

From: James Gaslevic
To: Sedney, Kathy K. (GE Infra, Energy)
Date: 11/20/2006 1:03:37 PM
Subject: Fwd: Re: Section 3.2 of ESBWR DCD

Kathy - can we set up a conference call on Nov 29 for Section 3.2 regarding open RAI items that are included on the attached file?

jg

>>> Richard McNally 11/20/2006 11:52 AM >>>
Jim,

In regard to the subject ESBWR Section, I have identified approximately (10) pending open items that have not been resolved by the RAI responses. A preliminary list is of these open items is attached that you may forward to GE and I am continuing to review the Tier 2 Rev.2 submittal recently submitted. As we discussed, tentatively try to schedule a conference call with GE to discuss these open items during the week of 11/27. On 11/28 we are having a meeting/presentation with GE and others on one of these issues related to RTNSS and QA. Lets try to schedule a conference call for 11/29 after this GE presentation.

Regards,
Rich

Richard McNally
Nuclear Regulatory Commission
NRR/DE/EEMA

CC: Amy Cubbage; Lawrence Rossbach

Mail Envelope Properties (4561EDF9.319 : 0 : 10928)**Subject:** Fwd: Re: Section 3.2 of ESBWR DCD**Creation Date** 11/20/2006 1:03:37 PM**From:** James Gaslevic**Created By:** JEG1@nrc.gov

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| kathy.sedney (Sedney Kathy K. (GE Infra Energy)) | | |

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| MESSAGE | 1531 | 11/20/2006 1:03:37 PM |
| ESBWR 3.2 Potential Open Items 11-20-06.wpd | 16863 | 11/20/2006 11:47:16 |
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ESBWR Design Certification Review
Chapter 3.2
Potential Open Items
(Draft 11/20/06)

Item 3.2-1 a.

The response to RAI 3.2-1 clarified that ASME Section III Code Class 1, 2 and 3 components will have the Code N-Symbol stamp applied. However, resubmitted Table 3.2-1 for the N11 system shows that TMSS piping designed to ASME Section III Code Class 2 is not code stamped and does not require ASME inspections. Please correct or clarify the basis for this apparent discrepancy.

Item 3.2-1 b.

Regulatory Guide 1.26 Position C.1.c identifies that those portions of the steam systems of boiling water reactors extending from the outermost containment isolation valve up to but not including the turbine stop and bypass valves or shutoff valves and connected piping be classified as Quality Group B. Although Table 3.2-1 correctly classifies this piping as Quality Group B, the classification criteria is not included in Section 3.2.2.2. The applicant is requested to add the classification criteria as a basis used to identify the quality group for the N11 system piping including connected piping.

Item 3.2-3 a.

In the response to RAI 3.2-3, certain systems that perform a safety function identified in RG 1.26 as Quality group B were reclassified from Quality Group C to Quality Group B. For example, the GDCS was previously classified as Quality Group C and after further review is now classified as Quality Group B. However, Section 3.2.2.2 was not revised to include quality classification criteria for systems that provide an Emergency Core Cooling function such as the GDCS. The applicant is requested to submit a revision to Section 3.2.2.2 and Section 3.2.2.3 that includes the classification criteria for systems that perform an emergency core cooling function and other applicable safety functions to be consistent with revised table 3.2-1 and RG 1.26.

Item 3.2-3 b.

In the response to RAI 3.2-3, safety classifications based on ANS 58.14 were identified and included in Table 3.2-1. DCD Section 3.2.3.1 defines Safety Class 1 as applicable to components of the reactor coolant pressure boundary (as defined in 10 CFR 50.2) and their supports whose failure could cause a loss of reactor coolant at a rate in excess of the normal makeup system. GE is requested to clarify the maximum size of the piping connected to the RCPB that is excluded from Safety Class 1 on the basis of reactor coolant makeup capability. Also, ANS 58.14 is currently withdrawn and has not been endorsed by the NRC. Until this standard is updated and submitted for endorsement, this remains an open item and safety class is subject to further review during the COL application.

Item 3.2-6

The response to RAI 3.2-6 indicates that Quality Assurance E is appropriate for all nonsafety related SSCs regardless of their seismic classification. Note (5) to Table 3.2-1 identifies Quality Class E as quality assurance requirements commensurate with the importance of the item's function. Note 4 to table 3.2-3 also states that elements of 10 CFR 50 Appendix B are generally applied to nonsafety-related equipment commensurate with the importance of the equipment's function. Due to the general nature of this Quality Assurance E definition, it is not clear what specific quality assurance requirements are applicable to various components that are classified as Quality Assurance E. For example, the DCD does not identify what supplemental requirements, if any, are applicable to nonsafety-related SSCs such as the steam dryer, RPV insulation and high energy piping whose failure may adversely affect safety related SSCs. Also, Section 17.4 on Quality/Reliability Assurance or Section 19.6 on RTNSS do not appear to address graded supplemental requirements applicable to Quality Assurance Class E for important non-safety systems such as the standby AC power system and the plant service water system that have a defense-in-depth function. Please clarify what graded requirements are applied to Quality Assurance class E for each component in Table 3.2-1 so classified. If not sufficiently defined at this time, this will be subject to further review at a later time when design requirements and a design-specific focused PRA are complete.

Item 3.2-7

Simplified P&IDs included as schematics in the DCD do not show a level of detail that permits a detailed review of all the classification boundaries. In the response to RAI 3.2-7, GE agrees that some of the simplified P&IDs do not clearly describe the limits of the applied quality groups, quality assurance and seismic categories within the various systems. GE states that these will be corrected as they are discovered and updated in a future revision of the DCD. GE believes that a COL action is unnecessary to provide complete detailed P&IDs and that detailed P&IDs can be provided under proprietary submittals. The issue concerning level of detail for system diagrams has been addressed in various regulatory documents and the use of simplified diagrams rather than detailed P&IDs has been accepted in UFSARs for operating reactors. NUREG-0800 Section 14.3 also indicates that, in regard to ITAAC, the format for figures and/or diagrams will be simplified piping diagrams for mechanical systems and ASME code class boundaries are shown on the figure and form the basis for the basic configuration check (system) that is required in each individual system ITAAC. As stated in Section 14.3 of NUREG-0800, the generic Piping Design ITAAC is to include a verification of the design report to ensure that the appropriate code design requirements for the system's safety class have been implemented. Therefore, to provide assurance that systems and components important to safety that are later modified or are beyond the level of detail included in the DCD will be correctly classified according to the classification criteria in the DCD, it is requested that the specific version of the P&ID used for the DCD submittal be identified and a specific commitment be made to review the as-built configuration compared to the approved design shown on detailed P&IDs and simplified schematics submitted with the DCD. A "functional arrangement" inspection

consistent with Section 14.3 of NUREG-0800 may be used to verify that the as-built facility conforms to the approved design and applicable regulations. This review/inspection will also assist the NRC reviewer during the COL phase and construction inspections. The commitment may be in the form of a clarification letter, COL related action item or other appropriate ITAAC commitment. For example, in Section 19.59.10.5 of the AP1000 DCD, the applicant identified a commitment that the Combined License applicant referencing the AP1000 certified design will review the differences between the as-built plant and the design used as the basis for the AP1000 seismic margins analysis.

Item 3.2-19

Table 3.2-1 shows that the MSIV drains beyond the outermost MSIV is designated as Quality Group D. The response to RAI 3.2-19 indicates that the second isolation valve in the main steam drains beyond the MSIV is a normally closed valve and GE confirms that B21 item 13 in Table 3.2-1 will be analyzed according to the methods that are described in DCD Section 3.7. Since Figure 3.2-1 shows there is an open orifice in this line that bypasses the closed valve, please confirm that the offsite radiation dose caused by a failure in this Safety Class D piping will not exceed the acceptance criteria of .5 rem identified in RG 1.26. Otherwise this line should be classified as Quality group C to be consistent with RG 1.26.

Item 3.2-34 a.

The response to RAI 3.2-34 indicated that portions of nonsafety-related RWCUs are correctly classified and are considered a defense-in-depth feature rather than a safety-related function. It is not clear why portions of the RWCUs system that contain reactor water and are classified as Quality Group C and Seismic Category I, whose failure may result in offsite exposures greater than .5 rem are not Safety Class 3 on the basis of Table 3.2-2. DCD Table 15.4-23 appears to demonstrate that a failure in this piping will exceed .5 rem such that Quality Group C is appropriate. This table also shows that the calculated exposure does not exceed 10% of 10 CFR 100 offsite exposure limits and as such this segment of RWCUs piping need not be considered safety-related. GE is requested to either confirm that these results presented in Table 15.4-23 represent the basis for classifying this section of the RWCUs piping as nonsafety-related or identify the basis for the classification.

Item 3.2-34 b.

For portions of systems classified as both Safety Class N and either Quality Group B or C, it is not clear which code class applies. DCD Table 3.2-2 identifies that Safety Class N does not require the application of ASME Section III. However, to be consistent with RG 1.26 and Table 3.2-3, ASME Section III Class 2 or 3 applies to Quality Group B and C, respectively. Please clarify the criteria in Table 3.2-2 to define the code class for nonsafety-related Quality Group B and C components such as MD Drains and RWCUs.

Item 3.2-48

The response to RAI 3.2-48 clarified that DCD table 3.2-1 will be revised to include vacuum breakers. Due to this omission and other recent changes to table 3.2-1, it is not evident that table 3.2-1 has been thoroughly reviewed in comparison to design documents to assure that all components important to safety have been identified. To assure that the scope of items important to safety included in Table 3.2-1 is complete and consistent with the classification criteria contained in Section 3.2, it is requested that the applicant verify that a comprehensive review of P&IDs and other design documents has or will be performed to identify any missing items. It is also requested that the revision of the P&IDs and other design documents used for this review be identified so that the detailed version of the plant design applicable to the design certification is documented. This commitment may be linked to the resolution of item 3.2-7.