



GE Energy

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U.S. Nuclear Regulatory Commission
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Subject: **Response to Portion of NRC Request for Additional Information
Letter No. 96 – Steam and Power Conversion System– RAI Numbers
10.4-13 and 10.4-14**

Enclosure 1 contains GE's response to the subject NRC RAIs transmitted via the Reference 1 letter.

If you have any questions or require additional information regarding the information provided here, please contact me.

Sincerely,

A handwritten signature in cursive script that reads "Kathy Sedney for".

James C. Kinsey
Project Manager, ESBWR Licensing

Handwritten initials "DO68" in a stylized, blocky font.

URO

Reference:

1. MFN 07-231, Letter from U.S. Nuclear Regulatory Commission to Robert E. Brown, *Request for Additional Information Letter No. 96 Related to the ESBWR Design Certification Application*, April 12, 2007.

Enclosure:

1. MFN 07-245 – Response to Portion of NRC Request for Additional Information Letter No. 96 – RAI Numbers 10.4-13 and 10.4-14.

cc: AE Cabbage USNRC (with enclosure)
BE Brown GE/Wilmington (with enclosure)
LE Fennern GE/San Jose (with enclosure)
GB Stramback GE/San Jose (with enclosure)
eDRF: 0000-0067-6701 R1 and 0000-0067-6707 R1

Enclosure 1

MFN 07-245

**Response to Portion of NRC Request for
Additional Information Letter No. 96
Related to ESBWR Design Certification Application**

Steam and Power Conversion System

RAI Numbers 10.4-13 and 10.4-14

NRC RAI 10.4-13

Provide a justification for removing COL Action Item 10.4.10.4. 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. However, the information must be provided by the COL applicant. Please provide a justification for removing the COL action item.

GE Response

As stated in DCD Subsection 10.4.5.7, portions of the Circulating Water system are outside the scope of the certified design. COL Action Item 10.4.10.4 in DCD Tier 2, Revision 2 stated:

“A compatible design description (Subsection 10.4.5.2) shall be provided in the COL phase (see Subsection 10.4.5.7.2).

An evaluation (Subsection 10.4.5.3) shall be provided in the COL phase (see Subsection 10.4.5.7.2).

Tests and Inspections (Subsection 10.4.5.4) shall be provided in the COL phase (see Subsection 10.4.5.7.2).

A permanent flow meter installation shall be analyzed in the COL phase (See Subsection 10.4.5.5) as well as Instrument Application provided for in the COL phase (See Subsection 10.4.5.7.2).

Flood Protection (Subsection 10.4.5.6) shall be provided in the COL phase (See Subsection 10.4.5.7.2).”

The Circulating Water System interface requirements in COL Action Item 10.4.10.4 were moved to the text of DCD Subsection 10.4.5.7.2. Subsection 10.4.5.7.2 was revised in DCD Tier 2, Revision 3 to state:

“Systems and components are included with the following interface considerations:

- Compatible design as described in Subsection 10.4.5.2
- Evaluation per Subsection 10.4.5.3
- Tests and inspections per Subsection 10.4.5.4
- Instrument applications per Subsection 10.4.5.5
- Flood protection per Subsection 10.4.5.6”

These activities are system interface considerations for which COL Action Item 10.4.10.4 is no longer needed for tracking purposes, and it was therefore deleted in DCD Tier 2, Revision 3.

In addition to the Circulating Water System interface requirements, COL Action Item 10.4.10.4 also included analysis of a permanent flow meter installation in the COL phase. A permanent

flow meter would be an option outside the scope of the certified design and was inadvertently included as a COL Action Item.

DCD Impact

No DCD changes will be made in response to this RAI.

NRC RAI 10.4-14

Provide a justification for removing COL Action Item 10.4.10.5. 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. 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. 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. The staff requests the applicant provide a justification for its decision since this information must be provided by the COL applicant.

GE Response

COL Action Item 10.4.10.5 in DCD Tier 2, Revision 2 stated:

“The COL will provide threshold values and recommended operator actions for chemistry excursions in the condensate system.”

The requirement contained in COL Action Item 10.4.10.5 was incorporated into the text of DCD Tier 2, Revision 3, Subsection 10.4.6.3:

"Chemistry threshold limits and administrative actions are established to mitigate chemistry excursions in the condensate system."

Regulatory Guide 1.206, C.III.1, Section 10.4.1, states:

“Discuss detection, controlling and correcting methods for conductivity and sodium content, including alarm setpoints, operator intervention, and plant response.”

Based on this statement in Regulatory Guide 1.206, this COL action item is to be restored in DCD Tier 2 Revision 4 per the attached recommended markup.

DCD Impact

No DCD changes will be made in response to this RAI.

10.4.6.3 Evaluation

The CPS does not perform, ensure or support any safety-related function.

The CPS removes condensate system corrosion products and impurities resulting from condenser tube leakage in addition to some radioactive material, activated corrosion products and fission products that are carried-over from the reactor. The concentration of such radioactive material in the CPS requires shielding (see Chapter 12). Wastes from the condensate purification system are collected in controlled areas and sent to the radwaste system for treatment and/or disposal. Chapter 11 describes the activity level and removal of radioactive material from the condensate system.

Chemistry threshold limits and administrative actions are established to mitigate chemistry excursions in the condensate system. Reference COL Action Item 10.4.10.1.

The CPS complies with Regulatory Guide 1.56.

The CPS and related support facilities are located in nonsafety-related buildings. Potential equipment or piping failures does not adversely affect safety-related equipment or structures.

10.4.10 COL Unit Specific Information

10.4.10.1 Leakage (of Circulating Water Into the Condenser)

The COL Applicant will provide threshold values and recommended operator actions for chemistry excursions in the condensate system.