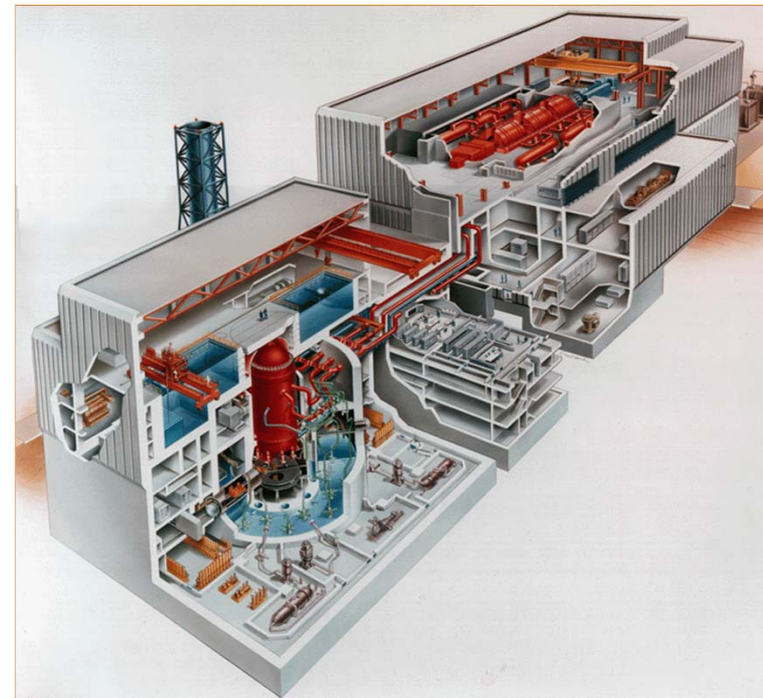


# **ABWR Design Certification Renewal**

**NRC Public Meeting**

**Draft Review Guidance**

**March 24, 2011**



**HITACHI**

# Meeting Objectives

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- Purpose of meeting is to interact with NRC on its draft guidance for renewing design certifications.
  - GEH will present general feedback on guidance.
  - GEH will present feedback on each of the acceptance criteria in the draft guidance.
- GEH will seek feedback from NRC throughout meeting.
- GEH will identify further actions based on presentation and discussion.



**HITACHI**

# Introduction

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GEH ABWR Renewal Application meets regulatory requirements for renewal of design certifications.

- Application includes a limited scope amendment that covers regulatory requirements to address changes in applicant, correct errors, and assess aircraft impact.
- Amendment is not so extensive as to propose “an essentially new standard design” under 10 CFR 52.59(c).

GEH will coordinate with the NRC as review proceeds to establish scope of issues that should be addressed in renewed design certification for assuring adequate protection under 10 CFR 52.59(b).



**HITACHI**

# General Comments on NRC Draft Guidance

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- NRC guidance should address the overall concept of what it means to renew a design certification. This raises several questions:
  - Does the renewed design retain the existing “licensing basis” except for amendments? E.g., compare to 10 CFR Part 54 process.
  - How do plants that reference an original or previously renewed design certification address generic changes under requirements of 10 CFR 52.63(a)(3) once a renewal is final?
  - Will the NRC inform design certification applicants of generic or design-specific issues throughout the life of a design certification (both for operating plants and for renewal)?
    - E.g., should generic communications be addressed to applicants of design certifications?
  - Does the NRC expect that the applicant will compare the entire DCD to revised Standard Review Plan or just the portions that of the DCD that include amendments?
  - When does the scope trip the threshold for a new design certification?



**HITACHI**

# General Comments on NRC Draft Guidance

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- NRC regulations appear to require that the renewed design certification comply with regulations at the time of certification (except for amendments).
  - NRC guidance should clarify which regulations apply to “renewal backfits.”
  - NRC guidance could also address whether or not a renewal applicant may elect to use existing/current NRC regulations and guidance for “modifications.”
  - NRC guidance should address whether a DCD should include a table or otherwise indicate which regulations apply to which parts of the certified design information.
- NRC guidance should address how all sections of Subpart B apply to a renewal application. E.g., how would amended regulations apply if they were not in effect at time of original certification?



**HITACHI**

# NRC Regulations on “Renewal Backfits” and “Modifications”

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10 CFR 52.59:

(a) The Commission shall issue a rule granting the renewal if the design, either as originally certified or as modified during the rulemaking on the renewal, complies with the Atomic Energy Act and the Commission’s regulations applicable and in effect at the time the certification was issued, provided, however, that the first time the Commission issues a rule granting the renewal for a standard design certification in effect on July 13, 2009, the Commission shall, in addition, find that the renewed design complies with the applicable requirements of 10 CFR 50.150.

(b) The Commission may impose other requirements if it determines that:

- (1) They are necessary for adequate protection to public health and safety or common defense and security;
- (2) They are necessary for compliance with the Commission's regulations and orders applicable and in effect at the time the design certification was issued; or
- (3) There is a substantial increase in overall protection of the public health and safety or the common defense and security to be derived from the new requirements, and the direct and indirect costs of implementing those requirements are justified in view of this increased protection.



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# NRC Regulations for Amendments

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## 10 CFR 52.59:

(c) In addition, the applicant for renewal may request an amendment to the design certification. The Commission shall grant the amendment request if it determines that the amendment will comply with the Atomic Energy Act and the Commission's regulations in effect at the time of renewal. If the amendment request entails such an extensive change to the design certification that an essentially new standard design is being proposed, an application for a design certification must be filed in accordance with this subpart.

## 10 CFR 52.63:

(a)(3) Any modification the NRC imposes on a design certification rule under paragraph (a)(1) of this section will be applied to all plants referencing the certified design, except those to which the modification has been rendered technically irrelevant by action taken under paragraphs (a)(4) or (b)(1) of this section.



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# ABWR Background

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- 09/29/1987: GENE (predecessor to GEH) applied for ABWR standard design approval, with SSAR submitted under 10 CFR Part 50, Appendix O
- 12/20/1991: GENE requested conversion to standard design approval and design certification under 10 CFR § 52.47
- NRC FSER (NUREG-1503 and Supplement 1) based on DCD and supporting references, including SSAR
- NRC issued final certification rule effective June 11, 1997, for 15-year period



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# ABWR Background (cont.)

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- 12/07/2010: GEH applied for ABWR Design Certification (“DC”) Renewal
- 01/19/2011: NRC acknowledged receipt of GEH ABWR DC Renewal Application (“DCRA”)
- 02/15/2011: NRC accepts and docket DCRA



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# Renewal Scope

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- Purpose for Renewing ABWR Design Certification Rule
  - Ensure availability of ABWR rule beyond 2012
  - Timely renewal will apply once application is accepted by NRC (i.e., NRC acceptance review and docketing will ensure rule is under timely renewal)
  - Accompanying amendment to DCD will incorporate Aircraft Impact Assessment (10 CFR § 50.150) and correct containment analysis (error identified by GEH)
    - Aircraft Impact Assessment Amendment in accordance with requirements in 10 CFR § 50.150 (as referenced in 10 CFR § 52.59(a)) and guidance in NEI 07-13
      - ❖ Use renewal amendment process to minimize hearing risk for future COLAs
      - ❖ Amendment enhances standardization of design elements
    - Correct Containment Analysis in certified design
      - ❖ Bring design up to date
      - ❖ Correct errors identified by GEH



**HITACHI**

**Discussion of NRC Staff Views on Application  
Contents – NRC Draft Guidelines 12/01/2010  
(released for NRC public meeting held  
01/31/2011)**

# NRC Staff Views on Application Content for Design Certification Renewal Applications

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It is the staff's current view that, for a completeness review, the ABWR DCR renewal applications should include:

- i. a complete design control document (DCD) that reflects applicant-proposed updates under 10 CFR 52.57(a) and amendments under 10 CFR 52.59(c), and that is submitted in accordance with the current requirements for electronic document submittal in 10 CFR 52.3 and the filing requirements in 10 CFR 2.811 through 10 CFR 2.819.
- ii. information necessary to demonstrate the technical qualification of the applicant, if different from the original applicant.
- iii. information to demonstrate compliance with 10 CFR 50.150, Aircraft Impact Assessment Rule, if the design has not already been amended to satisfy 10 CFR 50.150.
- iv. an Environmental Report (ER) in accordance with 10 CFR 51.55(b).



**HITACHI**

# NRC Staff Views on Application Content for Design Certification Renewal Applications (cont.)

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## NRC Staff Views:

- i. a complete design control document (DCD) that reflects applicant-proposed updates under 10 CFR 52.57(a) and amendments under 10 CFR 52.59(c), and that is submitted in accordance with the current requirements for electronic document submittal in 10 CFR 52.3 and the filing requirements in 10 CFR 2.811 through 10 CFR 2.819.

## GEH Response:

The GEH application for renewal of ABWR DC Rule included a discussion on Regulatory Compliance and submitted Revision 5 of the ABWR Design Control Document (“DCD”). Table 1 of Enclosure 1 discuss how the application complies with NRC requirements in 10 CFR 52.57(a) and 10 CFR 52.59(c).

The application was submitted in compliance with 10 CFR 52.3 and 10 CFR 2.811. The NRC has not yet requested additional information be provided, so 10 CFR 2.819 is not currently applicable. GEH coordinated with NRC on verification of electronic files for entering DCD into ADAMS.

NRC informed GEH in a letter dated 2/15/2011 that it has accepted and docketed the application as Docket No. 52-045.



**HITACHI**

# NRC Staff Views on Application Content for Design Certification Renewal Applications (cont.)

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## NRC Staff Views:

- ii. information necessary to demonstrate the technical qualification of the applicant, if different from the original applicant.

## GEH Response:

Enclosure 1 of the application explains that GEH (successor of original applicant, GENE) is the applicant. DCD, Revision 5, Tier 2, Section 1.4, provides the technical qualifications of GEH.

GEH holds the body of knowledge, analyses and design development documentation that provides the underlying basis for the original ABWR design certification. In addition, GEH has completed detailed design specifications and procurement specifications as part of the Lungmen Units 1 and 2 project, which is based on the ABWR certified design.



**HITACHI**

# NRC Staff Views on Application Content for Design Certification Renewal Applications (cont.)

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## NRC Staff Views:

- iii. information to demonstrate compliance with 10 CFR 50.150, Aircraft Impact Assessment Rule, if the design has not already been amended to satisfy 10 CFR 50.150.

## GEH Response:

The GEH application addresses the requirements of 10 CFR 50.150.

DCD, Revision 5, Tier 2, Section 19G, provides results the assessment, identifies key design features that are to be maintained for aircraft impact, and presents conclusions of the aircraft impact assessment. Other changes are included in Appendix 3H and 9A.



**HITACHI**

# NRC Staff Views on Application Content for Design Certification Renewal Applications (cont.)

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## NRC Staff Views:

- iv. an Environmental Report (ER) in accordance with 10 CFR 51.55(b).

## GEH Response:

The GEH application included a supplemental environmental report for the proposed amendments in DCD Revision 5. GEH concluded that the original Severe Accident Mitigation Design Alternative assessment is not impacted by revisions to the DCD.



**HITACHI**



**Discussion of NRC Staff Views on Technical  
Review – NRC Draft Guidelines 12/01/2010  
(released for NRC public meeting held  
01/31/2011)**

# NRC Staff Views on Technical Review for Design Certification Renewal Applications

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## NRC Staff Views

- The ABWR DC Renewal application should contain a separate ABWR DCD representing the DCD for the applicable period of renewal of the ABWR design.

## GEH Response:

- The ABWR certified design is based on Revision 4 of the DCD. The GEH renewal application contains Revision 5 of the DCD.



**HITACHI**

# NRC Staff Views on Technical Review for Design Certification Renewal Applications (cont.)

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## NRC Staff Views:

- The entire ABWR DCD (i.e., the version of the ABWR DCD last approved for incorporation by reference) must be updated under 10 CFR 52.57(a) to include corrections of errors, typos, and defects (as defined in 10 CFR Part 21), which are known by the ABWR DC Renewal applicant. The ABWR DCD must also reflect any design changes (defined below). In addition, the ABWR DCD must be updated to include the information necessary to demonstrate the technical qualification of the applicant, if different from the original applicant. Finally, the ABWR DCD must be submitted to the NRC in accordance with the current requirements for electronic document submittal in 10 CFR 52.3 and the filing requirements in 10 CFR 2.811 through 10 CFR 2.819.
- For clarity, the staff considers design changes to be in three categories and accordingly refers to these three categories distinctly. The staff considers the following three categories of changes included in the ABWR DC Renewal application: *modifications, renewal backfits, and amendments.*



**HITACHI**

# NRC Staff Views on Technical Review for Design Certification Renewal Applications (cont.)

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- *Modifications* to the certified design are considered to be those changes that are necessitated by the requirement to update the application in accordance with § 52.57(a) [e.g., to correct known errors and defects] and § 52.59(a). Modifications must comply with the Atomic Energy Act (AEA) and the Commissions regulations applicable and in effect at the time the certification was originally issued with the exception of those changes proposed by the DC Renewal applicant to comply with 10 CFR 50.150, as required by § 52.59(a).
- *Renewal backfits* to the certified design are considered to be those changes that are necessary to comply with additional requirements imposed by the NRC through application of the criteria in § 52.59(b). The NRC staff is responsible for justifying renewal backfits under this provision. However, to gain insight as to whether a change needs to be made under this criterion, additional information is being requested from the applicant pursuant to the updating requirement in 10 CFR 52.57(a) (see Additional Application Information below.)
- *Amendments* to the certified design are considered to be those changes proposed by the DC Renewal applicant in accordance with § 52.59(c). Amendments must comply with the AEA and the Commissions regulations applicable and in effect at the time of renewal. ABWR DC Renewal applications that include amendments to the certified design are not required to address the criteria in 10 CFR 52.63, but in accordance with § 52.59(c), if the amendment request entails such an extensive change to the certified design that an essentially new standard design is being proposed, a new DC application must be submitted.



**HITACHI**

# NRC Staff Views on Technical Review for Design Certification Renewal Applications (cont.)

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## GEH Response:

- GEH explains the limited scope of DCD changes in Enclosure 1 of the application, consistent with GEH presentation in pre-application meeting 02/23/2010.
  - The renewal application includes a revised containment peak pressure analysis to reflect a more limiting line break (see GEH Letter MFN 09-306, 06/08/2009, ML100640164).
  - See above for information on submittal issues associated with electronic files and compliance with specific NRC regulations.

*Note that changes to the DCD are described in change lists and are identified with revision bars on the right hand of each page where content is changed.*



**HITACHI**

# NRC Staff Views on Technical Review for Design Certification Renewal Applications (cont.)

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## GEH Response (cont.):

- Design changes currently included in DCD Revision 5 are related to containment peak pressure analysis and aircraft impact assessment.
  - Containment peak pressure analysis would fall into NRC category of “modification.” These changes are contained largely in Section 6.2.
  - GEH has not included in DCD Revision 5 any design changes that are considered “renewal backfits”. However, GEH recognizes that the NRC may identify specific issues for additional information to determine if a renewal backfit may be necessary. GEH expects to coordinate closely with NRC on these issues as the review proceeds.
  - Design changes that result from aircraft impact assessment and are considered “amendments” to the certified design, rather than a “modification” or “renewal backfit.” GEH limited the scope of amendments so as not to request such extensive changes that the proposed design is essentially a “new” design.



**HITACHI**

# NRC Staff Views on Technical Review for Design Certification Renewal Applications (cont.)

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## NRC Staff Views on Revisions to DCD:

- i. same organization and numbering as the original ABWR DC except for additions and deletions, with any changes to the organization and numbering clearly identified and justified.

## GEH Response:

GEH submitted DCD Revision 5, which has the same organization and numbering as the original ABWR DCD, with additions and deletions. GEH submitted change lists for each chapter and changes are indicated by revision bars on right side of each page where content has been changed.



**HITACHI**

# NRC Staff Views on Technical Review for Design Certification Renewal Applications (cont.)

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## NRC Staff Views on Revisions to DCD:

- ii. changes to the ABWR certified design that may include additions, deletions, or alterations to structures, systems, and components of the ABWR certified design should be clearly identified and uniquely distinguished as modifications, renewal backfits, or amendments to the certified design. The application should include suitable justifications for the changes along with a discussion of how the revised design complies with the applicable regulations.

## GEH Response:

GEH agrees that this information could be useful to NRC staff in reviewing the application.

GEH has marked changes in the DCD and identified each change in change lists and explained the overall purpose of changes in Enclosure 1 of the application.

Discussion in the DCD itself provides justification and purpose for changes to ensure compliance with NRC regulatory requirements and conformance to NRC regulatory guidance.

Going forward, GEH will continue to include a change list, but would not otherwise identify the categories in the DCD itself.



**HITACHI**



# NRC Staff Views on Technical Review for Design Certification Renewal Applications (cont.)

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## NRC Staff View for Revisions to DCD:

- iii. for amendments to the certified design included in the ABWR DC renewal application, an evaluation to show that changes to the certified design are in compliance with regulations in effect at the time of renewal.

## GEH Response:

Compliance with NRC regulations for amendments related to aircraft impact assessment is addressed in DCD Revision 5. GEH expects that it will coordinate with NRC as review progresses if regulations or guidance regarding AIA change.



**HITACHI**

# NRC Staff Views on Technical Review for Design Certification Renewal Applications (cont.)

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## NRC Staff Views on Revisions to DCD:

- iv. at the level of detail required by 10 CFR 52.47, analyses, evaluations, and reports that have either been updated, revised, or newly included to demonstrate the adequacy of the changes to the ABWR design.

## GEH Response:

GEH describes the analysis for containment peak pressure directly in the DCD. References are included in Section 19G and other affected sections for aircraft impact assessment, as appropriate.



**HITACHI**

# NRC Staff Views on Technical Review for Design Certification Renewal Applications (cont.)

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## NRC Staff Views on Revisions to DCD:

- v. a description of the revised design-specific probabilistic risk assessment and its results to reflect changes to certified ABWR design features.

## GEH Response:

GEH proposes no modifications that impact the original PRA and has not revised the PRA.



**HITACHI**

# NRC Staff Views on Technical Review for Design Certification Renewal Applications (cont.)

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## NRC Staff Views on Revisions to DCD:

- vi. a summary of changes to the certified ABWR design has been included in the ABWR DC renewal application along with a roadmap or tabulation identifying the locations of descriptions, discussions and justifications for the specific design changes included throughout the ABWR DCD.

## GEH Response:

GEH agrees that this information could be useful both for NRC review and for historical purposes to show the type of changes that are made as part of a renewal.

GEH will coordinate with the NRC regarding this information.



**HITACHI**

## NRC Staff Views on Technical Review for Design Certification Renewal Applications (cont.)

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### NRC Staff Views on Revisions to DCD:

- vii. the information required by 10 CFR 50.150(b) for the ABWR DCD that does not already meet 10 CFR 50.150.

### GEH Response:

As explained above, the GEH renewal application addresses 10 CFR 50.150 requirements for aircraft impact assessment.



**HITACHI**

# NRC Staff Views on Technical Review for Design Certification Renewal Applications (cont.)

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## NRC Staff Views on Updates of Documents Referenced in the DCD:

- The staff intends to review the DC renewal application for the ABWR certified design to ensure that it includes updates to all topical reports, sensitive unclassified non-safeguards information (including proprietary information), and safeguards information that were incorporated by reference into the original DC. The updates must include corrections of errors, typos, and defects (as defined in 10 CFR Part 21) which are known by the ABWR DC Renewal applicant. To the extent that information incorporated by reference into the ABWR DCD contains design information that would ordinarily be placed in the DCD but for its protected status, the staff should ensure that this information has been updated to reflect any design amendments sought by applicants under 10 CFR 52.59(c), as well as any modifications to the design that the ABWR DC Renewal applicant proposes to include to meet the renewal criteria in 10 CFR 52.59(a). Additions, deletions, and any necessary changes to these referenced materials should be clearly identified.



**HITACHI**

# NRC Staff Views on Technical Review for Design Certification Renewal Applications (cont.)

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## GEH Response:

As explained above, GEH reanalyzed the containment peak pressure. Information that supports the analysis is provided directly in the DCD.

GEH has not identified other errors or defects that impact information in the DCD. See MFN 09-306 for information on the GEH 10 CFR Part 21 review.

GEH revised safeguards information that supports the ABWR renewal modifications associated with physical security (including aircraft impact assessment information).



**HITACHI**

# NRC Staff Views on Technical Review for Design Certification Renewal Applications (cont.)

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## NRC Staff Views on Additional Application Information:

- Pursuant to the updating requirement in 10 CFR 52.57(a), the staff intends to also review the DC renewal application to ensure that it includes additional information that addresses the items below and that this additional information is submitted in addition to the updated ABWR DCD:
  - i. any new and relevant information regarding the ABWR DC Renewal applicant, including, but not limited to the information required by 10 CFR 52.46.

***§ 52.46 Contents of applications; general information.***

*The application must contain all of the information required by 10 CFR 50.33(a) through (c) and (j).*



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# NRC Staff Views on Technical Review for Design Certification Renewal Applications (cont.)

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## GEH Response:

- The referenced requirements relate to the applicant, and most are related to permit or license applicants, and these do not apply to the GEH renewal application.
- The GEH renewal application identifies the applicant in Enclosure 1, section entitled “Applicant,” and describes technical qualifications in DCD Revision 5, Section 1.4.
- GEH explains that the application has been prepared under the GEH Quality Assurance Program.



**HITACHI**

# NRC Staff Views on Technical Review for Design Certification Renewal Applications (cont.)

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## NRC Staff Views on Additional Application Information:

- ii. whether there is material new information with respect to technical resolutions to high and medium priority unresolved safety issues (USIs) and generic safety issues (GSIs) addressed in the original ABWR DCR, and if the ABWR DC Renewal applicant is proposing any change to the design as a result of the material new information.
- iii. whether there are new USIs and GSIs created/identified since the ABWR design was certified and whether the applicant is proposing any change to the design as a result of any new USI and GSI, and if no changes are proposed, the bases for the renewal applicant's determination that no change to the design is necessary.

## GEH Response:

The GEH renewal application, Enclosure 1, Table 2, provides the results of a review of NUREG-0933, Appendix B, for Generic Safety Issues ("GSIs") that are to be reviewed for applicability to future reactor plants. For those that are not already addressed by the ABWR DCD, GEH proposes that these would be addressed in a COLA. GEH would consider including COLA Information Items in the DCD for GSI-193 and GSI-199.

In addition, GEH is aware that the BWROG is assessing implications on BWRs of GSI-191, which relates to PWR sump debris. BWRs addressed strainer debris prior to GSI-191, and the ABWR design included lessons learned from those efforts (proprietary information). GEH is monitoring the BWROG activities.



**HITACHI**

# NRC Staff Views on Technical Review for Design Certification Renewal Applications (cont.)

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## NRC Staff Views on Additional Application Information:

- iv. whether there are new generic letters and bulletins issued after the ABWR design was certified and whether the applicant is proposing any changes to the design as a result of any new generic letter and bulletin, and if no changes are proposed, the bases for the applicant's determination that no change to the design is necessary.

### GEH Response:

Currently, generic letters and bulletins are not addressed to design certification applicants. GEH did not address these in the renewal application.

GEH is reviewing Generic Letter and Bulletins since the design was certified for potential impacts on the ABWR DCD and will coordinate with NRC on results of this review.

NRC guidance should address how generic letters and bulletins should be handled in the future (e.g., should they be addressed to design certification applicants?).



**HITACHI**

# NRC Staff Views on Technical Review for Design Certification Renewal Applications (cont.)

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## NRC Staff Views on Additional Application Information:

- v. whether there is any relevant domestic and international operating experience that has been documented since the ABWR design was certified and whether the applicant is proposing any changes to the design as a result of this new information, and if no changes are proposed, the bases for the renewal applicant's determination that no change to the design is necessary.

### GEH Response:

GEH discussed operating experience in Enclosure 1 of the application and indicated that containment re-analysis was identified through reviews of potential 10 CFR Part 21 issues, which include experience gained through completion of detailed design and construction at Lungmen Units 1 and 2.

As noted on the previous slide, GEH is reviewing NRC generic letters and bulletins for additional operating experience and will coordinate with NRC on results of review.

GEH is working with its partner, HGNE, to determine if there are international operating experiences in Japan with operating ABWRs.



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## Action Items

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- Identify items for follow-up action.

