

REQUEST FOR ADDITIONAL INFORMATION 438-3079 REVISION 1

7/30/2009

US-APWR Design Certification

Mitsubishi Heavy Industries

Docket No. 52-021

SRP Section: 05.02.05 - Reactor Coolant Pressure Boundary Leakage Detection
Application Section: 5.2.5

QUESTIONS for Balance of Plant Branch 2 (ESBWR/ABWR) (SBPB)

05.02.05-7

Question 05.02.05-7

This RAI is a follow-up to **RAI 165-1967 Question 05.02.05-3**. Although the applicant provided a markup of Tier 2 DCD, Section 5.2.5.6 in response (dated February 20, 2009, MHI ref. UAP-HF-09064, ML090560600) to RAI 165-1967 Question No. 05.02.05-3, stating that the leakage conversion procedure will be developed, they did not include a markup of the procedure, so no staff evaluation of the existence and adequacy of the procedure is possible. In addition, the applicant did not add a combined license (COL) information item to require a COL applicant to provide operators with the procedures, chart, or graph for rapid conversion of instrument indications of various leakage detection instruments into common leak rates. Staff review of the leakage conversion procedures is necessary to determine if the procedures meet the requirements of Position C.7 in Regulatory Guide (RG) 1.45. Consequently, the staff requests the applicant to provide the procedures for converting various indications to a common leakage equivalent that will be provided to operating personnel. These procedures should address converting the instrument indications of various leakage detection devices (e.g., containment radioactivity monitors, containment sump level monitor, and containment air cooler condensate flow rate monitor) into a common leakage rate (gpm). In addition, the staff requests the applicant to define the alarm setpoints and demonstrate they are sufficiently low to provide an early warning for operator actions prior to Technical Specification (TS) limits.

05.02.05-8

Question 05.02.05-8

This RAI is a follow-up to **RAI 165-1967 Question 05.02.05-1**. In the response (dated February 20, 2009, MHI ref. UAP-HF-09064, ML090560600) to RAI 165-1967 Question 05.02.05-1, the applicant promised to provide a new inspections, tests, analysis, and acceptance criteria (ITAAC) item for the reactor coolant pressure boundary (RCPB) leakage detection system in Tier 1 of the DCD. The applicant also provided a proposed markup of the RCPB ITAAC. However, the markup provided for the proposed ITAAC does not address the means for determining the acceptability of sensitivity, response time, and alarm limits for the RCPB leakage detection instruments. Thus the staff has determined that the applicant's response is only partially responsive. It is important that the ITAAC for the RCPB leakage detection system be sufficiently complete to allow the

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staff to verify the compliance with the design criteria required by General Design Criteria (GDCs) 2 and 30. Consequently, the staff requests the applicant to supplement the new ITAAC for the RCPB leakage detection system and clearly specify the acceptance criteria for instrument sensitivity, response time, and alarm setpoints to verify compliance with the design criteria.

05.02.05-9

Question 05.02.05-9

This RAI is a follow-up to **RAI 165-1967 Question 05.02.05-2**. In applicant's response (dated February 20, 2009, MHI ref. UAP-HF-09064, ML090560600) to RAI 165-1967 Question 05.02.05-2, the applicant proposed to delete references to the containment airborne gaseous radioactivity monitor from the Technical Specifications (TSs) and provided a markup of the changes to be made in the Tier 2 DCD, Chapter 16 TS. However, the markup provided for the proposed change to Section B 3.4.15, ACTIONS, leaves the impression that perhaps two particulate containment atmosphere radioactivity monitoring instrumentation channels will now be required. The markup states the following:

"With both ~~gaseous and~~ particulate containment atmosphere radioactivity monitoring instrumentation channels inoperable, alternative action is required".

It is uncertain whether or not this was a simple oversight by the applicant or if they do intend that two airborne particulate monitors will be employed to provide redundancy. Therefore, the staff requests clarification from the applicant about the number of airborne particulate monitors that will be required by the TS and a description of the basis.

05.02.05-10

Question 05.02.05-10

This RAI is a follow-up to **RAI 165-1967 Question 05.02.05-4**. In the applicant's response (dated February 20, 2009, MHI ref. UAP-HF-09064, ML090560600) to RAI 165-1967 Question 05.02.05-4, the applicant promised to establish procedures that specify operator actions in response to prolonged low leakage conditions as part of the Operating and Emergency Operating Procedures described in DCD Section 13.5.2.1. Although the applicant provided a markup of changes to Tier 2 DCD, Section 5.2.5.8 stating that the leakage management procedure will be developed, they did not include a markup of the procedure, so no evaluation of the existence and adequacy of the procedure is possible. In addition, the applicant did not add a combined license (COL) Information Item to develop procedures for determining the existence of and operator response to prolonged low-level leakage conditions. Staff review of the procedures is necessary to determine if the procedures do in fact meet the requirements of Revision 1 of Regulatory Guide (RG) 1.45. Consequently, the staff requests the applicant to provide the procedures that specify operator actions in response to prolonged low leakage conditions that exist above normal leakage rates and below the TS limit to provide the operator sufficient time to take actions before the TS limit is reached.