

13 CONDUCT OF OPERATIONS

13.3	Emergency Planning	1
13.3.1	Regulatory Criteria	1
13.3.2	Summary of Technical Information	3
13.3.3	Technical Evaluation	3
13.3.4	Conclusion	10

13 CONDUCT OF OPERATIONS

Appendix A, "Design Certification Rule for the U.S. Advanced Boiling Water Reactor," to Title 10 of the *Code of Federal Regulations* (10 CFR) Part 52, "Licenses, Certifications, and Approvals for Nuclear Power Plants," constitutes the standard design certification (DC) for the U.S. Advanced Boiling Water Reactor (ABWR) design. To document the U.S. Nuclear Regulatory Commission (NRC) staff's review supporting initial certification of the ABWR, the staff issued a final safety evaluation report (FSER) in NUREG-1503, "Final Safety Evaluation Report Related to the Certification of the Advanced Boiling Water Reactor Design," in July 1994 and NUREG-1503, Supplement 1, in May 1997.

The staff is documenting its review of the GE-Hitachi Nuclear Energy (GEH or the applicant) application for renewal of the ABWR DC in Supplement 2 to NUREG-1503. Chapter 1 of this supplemental FSER describes the staff's review process for the ABWR DC renewal. This supplemental FSER section documents the NRC staff's review specifically related to Chapter 5, "Reactor Coolant System and Connected Systems," Section 5.4.7.1.1.10, "AC-Independent Water Addition (ACIWA) Mode," of the GEH Design Control Document (DCD), Revision 7. Except as modified by this supplement to the FSER, the findings made in NUREG-1503 and its Supplement 1 remain in full effect.

13.3 Emergency Planning

13.3.1 Regulatory Criteria

In ABWR DCD, Revision 7, which incorporated the DCD markups included in responses to requests for additional information (RAIs), GEH provided changes to the ABWR design to address various aspects of emergency planning (EP), in support of its renewal application for the ABWR standard design. These changes included revising the DCD to: (1) ensure that site-specific radiological protection for the technical support center (TSC) will be verified at the combined license (COL) application stage, consistent with the applicable TSC habitability guidance, and (2) provide for an assessment of staffing and communications capabilities to respond to a beyond-design-basis event, pursuant to certain NRC actions arising out of the NRC Fukushima Near-Term Task Force (NTTF) Recommendation 9.3. The technical justification for the changes is provided within the application, including responses to RAIs, discussed below.

As stated above, the applicant has provided ABWR DCD changes to address the TSC habitability. Since the changes are to assure compliance with the regulations in effect at the time of the original certification, consistent with the staff position at the time of original design certification, these changes are considered "modifications," as this term is defined in Chapter 1 of this supplemental FSER, and will correspondingly be evaluated using the regulations applicable and in effect at the initial ABWR certification. The following regulatory requirements provide the basis for the acceptance criteria for the staff's review:

- 10 CFR 50.47(b)(8) (1997), required that adequate emergency facilities and equipment to support the emergency response were provided and maintained.

- 10 CFR Part 50, "Domestic Licensing of Production and Utilization Facilities," Appendix A, "General Design Criteria for Nuclear Power Plants," General Design Criterion (GDC) 19, "Control Room," (1997), required that adequate radiation protection shall be provided to permit access and occupancy of the control room under accident conditions without personnel receiving radiation exposures in excess of 5 rem whole body, or its equivalent to any part of the body, for the duration of the accident.
- 10 CFR Part 50, Appendix E, "Emergency Planning and Preparedness for Production and Utilization Facilities," Section IV.E.8 (1997), required a licensee onsite TSC and a near-site Emergency Operations Facility from which effective direction could be given and effective control could be exercised during an emergency.
- 10 CFR 52.47(a)(1)(vi) (1997), required that a design certification application must contain the proposed inspections, tests, analyses, and acceptance criteria (ITAAC) that are necessary and sufficient to provide reasonable assurance that, if the inspections, tests, and analyses are performed and the acceptance criteria met, a plant that references the design certification is built and will operate in conformity with the design certification.

In addition, the applicant has implemented ABWR DCD changes to address Fukushima NTTF Recommendation 9.3 concerning EP staffing and communications capabilities. These capabilities are not requirements and therefore are outside the scope of the DC. However, the applicant made EP enhancements that were based on the guidance provided in NEI 12-01, "Guideline for Assessing Beyond Design Basis Accident Response Staffing and Communications Capabilities," Revision 0, issued May 2012 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML12125A412). Therefore, these design changes related to non-required EP enhancements are considered an "amendment," as this term is defined in Chapter 1 of this supplemental FSER and will correspondingly be evaluated using the regulations in effect at renewal. In this case, NTTF Recommendation 9.3 is not required by the regulations, but was evaluated by the staff to ensure consistency with the following regulatory requirements:

- 10 CFR 50.47(b)(2), which requires that on-shift facility licensee responsibilities for emergency response are unambiguously defined, adequate staffing to provide initial facility accident response in key functional areas is maintained at all times, timely augmentation of response capabilities is available, and the interfaces among various onsite response activities and offsite support and response activities are specified.
- 10 CFR 50.47(b)(6), which requires that provisions exist for prompt communications among principal response organizations to emergency personnel and to the public.
- 10 CFR Part 50, Appendix E, Section IV.A, which requires a description of the organization for coping with radiological emergencies, including definition of authorities, responsibilities, and duties of individuals assigned to the licensee's emergency organization, and the means for notification of such individuals in the event of an emergency.
- 10 CFR Part 50, Appendix E, Section IV.E.9, which requires, in part, at least one onsite and one offsite communications system, where each system shall have a backup power source.

For the modification associated with TSC habitability, the staff determined compliance with these regulations by considering the guidance in NUREG-0800, "Standard Review Plan for the Review of Safety Analysis Reports for Nuclear Power Plants: LWR Edition," (SRP), Section 13.3, "Emergency Planning," Revision 2, issued July 1981; SRP Section 6.4, "Control Room Habitability System," Revision 2, Issued July 1981; NUREG-0654/FEMA (Federal Emergency Management Agency)-REP-1, "Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants," Revision 1, issued November 1980; NUREG-0696, "Functional Criteria for Emergency Response Facilities," issued February 1981; and Generic Letter (GL) 82-33, "Supplement 1 to NUREG-0737 – Requirements for Emergency Response Capability (Generic Letter No. 82-33)," issued December 1982. For the amendment associated with NTTF Recommendation 9.3, the staff determined acceptability of the changes by considering the same guidance documents except that the staff used the SRP, Section 13.3, Revision 3, issued March 2007, and assuring that the changes are consistent with regulatory requirements at initial certification.

13.3.2 Summary of Technical Information

In DCD Tier 2, Section 13.3, the applicant stated that, while EP is not within the scope of the ABWR design, there are design features, facilities, functions, and equipment necessary to support EP. These design features in the ABWR Standard Plant scope include the TSC and operational support center (OSC), which are described in DCD Tier 2, Table 13.3-1, "ABWR Design Considerations for Emergency Planning Requirements." The TSC is located adjacent to the OSC (i.e., Lunch Room) in the Service Building, as shown in DCD Tier 2, Figure 1.2-19, "Control and Service Building, Arrangement Plan at Elevation 7,900 mm."

13.3.3 Technical Evaluation

With regard to the TSC habitability, the staff reviewed the design description information for the Service Building Heating, Ventilation, and Air Conditioning (HVAC) System in DCD Tier 1, Section 2.15.5, "Heating, Ventilation and Air Conditioning Systems," Section 2.15.14, "Service Building," and Section 2.17.1, "Emergency Response Facilities." In addition, the staff reviewed DCD Tier 2, Section 9.4.8, "Service Building HVAC System," Section 9.4.10, "COL License Information," Section 13.3, "Emergency Planning," and Section 19A, "Response to CP/ML [construction permit/manufacturing license] Rule 10 CFR 50.34(f)."

With regard to the Fukushima NTTF Recommendation 9.3, the staff reviewed DCD Tier 2, Section 13.3.1.2, "Staffing and Communications Capabilities," Table 1.8-21, "Industrial Codes and Standards Applicable to ABWR," and Table 1.9-1, "Summary of ABWR Standard Plant COL License Information."

Technical Support Center (TSC) Habitability

In NUREG-1503, Section 13.3, "Emergency Planning," the staff FSER for the original ABWR DC, the staff briefly addressed TSC habitability by stating, in part, that the TSC will contain the necessary facilities and equipment called for in Section 2, "Technical Support Center," of NUREG-0696. In addition, FSER Section 13.3 states that "[i]t is the staff's position that the facilities and equipment for the ABWR standard plant TSC should be compatible with the control room and meet the applicable criteria of NUREG-0696."

Section 2.6, "Habitability," of NUREG-0696 states, in part, that the TSC shall have the same radiological habitability as the control room under accident conditions, and the TSC ventilation system shall function in a manner comparable to the control room ventilation system. At the time of the original certification of the ABWR design, the control room radiological habitability dose criteria were 5 rem (0.05 sievert (Sv)) whole body, or its equivalent to any part of the body, as given in GDC 19. Therefore, as stated in NUREG-0737, Supplement 1, Section 8.2.1, "[TSC] Requirements," item f, the TSC should be provided with radiological protection and monitoring equipment necessary to assure that radiation exposure to any person working in the TSC would not exceed 5 rem whole body, or its equivalent to any part of the body, for the duration of the accident. In Section 13.3 of the original ABWR FSER, the staff stated that the TSC will contain the necessary facilities and equipment called for in Section 2 of NUREG-0696, but it did not directly address whether the TSC met the habitability guidance in Section 2.6 of NUREG-0696.

In RAI 13.03-1, dated June 8, 2016 (ADAMS Accession No. ML16160A067), the staff requested that GEH address whether the TSC habitability for the ABWR standard design was consistent with the TSC habitability and ventilation system guidance in Section 2.6 of NUREG-0696 and Section 8.2 of NUREG-0737, Supplement 1. Specifically, the staff asked GEH to provide the following information:

- a. Describe how the TSC ventilation system (to the extent not addressed in DCD Tier 2, Section 9.4.8) will function in a manner comparable to the control room ventilation system. For example, Section 2.6 of NUREG-0696 states that a TSC ventilation system that includes high-efficiency particulate air (HEPA) and charcoal filters are needed as minimum design features.
- b. Describe how the TSC radiological habitability is the same as the control room under accident conditions, including the ABWR TSC radiological consequence analyses for the postulated DBAs [design basis accidents].
- c. Revise the ABWR DCD, as appropriate, to be consistent with the TSC habitability criteria in NUREG-0696 and NUREG-0737 (Suppl. 1).
- d. Add an additional ITAAC in DCD Tier 1, Table 2.17.1, "Emergency Response Facilities," to address TSC habitability, or explain why this is not necessary in this instance.

In the applicant's response dated June 28, 2016 (ADAMS Accession No. ML16180A256), GEH stated that the ABWR renewal requirements for the TSC, including habitability, remain the same as in the original ABWR design certification. GEH further explained that DCD clarity on this issue could be improved by adding an ITAAC in DCD Tier 1, Table 2.17.1, to ensure that the final as-built TSC habitability meets the commitment to NUREG-0696 in ABWR DCD Tier 2, Section 13.3. The following summarizes GEH's detailed response to Items (a.) through (d.) above.

Response to Item (a.)

The Service Building Clean [Area] HVAC^[1] System services the TSC for personnel occupancy, and includes design features for radiological habitability. DCD Tier 2, Table 13.3-1 establishes the design considerations for the ABWR TSC radiological habitability through a reference to Section 2 of NUREG-0696 for the “necessary facilities and equipment” for the TSC. DCD Tier 2, Section 9.4.8, describes the design features for the non-safety-related Service Building Clean Area HVAC System that services the TSC that are comparable to the safety-related Control Room Habitability Area (CRHA) HVAC System, which is described in DCD Tier 2, Section 9.4.1, “Control Building HVAC.”²

GEH also described various design considerations that affect TSC habitability, including HEPA and charcoal filters, toxic gas protection requirements, radiation shielding, and radiation monitors at the Service Building HVAC System supply air inlet. In addition, GEH identified the Service Building HVAC System ITAAC design commitments (including design criteria that support TSC radiological habitability) in DCD Tier 1, Table 2.15.5m, “Service Building HVAC System,” which would be checked at the time that the COL applicant implements COL Information Item 9.4.10.1 [9.16]³ with the plant and site conditions.

In Response to Item (d.) below, GEH proposed a new ITAAC No. 6 in DCD Tier 1, Table 2.17.1, “Emergency Response Facilities,” which will verify that the TSC habitability systems – including the TSC ventilation system (i.e., Service Building HVAC System) – will function in a manner comparable to the control room ventilation system.

Response to Item (b.)

GEH stated that because the detailed design of the non-safety-related Service Building and its HVAC systems is not yet complete, the TSC radiological consequence analyses for postulated DBAs are not included in the ABWR standard design. As noted above (in Response to Item a), through COL Information Item 9.4.10.1 [9.16], the COL applicant is to provide the details of the Service Building HVAC System, including a detailed piping and instrumentation diagram (P&ID), system flow rates, and an equipment list. This information, along with the site-specific conditions, will provide the needed information for the COL applicant to perform analyses of the TSC radiological consequences.

To clarify that the COL applicant will perform the TSC radiological consequence analyses, GEH revised DCD Tier 2, Section 9.4.8.2, “System Description,” and Section 9.4.10.1, “Service Building HVAC System” (COL Information Item 9.16). In addition, as described below in Response to Item (d.), GEH proposed a new ITAAC to verify TSC habitability.

¹ As described in DCD Tier 1, Section 2.15.5, “Heating, Ventilating and Air Conditioning Systems,” the Service Building HVAC System consists of two non-safety-related systems: (1) Clean Area HVAC System, and (2) Controlled Area HVAC System. The Clean Area HVAC System provides a controlled environment for personnel comfort and safety in the Clean Area [which includes the TSC] for the duration of a DBA.

² The CRHA HVAC System is also described in DCD Tier 2, Section 6.4, “Habitability Systems.”

³ DCD Tier 2, Table 1.9-1 lists COL Information Item 9.16 (Subject: Service Building HVAC System), and identifies DCD Tier 2, Subsection 9.4.10.1 as the location where a description of COL Information Item 9.16 is presented.

Response to Item (c.)

As described above (in Response to Items a and b), the TSC habitability criteria (in DCD, Tier 2, Table 13.3-1) are already established as being consistent with NUREG-0696. Although the DCD does not refer to NUREG-0737, Supplement 1, as establishing criteria for TSC habitability, the Section 8.2.1, Item f, criterion is essentially the same as that established by SRP Section 6.4, "Control Room Habitability Systems," Revision 2, through reference in NUREG-0696, Section 2.6. Therefore, no revisions to DCD Tier 2, Section 13.3 are necessary in this regard because the DCD TSC habitability criteria are already consistent with NUREG-0696 (Section 2.6) and NUREG-0737, Supplement 1 (Section 8.2.1, Item f).

GEH also revised DCD Tier 1, Section 2.17.1 to add language that states: "The TSC radiological habitability is comparable to the control room habitability under accident conditions." This revision is consistent with the proposed new ITAAC, discussed below in Response to Item (d.).

Response to Item (d.)

GEH proposed a new ITAAC 6 (shown below) in DCD Tier 1, Table 2.17.1, which will verify that the TSC radiological habitability is comparable to the control room under accident conditions. ITAAC 6 reflects generic ITAAC acceptance criterion 8.1.3 in SRP Section 14.3.10, Table 14.3.10-1, "Emergency Planning – *Generic Inspections, Tests, Analyses, and Acceptance Criteria (EP ITAAC)*," Revision 3, issued March 2007.

Table 2.17.1, Emergency Response Facilities

ITAAC 6

- Design Commitment: *The TSC has comparable habitability to the control room habitability under accident conditions.*
- Inspections, Tests, Analyses: *An inspection of the as-built TSC habitability system will be performed, including a test of its capabilities.*
- Acceptance Criteria: *The TSC radiological habitability is comparable to the control room habitability under accident conditions such that doses to an individual do not exceed 5 rem whole body radiation exposure or 30 rem thyroid over the 30-day post-accident period.*

GEH identified various DCD design features and systems, against which the as-built TSC habitability system will be inspected and its capabilities tested. GEH also identified NUREG-0696 and SRP Section 6.4, Revision 2, as the bases for the radiological dose acceptance criteria, and made conforming changes to the Service Building HVAC System in DCD Tier 2, Sections 9.4.8.2 and 9.4.10.1 to add COL Information Item 9.16 for the Service Building HVAC System (listed in DCD Tier 2, Table 1.9-1 as Item No. 9.16). The changes state that the COL applicant will perform TSC radiological consequence analyses, considering plant and site conditions, to ensure that the TSC habitability design features ensure that doses to an individual do not exceed 5 rem (0.05 Sv) whole body or 30 rem (0.30 Sv) thyroid over the 30-day post-accident period.

With regard to performing the TSC radiological consequence analyses, the staff agrees with GEH, that consideration of plant and site conditions are needed to ensure that the doses to the TSC staff meet the radiological requirements identified above. The consideration of site conditions (as well as various final plant design features associated with the TSC that are selected by the COL applicant) are outside the scope of the certified design, such that the TSC radiological consequence analyses can only be performed at the COL application stage. Such an analysis may also require information on plant design features that is only available at the COL application stage. Therefore, the staff finds that GEH's addition of ITAAC 6, as requested by the staff in RAI 13.03-1(d), is necessary to address TSC habitability.

In addition, the staff finds that the TSC habitability dose acceptance criteria of 5 rem (0.05 Sv) whole body and 30 rem (0.30 Sv) thyroid over a 30-day period proposed by GEH are consistent with the dose acceptance criteria given in SRP Section 6.4, Revision 2, for control room habitability, and therefore conform to the guidance in NUREG-0696, which states that under accident conditions, the TSC habitability is comparable to control room habitability. This also conforms to the guidance in SRP Section 13.3, Revision 2, NUREG-0654/FEMA-REP-1 Revision 1, and Supplement 1 to NUREG-0737. In addition, consistent with 10 CFR 52.47, the staff finds that ITAAC 6 added to DCD Tier 1, Table 2.17.1, and the language added to COL Information Item 9.16 for the Service Building HVAC System, will ensure that the TSC habitability analyses will explicitly show that the necessary TSC radiological habitability dose criteria are met for the specific design details and site conditions pertaining to the COL application.

In Enclosure 2 to its response to RAI 13.03-1 (ADAMS Accession No. ML16180A260), GEH provided the proposed ABWR DCD markups of Tier 1, Sections 2.17 and Table 2.17-1, and Tier 2, Sections 9.4.8.2 and 9.4.10.1. The staff reviewed GEH's RAI response (described above), including the proposed ABWR DCD revisions, and finds them acceptable because they provide for the COL applicant to ensure that the TSC will have the required level of radiological protection during an emergency, consistent with the relevant guidance and the requirements of 10 CFR 50.47(b)(8) and Section IV.E.8 of Appendix E to 10 CFR Part 50 that were applicable and in effect at the time of issuance of the original design certification.

The staff confirmed that the applicant provided the necessary information from RAI 13.03-1, in the ABWR DCD, Revision 7, which incorporated the changes described in the applicant's response. Therefore, Confirmatory Item 13.3-1 from the staff advanced safety evaluation with no open items for the ABWR DC renewal is resolved and closed.

The applicant also identified an additional COL Information Item in DCD Tier 2, Table 1.9-1, which relates to EP. Specifically, COL Information Item 9.16 (shown below) provides, in part (*the italicized text identifies the change to COL Information Item 9.16 in the certified DCD*), that the COL applicant will perform site-specific TSC radiological consequence analyses to ensure that the described equipment supporting the TSC provides adequate TSC radiological habitability.

DCD Tier 2, Table 1.9-1

Item No.	Description	DCD Tier 2, Section
9.16	The COL applicant shall provide a detailed P&ID, system flow rates and an equipment list, compliance with RG 1.140, toxic gas protection requirements, and description of radiation monitors at the supply air inlet (if any), for the Service Building HVAC system, including the TSC and OSC, for NRC review. <i>The COL applicant will perform TSC radiological consequence analyses, considering plant and site conditions to ensure that TSC radiological habitability design features ensure that doses to an individual do not exceed 5 rem whole body or 30 rem thyroid over the 30-day post-accident period.</i>	9.4.10.1

Fukushima Dai-ichi nuclear power plant accident – NTTF Recommendation 9.3

In a letter dated July 20, 2012 (ADAMS Accession No. ML12125A385), the NRC staff identified 28 items for GEH's consideration as part of their application to renew the ABWR DC. With regard to emergency planning, these design change considerations included the following request for information from Item No. 28 of the staff letter arising out of Fukushima NTTF Recommendation 9.3:⁴

Include a COL item for Fukushima Recommendation 9.3 regarding emergency preparedness as outlined in the Request for Information pursuant to 10 CFR 50.54(f) dated March 12, 2012 (ML12053A340).

In the March 12, 2012, Request for Information letters (RFI), NRC required all power reactor licensees and holders of construction permits to provide further information to support the evaluation of the NRC staff recommendations for the NTTF review of the accident at the Fukushima Dai-ichi nuclear facility. For NTTF Recommendation 9.3, Enclosure 5 of the RFI included guidance supporting the RFI, as well as the specific requested information.

The RFI addresses staffing and communications provisions for enhancing emergency preparedness. With regard to staffing, the accident at Fukushima highlighted the need to determine and implement the required staff to fill all necessary positions responding to a multi-unit event. Specifically, the RFI requested that all power reactor licensees and holders of construction permits (in active or deferred status) assess their current staffing levels and determine the appropriate staff to fill all necessary positions for responding to a multi-unit event during a beyond design basis natural event and determine if any enhancements are

⁴ See (1) SECY-12-0025, "Proposed Orders and Requests for Information in Response to Lessons Learned from Japan's March 11, 2011, Great Tohoku Earthquake and Tsunami," dated February 17, 2012 (ADAMS Accession No. ML12039A111, ADAMS Package No. ML12039A103); (2) NRC March 12, 2012, request for information associated with the NRC NTTF review of the accident at the Fukushima Dai-ichi nuclear facility (ADAMS Accession No. ML12053A340); and (3) NRC January 23, 2013, letter, which identified generic technical issues that need to be addressed as part of the NTTF Recommendation 9.3 communications capability assessment (ADAMS Accession No. ML13010A162).

appropriate. The RFI requested single unit sites to provide the requested information, as it pertains to an extended loss of all alternating current (AC) power and impeded access to the site.

With regard to communications, the accident at the Fukushima Dai-ichi nuclear facility highlighted the need to ensure that the communications equipment relied upon to coordinate the event response during a prolonged station blackout can be powered. Specifically, the RFI requested that all power reactor licensees and holders of construction permits (in active or deferred status) assess their current communications systems and equipment used during an emergency event, including consideration of any enhancements that may be appropriate for the emergency plan. In addition, the RFI also requested consideration of the means necessary to power the new and existing communications equipment during a prolonged station blackout.

In its response letter dated July 7, 2015 (ADAMS Accession No. ML15188A269), GEH proposed a resolution of Item No. 28, and included the associated ABWR DCD markups to be included in Revision 6 of the DCD.⁵ GEH's response consisted of adding COL Information Item 13.2a in Tier 2, DCD Section 13.3.1.2, "Staffing and Communications Capabilities," which states the following:

Perform an assessment as described in NEI 12-01 (Reference 13.3-1) to assess staff and communications capabilities needed to respond to a beyond design basis event.

GEH also made conforming Tier 2 changes in DCD Revision 6 that are reflected in DCD Revision 7, consisting of: (1) revising the emergency planning description in Section 13.3, "Emergency Planning," including listing Nuclear Energy Institute (NEI) technical report NEI 12-01, "Guideline for Assessing Beyond Design Basis Accident Response Staffing and Communications Capabilities," in Section 13.3.2, "References;" (2) listing NEI 12-01 in Table 1.8-21, "Industrial Codes and Standards Applicable to ABWR;" and (3) listing COL Information Item 13.2a in Table 1.9-1.

The staff reviewed the DCD revisions (identified above) and finds that they are acceptable because they include a COL information item for Fukushima NTTF Recommendation 9.3 regarding emergency preparedness, as outlined in the NRC's March 12, 2012, Request for Information. This reflects the use of NEI 12-01, which the NRC endorsed in 2012 as an acceptable method for (COL) licensees to employ when addressing the RFI⁶. In addition,

⁵ See also, GEH's April 29, 2016, letter, "Supplement Information for GEH's Response to Item # 26 – Fukushima Recommendation 4.2 Mitigation Strategies of NRC Suggested U.S. Advanced Boiling Water Reactor Design Changes" (ADAMS Accession No. ML16120A032), which summarizes GEH's response to NRC NTTF Recommendation 9.3 (consistent with GEH's full response in the July 7, 2015, letter) in Enclosure 2 (ADAMS Accession No. ML16120A044), Subsection 1D.2.8, "Enhanced Emergency Plan Staffing and Communication (9.3)."

⁶ See (1) NRC May 15, 2012, letter, "U.S. Nuclear Regulatory Commission Review of NEI 12-01, 'Guideline for Assessing Beyond Design Basis Accident Response Staffing and Communications Capabilities,' Revision 0, dated May 2012" (ADAMS Accession No. ML12131A043), (2) NEI May 3, 2012, letter, "Transmittal of NEI 12-01, 'Guideline for Assessing Beyond Design Basis Accident Response Staffing and Communications Capabilities,' Revision 0, dated May 2012" (ADAMS Accession No. ML12125A411), and (3) NEI Report No. 12-01, Revision 0, "Guideline for Assessing Beyond Design Basis Accident Response Staffing and Communications Capabilities," May 2012 (ADAMS Accession No. ML12125A412).

although these changes are not needed to meet the following regulatory requirements, the revisions are consistent with the requirements of 10 CFR 50.47(b)(2) and (b)(6), and Sections IV.A and IV.E.9 of Appendix E to 10 CFR Part 50. Finally, the staff confirmed that the DCD changes were included in Revision 7 of the ABWR DCD. Therefore, the staff considers NRC's July 20, 2012, request resolved, with regard to GEH's inclusion of a COL information item in the ABWR DCD for the RFI arising out of Fukushima NTTF Recommendation 9.3 (i.e., Item No. 28 of the staff July 20, 2012 letter).

The applicant provided the requested information in regard to the Fukushima NTTF Recommendations 9.3, in the ABWR DCD, Revision 7, which incorporated the changes described in the applicant's response letter dated July 7, 2015. Therefore, Confirmatory Item 13.3-1, from the staff advanced safety evaluation with no open items, for the ABWR DC renewal is resolved and closed.

13.3.4 Conclusion

Based on the review of the applicant's modification related to site-specific radiological protection for the TSC, and amendment related to an assessment of staffing and communications capabilities to respond to a beyond-design-basis event, the staff concludes the applicant has adequately addressed the emergency planning design-related features associated with TSC habitability, and voluntarily incorporated EP changes stemming from the NRC's Fukushima Dai-ichi NTTF Recommendation 9.3.

Therefore, the staff concludes that the information is acceptable and meets the applicable requirements in 10 CFR 50.47(b)(8) (1997); 10 CFR Part 50, Appendix A, GDC 19 (1997); 10 CFR Part 50, Appendix E, Section IV.E.8 (1997); and 10 CFR 52.47(a)(1)(vi) (1997) for the modification related to TSC habitability. In addition, the information submitted is consistent with the requirements in 10 CFR 50.47(b)(2); 10 CFR 50.47(b)(6); and 10 CFR Part 50, Appendix E, Sections IV.A and IV.E.9 for the changes related to NTTF Recommendation 9.3. Therefore, the staff finds the changes to be acceptable.

References

1. 10 CFR Part 50, Appendix A, "General Design Criteria for Nuclear Power Plants."
2. 10 CFR Part 50, Appendix A, GDC 19, "Control Room."
3. 10 CFR Part 50, Appendix E, "Emergency Planning and Preparedness for Production and Utilization Facilities."
4. 10 CFR Part 52, Appendix A, "Design Certification Rule for the U.S. Advanced Boiling Water Reactor."
5. 10 CFR 52.47, "Contents of Applications; Technical Information."
6. 10 CFR 52.59, "Criteria for Renewal."
7. GL 82-33, Supplement 1 to NUREG-0737-requirements for Emergency Response Capability, December 1982.
8. NUREG-0654/FEMA (Federal Emergency Management Agency)-REP-1, "Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants," Revision 1, November 1980 (ADAMS Accession No. ML040420012).
9. NUREG-0696, "Functional Criteria for Emergency Response Facilities," February 1981 (ADAMS Accession No. ML051390358).
10. NUREG-0800, "Standard Review Plan for the Review of Safety Analysis Reports for Nuclear Power Plants: LWR Edition," Section 6.4, "Control Room Habitability System," Revision 2, July 1981 (ADAMS Accession No. ML052340712).
11. NUREG-0800, "Standard Review Plan for the Review of Safety Analysis Reports for Nuclear Power Plants: LWR Edition," Section 13.3, "Emergency Planning," Revision 2, July 1981 (ADAMS Accession No. ML052350065), Revision 3, March 2007 (ADAMS Accession No. ML063410307).
12. NRC, NUREG-1503, "Final Safety Evaluation Report Related to the Certification of the Advanced Boiling Water Reactor Design," July 1994 (ADAMS Accession No. ML080670592).
13. NRC, NUREG-1503, "Final Safety Evaluation Report Related to the Certification of the Advanced Boiling Water Reactor Design," Supplement 1, May 1997 (ADAMS Accession No. ML080710134).
14. GEH, ABWR Standard Plant Design Certification Renewal Application Design Control Document, Revision 5, Tier 1 and Tier 2, December 2010 (ADAMS Accession No. ML110040323).
15. GEH, ABWR Standard Plant Design Certification Renewal Application Design Control Document, Revision 6, Tier 1 and Tier 2, February 2016 (ADAMS Accession No. ML16214A015).

16. GEH, ABWR Standard Plant Design Certification Renewal Application Design Control Document, Revision 7, Tier 1 and Tier 2, December 2019 (ADAMS Accession No. ML20007E371).
17. NRC, SECY-12-0025, "Proposed Orders and Requests for Information in Response to Lessons Learned from Japan's March 11, 2011, Great Tohoku Earthquake and Tsunami," February 17, 2012 (ADAMS Accession No. ML12039A111).
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