	Question Summary	Full Text
9.5-54	Radlinski R	Update DCD Tier 2, Section 9.5.1.15.4 to include instruction on the identification and protection of SSCs important to safety and on the use of the FPS for emergency backup for shutdown cooling.	<p>In addition to training in fire protection systems and hazards, the fire brigade, fire protection staff, and possibly the offsite fire department should receive training in the identification and protection of SSCs important to safety.</p> <p>The fire protection staff should also be trained in the alternative use of the fire protection system for emergency makeup for reactor shutdown cooling. Please update DCD Tier 2, Section 9.5.1.15.4 to include these training components.</p>
9.5-55	Radlinski R	Move paragraphs to appropriate section (DCD Section 9.5.1.15.4.6).	Editorial Comment: The text following the first paragraph in DCD Tier 2, Revision 3, Section 9.5.1.15.4.6 is unrelated to the title of the section. This text should be moved to the appropriate section or a new section heading added.
9.5-56	Radlinski R	Update FPP tests and inspections to include those for fire detection systems, auto suppression systems, manual suppression equipment, emergency lighting, etc.	<p>DCD Tier 2, Revision 3, Section 9.5.1.15.8 on testing and inspection does not mention tests and inspections for fire detection systems, auto suppression systems, manual suppression equipment, emergency lighting, etc.</p> <p>The tests and inspections for these features of the FPP following the initial tests should be mentioned in this section.</p>
9.5-57	Radlinski R	Update the QA program to include inspection of the FPS (DCD Tier 2, Section 9.5.1.15.9).	The activities to which the Quality Assurance (QA) program will be applied should also include inspections of the Fire Protection System (FPS). DCD Tier 2, Revision 3, Section 9.5.1.15.9 does not include this item in describing the application of the QA program to the FPS. Please update the DCD and the QA program accordingly.

Chapter 10, Steam and Power Conversion System

RAI Number	Reviewer	Question Summary	Full Text
10.4-13	Hernandez J	Provide a justification for removing COL Action Item 10.4.10.4.	<p>COL Action Item 10.4.10.4 was removed in DCD Tier 2, Rev. 3. This information is outside the scope of the ESBWR certified design.</p> <p>However, the information must be provided by the COL applicant. Please provide a justification for removing the COL action item.</p>
10.4-14	Hernandez J	Provide a justification for removing COL Action Item 10.4.10.5.	<p>In RAI 10.4-3 the staff requested the applicant provide a detailed description of controlling and correcting methods including alarm setpoints, operator intervention and plant response as described in Section 10.4.1 of the SRP.</p> <p>In its response, the applicant committed to revise the DCD to include threshold values and recommended operator actions for chemistry excursions in the condensate system.</p> <p>In DCD Tier 2, Rev. 2, this was identified as COL Action Item 10.4.10.5. In Rev. 3, the applicant removed the action item.</p> <p>The staff requests the applicant provide a justification for its decision since this information must be provided by the COL applicant.</p>

Chapter 14, Verification Programs

RAI Number	Reviewer	Question Summary	Full Text
14.3-146	Thomas G Klein V	Request for additional ITAAC on IC/PCC pool capacity and for verification of ICS drain line flow resistance.	<p>The staff believes the following ITAAC are needed in DCD Tier 1, Table 2.4.1-1:</p> <p>A. Add ITAAC to verify that the as-built design provides the total volume of the isolation condenser(IC)/passive containment cooling system (PCCS) expansion pool as assumed in the safety analysis. Specify the value for the required volume in the acceptance criteria.</p> <p>B. Add ITAAC to verify the flow resistance for each ICS condensate line as follows:</p> <p>Design Commitment: ICS provides safety injection during design basis events.</p> <p>Inspections, Tests, Analyses: A low-pressure injection test and analysis for each ICS condensate line to the RPV will be conducted. Each IC/PCCS expansion pool will be initially filled with water. All valves in these lines will be open during the test.</p> <p>Acceptance Criteria: The calculated flow resistance for each ICS condensate line to the RPV between the IC/PCCS expansion pool and the reactor vessel is _____ .</p>
14.3-147	Thomas G	Proposed revision to ITAAC regarding GDCCS pool level elevations.	<p>In DCD Tier 1, Revision 3, Table 2.4.2-1, for the proposed ITAAC numbers 16, 17, and 19, inspections of the gravity driven cooling system (GDCCS) pool level elevations are required rather than analysis only.</p> <p>Please revise the middle column to include inspection.</p>

RAI Number	Reviewer	Question Summary	Full Text
14.3-148	Thomas G	Proposed revision to ITAAC regarding minimum equalization driving head.	In DCD Tier 1, Revision 3, Table 2.4.2-1, for the proposed ITAAC number 19, revise the Design Commitment as follows: "The minimum equalizing driving head from the suppression pool to the RPV is 1 meter (3.28 ft)."
14.3-149	Thomas G	Provide ITAAC for the deluge function of GDCS.	In DCD Tier 1, Revision 3, Table 2.4.2-1, according to GE, the deluge function of GDCS is non-safety related and rows 5 and 6 were deleted. The staff does not agree with the deletion. Standard Review Plan (SRP) Section 14.3 states that "if the results of the PRA indicate that a particular component or function of a system is risk significant, that component function will be verified by the ITAAC." The staff believe that the deluge function is "risk significant" and hence should be included in the ITAAC.

Chapter 16, Technical Specifications

RAI Number	Reviewer	Question Summary	Full Text
16.2-112	Wagage H	Revise the surveillance requirement for drywell bypass leakage to be consistent with guidance.	<p>DCD Tier 2, Revision 3, Section 16, surveillance requirement (SR) 3.6.1.1.3 requests to “[v]erify the combined leakage rate through all vacuum breaker lines is $\leq \{0.1 \text{ cm}^2 (1.0 \times 10^{-4} \text{ ft}^2) (A/\sqrt{K})\}$ when tested at $\geq \{ \text{ kPaD (psid)}\}$.” This is inconsistent with the corresponding SR (SR 3.6.5.1.1) in NUREG-1434, “Standard Technical Specifications [STS] General Electric Plants, BWR/6,” Revision 3.1, and inconsistent in itself:</p> <p>A. The DCD SR applies only to the leakage through the vacuum breaker lines, while the STS SR applies to 10 percent of the total bypass leakage between drywell and wetwell, which was used in calculating peak containment pressure in DCD Tier 2, Revision 3, Section 6.2.</p> <p>Please explain how you ensure that the assumed total bypass leakage between the drywell and wetwell will not be exceeded during operation of the reactor.</p> <p>B. The left side of the first inequality sign (\leq) refers to a “leakage rate” but the expression on the right side of the sign has numbers with dimensions of area, which is inconsistent with the former.</p> <p>Please fix the inconsistency.</p>
16.2-113	Harbuck C	Revise the DCD to use consistent language for Reactor Building Boundary Isolation Dampers.	Please revise the DCD to use consistent language for Action D of TS 3.3.6.4 and Function 10 of Table 3.3.6.4-1 “Reactor Building Boundary Isolation Dampers,” which are not “containment isolation valves.”

RAI Number	Reviewer	Question Summary	Full Text
16.2-114	Harbuck C	Clarify the reason TS 3.7.6 is not contained in Section 3.1 or 3.3.	TS 3.7.6 "Selected Control Rod Run-In and Selected Rod Insertion Functions" is not in either Section 3.1 or Section 3.3, although it is related to automatic rod motion control and is an I&C system. Please clarify the reason this TS is not included in either of these sections, and if there is none, revise the DCD to fix the inconsistency.
16.2-115	Harbuck C	Clarify the note "LCO 3.0.4.c is applicable" in TS Section 3.3.	Note 1 to ACTIONS of TS 3.3.3.2, "Remote Shutdown System," and the same note in Required Actions A.1 and B.1 of TS 3.3.2.1, "Control Rod Block Instrumentation," states: "LCO 3.0.4.c is applicable." This is unclear. Please rephrase the note (global comment).
16.2-116	Harbuck C	Revise the first sentence of the 5th paragraph of the Applicable Safety Analyses discussion in the Bases for TS 3.5.2.	For clarity, please revise the first sentence of the 5th paragraph of the Applicable Safety Analyses discussion in the Bases for TS 3.5.2 to state: The analysis described in Reference 4 indicates that 2 of the 8 injection branch lines (i.e., 1 GDSC injection train) and 1 of the 4 GDSC equalizing trains are capable of providing the minimum required short-term and long-term core cooling, respectively, following a LOCA.
16.2-117	Harbuck C	Revise TS 3.8.1, Required Action A.3.	Please revise TS 3.8.1, Required Action A.3, to state: "Restore required battery chargers to operable status."

RAI Number	Reviewer	Question Summary	Full Text
16.2-118	Harbuck C	Revise TS 3.7.2, "Control Room Habitability Area (CRHA) Heating, and Air Conditioning (HVAC) Subsystem (CRHAVS)."	<p>Please address the following topics in regard to TS 3.7.2, "Control Room Habitability Area (CRHA) Heating, and Air Conditioning (HVAC) Subsystem (CRHAVS)" in DCD Rev 3:</p> <ul style="list-style-type: none"> A. Revise the 4th sentence of the Applicable Safety Analyses discussion in the Bases to state: "No single active or passive failure will cause the loss of outside air to the CRHA." B. Required Action A.1 specifies 72 hours to recover from inadequate cooling in the CRHA as evidenced by temperatures above the limit of 78.0°F. Under the worst case conditions assumed in the design: 1) what temperature would be reached in the CRHA in 72 hours and afterwards during plant shutdown; and 2) could those temperatures interfere with the capability to safely shutdown the plant during both normal and Design Basis Accident operating conditions? That is, provide additional technical justification for the 72-hour completion time beyond that given in the Bases background discussion and the Bases for Required Action A.1. C. Use "System" instead of "Subsystem" in the name of the CRHAVS TS. Also, please do not use both "subsystem" and "train" interchangeably; one or the other should be used throughout the TS. D. Recommend requiring an Air Handling Unit (AHU) for each CRHAVS subsystem be operable, and revise Action A to address an inoperable subsystem due to inoperable AHUs, then allow appropriate restoration time for the CRHA cooling, contingent upon maintaining the temperature within limit (specify an action requirement to periodically check the temperature). Also, add a surveillance requirement to verify the heat removal capability of the AHUs similar to STS SR 3.7.4.1.

RAI Number	Reviewer	Question Summary	Full Text
16.2-119	Thomas G	Clarify the number of SRVs required for overpressure protection.	<p>In DCD Tier 2, Revision 3, Chapter 16, LCO 3.4.1, the number of operable SRVs was changed to include only 2 SRVs instead of 18 SRVs. DCD Tier 2, Revision 3, Chapter 16, B 3.4.1, states that this LCO addresses only those requirements for operability of the vessel overpressure protection system that satisfy the Level B service limit.</p> <p>However, DCD Tier 2, Revision 3, Section 5.2.2.3.3 states: "--the pressure increase is effectively terminated by a relief flow equivalent to 3 of the 18 valves."</p> <p>In response to RAI 5.2-27, GE stated that only one SRV is needed to prevent exceeding the ASME limit during the ASME overpressure protection event. The other 17 SRVs are needed for the ATWS event.</p> <p>A. Please clarify the conflicting statements in the DCD and RAI response. How many SRVs are required for overpressure protection? State clearly in the DCD the number of SRVs credited in the overpressure protection analysis.</p> <p>B. Since GE takes credit for 17 SRVs in the ATWS analysis, all 18 SRVs should be included in the TS to satisfy the Level C service limit.</p>

Chapter 21, Testing and Computer Code Evaluation

RAI Number	Reviewer	Question Summary	Full Text
21.6-102	Landry R	Provide the limiting AOOs used in the revised topical on TRACG as applied to ESBWR AOOs.	To support the staff's independent TRACE calculations, state the four limiting anticipated operational occurrences (AOOs) that will be used in the demonstration calculations in the revised topical report on TRACG as applied to ESBWR AOOs (NEDC-33083P Chapter 4). Provide the TRACG input decks for these cases.

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