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TOKYO, JAPAN

July 17, 2009

Document Control Desk
U.S. Nuclear Regulatory Commission
Washington, DC 20555-0001

Attention: Mr. Jeffrey A. Ciocco,

Docket No. 52-021
MHI Ref: UAP-HF-09381

Subject: MHI's Responses to US-APWR DCD RAI No. 381-2806 Revision 1

Reference: 1) "Request for Additional Information No. 381-2806 Revision 1, SRP Section: 14.03.07 – Plant Systems - Inspections, Tests, Analyses, and Acceptance Criteria Application Section: DCD Section 6.4, 6.5.1, 9.4.1 through 9.4.6" dated June, 1 2009.

With this letter, Mitsubishi Heavy Industries, Ltd. ("MHI") transmits to the U.S. Nuclear Regulatory Commission ("NRC") a document entitled "Responses to Request for Additional Information No. 381-2806 Revision 1."

Enclosed are the responses to Questions 14.03.07-35 through 14.03.07-47 that are contained within Reference 1.

Please contact Dr. C. Keith Paulson, Senior Technical Manager, Mitsubishi Nuclear Energy Systems, Inc. if the NRC has questions concerning any aspect of the submittals. His contact information is below.

Sincerely,



Yoshiaki Ogata,
General Manager- APWR Promoting Department
Mitsubishi Heavy Industries, LTD.

Enclosure:

1. Responses to Request for Additional Information No.381-2806 Revision 1

CC: J. A. Ciocco
C. K. Paulson

DOE
NRC

Contact Information

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Docket No. 52-021
MHI Ref: UAP-HF-09381

Enclosure 1

UAP-HF-09381
Docket No. 52-021

Responses to Request for Additional Information No. 381-2806
Revision 1

July 2009

RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION

07/17/2009

US-APWR Design Certification

Mitsubishi Heavy Industries

Docket No. 52-021

RAI NO.: NO. 381-2806 REVISION 1
SRP SECTION: 14.03.07 - PLANT SYSTEMS - INSPECTIONS, TESTS, ANALYSES,
AND ACCEPTANCE CRITERIA
APPLICATION SECTION: DCD SECTIONS 6.4, 6.5.1, 9.4.1 THROUGH 9.4.6
DATE OF RAI ISSUE: 06/1/2009

QUESTION NO.: 14.03.07-35

The staff finds the applicant's response for RAI #54-891/Question Number 14.03.07-2, RAI 14.3.7.3.2-3 as insufficient. The staff finds that the applicant's response is inconsistent with the text of section 6.4.6 and with the references cited in section 9.4.1.5. The applicant response included the words "*Non-safety related instrumentation that is described in Tier 2 Section 6.4.6 and 9.4.1.5 is not necessarily included in Tier 1.*"

The first paragraph of DCD section 6.4.6 reads "*Redundant, safety-related radiation monitors and toxic gas monitors are located in both MCR HVAC system outside air intakes. These monitors are powered from their respective Class-1E electrical supply sources.*"

This passage conflicts with the applicant's response.

The first paragraph of DCD section 9.4.1.5 reads "*Instrumentation for controlling and monitoring the MCR HVAC system, including the emergency filtration unit, meets the requirements of RG 1.52, ANSI/ANS 51.1 (Ref. 9.4.8-10), IEEE Std. 603 (Ref. 9.4.8-11), IEEE Std. 323 (Ref. 9.4.8-12), and IEEE Std. 344 (Ref. 9.4.8-13).*"

The three references cited are entitled as:

- 1) "IEEE Standard Criteria for Safety Systems for Nuclear Power Generating Stations," IEEE Std 603-1998.
- 2) "IEEE Standard for Qualifying Class 1E Equipment for Nuclear Power Generating Stations," IEEE Std 323™-2003.
- 3) "IEEE Recommended Practice for Seismic Qualification of Class 1E Equipment for Nuclear Power Generating Stations," IEEE Std 344™- 1987.

From these three references it appears that the listed instrumentation would be categorized as safety related and therefore should be included in Tier 1 section 2.7.5.1.

The staff reasons that most if not all the instrumentation listed by the staff in RAI #54-891/Question Number 14.03.07-2, RAI 14.3.7.3.2-3 would have to be safety related if for no other reason than to maintain a safety related pressure boundary as an extension of the CRE.

For each individual instrumentation component listed in RAI #54- 891/Question Number 14.03.07-2, RAI 14.3.7.3.2-3, the staff requests that the applicant provide further justification and the basis for the conclusion that each is not safety related.

If the applicant's response to this RAI warrants an amendment of the DCD, the staff requests that the applicant include in their response the revision of the DCD that the amendment will appear.

ANSWER:

The instrumentation identified in RAI 54-891, question 14.03.07-2, RAI 14.3.7.3.2-3 include:

1. Indication of the MCR envelope differential pressure.
2. Indication of the MCR emergency filtration unit electric heating coil outlet temperature and high temperature alarm.
3. Indication of the MCR emergency filtration unit charcoal adsorber outlet air temperature and high, high-high temperature alarm.
4. MCR air handling unit electric heating coil outlet high temperature alarm.
5. MCR emergency filtration unit total differential pressure alarm.
6. MCR emergency filtration unit HEPA filter differential pressure alarm.
7. MCR emergency filtration unit outlet airflow rate.
8. MCR air handling unit outlet airflow rate.
9. Smoke detection, fresh air intakes and MCR area smoke detectors & MCR alarms.
10. Alarm on airborne radioactivity detection at the outside air intake.
11. Safety related radiation monitors.
12. Safety related toxic gas monitors.(site specific).

With the exception of the MCR air intake radiation monitors and site-specific toxic gas monitors, the instruments identified in RAI 54-891, question 14.03.07-2, RAI 14.3.7.3.2-3 serve no safety-related function with respect to their function as an instrument. The safety related radiation monitors are identified in DCD Tier 1 Table 2.7.6.6-1 as part of the process effluent and radiation monitoring system (PERMS). The need for safety related toxic gas monitors is determined by the site-specific control room habitability analysis considering potential toxic gas hazards. Therefore, MHI believes that the site-specific design should not be described in Tier1. Thus, the answer on RAI #54-891, Question No. 14.03.07-2, RAI 14.3.7.3.2-3 stated "There is no impact on the DCD".

MHI believes that the instrumentation required for safety functional requirements is classified as safety grade. The functional requirement of MCR HVAC system (MCRVS) is to provide a controlled environment for comfort and safety of control room personnel and to assure the operability of control room components, and to comply with the GDC 19 requirements. The temperature control for CRE is performed by using the temperature switches (TS-2849,-2859,-2869, and -2879). Their function is to signal the temperature control valves of the cooling coils to open to the full flow position to prevent the temperature rise in the control room when the control room temperature increases more than the maximum design room temperature due to failure of the non-safety related temperature controllers (TIC-2845, -2855, -2865, and -2875 that are identified in DCD Tier 2 Figure 9.4.1-1). Therefore, except for TS-2849, -2859, -2869, and -2879, all other instrumentation are identified in DCD Tier 1 Table 2.7.5.1-1 is classified as non safety related.

Regarding control room personnel exposure, the system tests are performed in accordance with Technical Specifications and initial test programs. MCRVS will be required to pass surveillance testing before it is required to be operable. Periodic MCRVS surveillance testing, including monthly operation of each MCR emergency filtration system train and a ventilation filter testing program based on NRC RG 1.52, will provide continued assurance of system operability.

The smoke detectors are provided in MCR HVAC system in accordance with fire protection requirements. MHI considers these requirements to be non safety-related.

Impact on DCD

MHI will include the following changes in DCD Revision 2:

- 1) Revise DCD Subsection 9.4.1.5 "Instrumentation Requirements" to change the first paragraph

as follows:

Safety-related Instrumentation ~~associated with for controlling and monitoring~~ the MCR HVAC system, ~~are identified in Table 3.D-2 and including the emergency filtration unit,~~ meet the requirements of ~~RG 1.62, ANSI/ANS 51.1 (Ref. 9.4.8-10),~~ IEEE Std. 603 (Ref. 9.4.8-11), IEEE Std. 323 (Ref. 9.4.8-12), and IEEE Std. 344 (Ref. 9.4.8-13).

Impact on COLA

There is no impact on the COLA.

Impact on PRA

There is no impact on the PRA.

RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION

07/17/2009

US-APWR Design Certification

Mitsubishi Heavy Industries

Docket No. 52-021

RAI NO.: NO. 381-2806 REVISION 1
SRP SECTION: 14.03.07 - PLANT SYSTEMS - INSPECTIONS, TESTS, ANALYSES,
AND ACCEPTANCE CRITERIA
APPLICATION SECTION: DCD SECTIONS 6.4, 6.5.1, 9.4.1 THROUGH 9.4.6
DATE OF RAI ISSUE: 06/1/2009

QUESTION NO.: 14.03.07-36

The staff finds the applicant's response for RAI #54-891/Question Number 14.03.07-2, RAI 14.3.7.3.2-13 as incomplete. During the review of the applicant's response, the staff notes that the applicant failed to address the issue of ITAAC inclusion CRE envelope in-leakage testing. The staff concurs in that DCD revision 1 reflects the guidance of TSTF-448 in Tier 2 Chapter 16 TS 3.7.10 and 5.5.20 and addresses the staff's concern as identified in Question No. RAI 14.3.7.3.2-13. However, the ITAAC does not accurately reflect this requirement in Item 4b of Tier 1 Table 2.7.5.1-3. Item 4.b.iii refers to as-built unfiltered in-leakage of the HVAC system. This ITAAC item should refer to the unfiltered in-leakage of the control room envelope NOT the unfiltered in-leakage of the HVAC system.

The staff recommends that the applicant amend Tier 1 Table 2.7.5.1-3 Item 4.b.iii to remove this error from the DCD.

If the applicant's response to this RAI warrants an amendment of the DCD, the staff requests that the applicant include in their response the revision of the DCD that the amendment will appear.

ANSWER:

ITAAC Item 4.b.iii of DCD Tier 1 Table 2.7.5.1-3 reflects the consideration that unfiltered inleakage into the control room envelope (CRE) is a numerical performance value of the MCR HVAC system. MHI agrees that unfiltered inleakage applies to the CRE and will revise the DCD as shown below.

Impact on DCD

MHI will revise Tier 1 Subsection 2.7.5.1.1 and Table 2.7.5.1-3, "Main Control Room HVAC System Inspections, Tests, Analyses, and Acceptance Criteria" as shown below.

The table under "Numeric Performance Values" in Tier 1 Subsection 2.7.5.1.1 will be revised as follows:

Unfiltered CRE leakage	120 cfm
Filtered air intake flow	1,200 cfm
Filtered air recirculation flow	2,400 cfm
Filter efficiencies	
Elemental iodine	95%
Organic iodine	95%
Particulates	99%

Tier 1 Table 2.7.5.1-3, Item 4.b.iii, will be revised as follows:

Design Commitment	Inspections, Tests, Analyses	Acceptance Criteria
4.b The MCR HVAC system is capable of meeting the selected numerical performance values used in the safety analysis listed in Section 2.7.5.1.1.	4.b.i Type tests, tests and analyses of filter efficiencies for the MCR HVAC system will be performed.	4.b.i The MCR HVAC system is capable of meeting the filter efficiencies identified in this Subsection 2.7.5.1.1.
	4.b.ii Tests of airflow for the as-built MCR HVAC system will be performed.	4.b.ii The as-built MCR HVAC system is capable of meeting the airflow identified in this Subsection 2.7.5.1.1.
	4.b.iii Tests and analyses of as-built unfiltered CRE leakage for the as-built MCR HVAC system will be performed.	4.b.iii The as-built MCR HVAC system CRE is capable of meeting the unfiltered leakage identified in this Subsection 2.7.5.1.1.

Impact on COLA

There is no impact on the COLA.

Impact on PRA

There is no impact on the PRA.

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AND ACCEPTANCE CRITERIA
APPLICATION SECTION: DCD SECTIONS 6.4, 6.5.1, 9.4.1 THROUGH 9.4.6
DATE OF RAI ISSUE: 06/1/2009

QUESTION NO.: 14.03.07-37

The staff finds the applicant's response for RAI #54-891/Question Number 14.03.07-2, RAI 14.3.7.3.2-17 as insufficient. The second paragraph of the applicant's response which reads "*Table 2.7.5.1-2 is intended to reflect safety related SSCs. Non-safety related instrumentation described in Tier 2 is not necessarily included in Tier 1.*" The staff disagrees with the applicant's contention that the subject instrumentation of the original RAI is not safety related and therefore does not need to be included in Table 2.7.5.1-2.

The subject instrumentation is as follows: VRS-FRI-2840 & VRS-FRI-2850 (flow recorder and flow indicator to the ESF Filter Trains); VRS-FA-2841 & VRS-FA-2851 (ESF Filter Train discharge High/Low flow alarm); and VRSFA-2845, VRS-FA-2855, VRS-FA-2865 and VRS-FA-2875 (AHU discharge Low flow alarm)

The staff notes that the first paragraph of DCD section 9.4.1.5 reads "*Instrumentation for controlling and monitoring the MCR HVAC system, including the emergency filtration unit, meets the requirements of RG 1.52, ANSI/ANS 51.1 (Ref. 9.4.8-10), IEEE Std. 603 (Ref. 9.4.8-11), IEEE Std. 323 (Ref. 9.4.8-12), and IEEE Std. 344 (Ref. 9.4.8-13).*"

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- 3) "IEEE Recommended Practice for Seismic Qualification of Class 1E Equipment for Nuclear Power Generating Stations," IEEE Std 344™- 1987.

From these three references it appears that the listed instrumentation would be categorized as safety related and therefore should be included in Tier 1 section 2.7.5.1.

The staff submits to the applicant that most if not all the instrumentation listed above would have to be safety related if for no other reason than to maintain a safety related pressure boundary as an extension of the CRE.

The staff posits that the COL applicant might use some if not all the ESF filter train flow instrumentation identified above in surveillance testing of the filter trains to demonstrate operability?

The staff requests further information on where in the DCD is the line of division defined between the safety related filter train components and the non-safety related instrumentation.

The staff requests that the applicant provide additional information about and resolution for all the staff concerns of this follow-up RAI.

If the applicant's response to this RAI warrants an amendment of the DCD, the staff requests that the applicant include in their response the revision of the DCD that the amendment will appear.

ANSWER:

With the exception of VRS-FRI-2840 and VRS-FRI-2850 (software display and recording functions for flow to the ESF filter trains), the instrumentation identified in this question is included in response to RAI No. 381, question 14.03.07-35. The ESF filter trains are tested in accordance with the Technical Specifications and will be required to meet their surveillance requirements as a condition of operability. VRS-FRI-2840 and VRS-FRI-2850 perform non-safety related functions of displaying and recording flow. Therefore, the response to RAI No. 381, question 14.03.07-35 also applies to this question.

Impact on DCD

Refer to the response to RAI No. 381, question 14.03.07-35.

Impact on COLA

There is no impact on the COLA.

Impact on PRA

There is no impact on the PRA.

RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION

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APPLICATION SECTION: DCD SECTIONS 6.4, 6.5.1, 9.4.1 THROUGH 9.4.6
DATE OF RAI ISSUE: 06/1/2009

QUESTION NO.: 14.03.07-38

The staff finds the applicant's response for RAI #54-891/Question Number 14.03.07-2, RAI 14.3.7.3.2-19 as insufficient.

The staff disagrees with the applicant's contention that detailed flow balancing information is beyond the level of detail for Tier 1 and 2 documentation. Refer to follow-up RAI for RAI No. 63 / Question No. 09.04.01-24 (Ref UAP-HF-08215 dated 10-3-2008). (follow-up RAI 2401, Q# 9980)

Another point of disagreement with the applicant's response is that the staff contends that demonstration of the MCR HVAC systems capability to remove the "assumed heat load" for the worst case design basis conditions (e.g. DBA, AOO, etc) is required per SR 3.7.10.5 and will be mandatory before the COL applicant can bring nuclear fuel on site. The staff recommends that this demonstration to be captured in ITAAC Item 4.a in Tier 1 Table 2.7.5.1-3. Refer to follow-up question for RAI No. 63 / Question No. 09.04.01-27 (Reference UAP-HF-08215 dated 10-3-2008) (follow-up RAI 2401, Q# 9982)

The staff requests that the applicant provide additional information about these two staff issues and redress their response to Question No. RAI 14.3.7.3.2-19 in light of the applicant's responses to the two follow-up RAIs listed above.

If the applicant's response to this RAI warrants an amendment of the DCD, the staff requests that the applicant include in their response the revision of the DCD that the amendment will appear.

ANSWER:

Flow Balancing

Refer to MHI's response to RAI 327, question 09.04.01-7 (Ref UAP-HF-09323, dated June 19, 2009). The design flow rate to the MCR is 11,000 cfm, and the design flow rate to the other rooms (i.e. file room, shift supervisor's room, conference room, break room kitchen and restroom) is 9,000 cfm.

ITAAC to Demonstrate Capability to Remove Worst Case Heat Load

In response to RAI No. 54, MHI agreed to provide more prescriptive ITAAC to demonstrate the

MCR HVAC system's ability to maintain the control room envelope (CRE) within design limits for temperature and relative humidity. MHI's response to RAI 14.3.7.3.2-19 refers to the response to RAI 14.3.7.3.2-16, which committed to revise ITAAC Item 4.a in Table 2.7.5.1-3. Specific changes to ITAAC Item 4.a in Table 2.7.5.1-3 are given in response to RAI No. 184-1912, question 14.03.07-26 (MHI Ref: UAP-HF-09166 dated April 9, 2009). The acceptance criteria of revised ITAAC Item 4.a in Table 2.7.5.1-3 will require the as-built MCR HVAC system to be capable of providing conditioned air to maintain temperature and relative humidity limits under all plant operating conditions.

Impact on DCD

MHI will add the MCR design flow rate value in DCD Tier 2 Subsection 9.4.1.2.

The MCR HVAC system is shown in Figure 9.4.1-1 and system equipment and components design data are presented in Table 9.4.1-1. The COL Applicant is to determine the capacity of heating coil that are affected by site specific conditions. The MCR HVAC system consists of two redundant 100% emergency filtration units and four 50% capacity air handling units, two 100% toilet/kitchen exhaust fans, one 100% smoke purge fan, ductwork, associated damper and instrumentation and control. The air handling units are connected to a common overhead air distribution ductwork system. **The ductwork delivers the conditioned air of 11,000 cfm to MCR and of 9,000cfm to other rooms (i.e. file room, shift supervisor's room, conference room, break room kitchen and restroom).**

Impact on COLA

There is no impact on the COLA.

Impact on PRA

There is no impact on the PRA.

RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION

07/17/2009

**US-APWR Design Certification
Mitsubishi Heavy Industries
Docket No. 52-021**

RAI NO.: NO. 381-2806 REVISION 1
SRP SECTION: 14.03.07 - PLANT SYSTEMS - INSPECTIONS, TESTS, ANALYSES,
AND ACCEPTANCE CRITERIA
APPLICATION SECTION: DCD SECTIONS 6.4, 6.5.1, 9.4.1 THROUGH 9.4.6
DATE OF RAI ISSUE: 06/1/2009

QUESTION NO.: 14.03.07-39

The staff finds the applicant's response for RAI #54-891/Question Number 14.03.07-3, RAI 14.3.7.3.4-11 as insufficient. The staff disagrees with the applicant's conclusion that Preoperational Test 14.2.12.1.99 "Auxiliary Building HVAC System Preoperational Test" does not need revising. SRP 14.3.7 Section II, SRP Acceptance Criteria 1 reads "Tier 1 should be reviewed for consistency with the initial test program described in DCD Tier 2 Chapter 14.2. ". Preoperational Test 14.2.12.1.99 does not currently include testing of the loss of motive power position as identified in Tier 1 Table 2.7.5.4-1

After review of the subject preoperational test 14.2.12.1.99 cited by the staff in the original RAI, the staff cannot conclude that the loss of motive power test will be captured with the preoperational test's completion. Satisfying a generically worded prerequisite contained in the preoperational test which reads "Required construction testing is completed" does not guarantee the completion of the loss of motive power testing.

The staff recommends that the applicant revise this preoperational test to ensure testing of the loss of motive power position.

If the applicant's response to this RAI warrants an amendment of the DCD, the staff requests that the applicant include in their response the revision of the DCD that the amendment will appear.

ANSWER:

The auxiliary building ventilation system (ABVS) isolation dampers listed in DCD Tier 1 Table 2.7.5.4-1 are air-operated and fail closed on loss of motive power. MHI will revise the instrument air system preoperational test abstract in DCD Tier 2 Subsection 14.2.12.1.91, as shown in Attachment 1 to the response to RAI 337-2398 (MHI Ref: UAP-HF-09248, dated May 18, 2009). Subsection 14.2.12.1.91 will include a test method step and acceptance criteria to verify the fail-safe position of safety-related air-operated components in response to a loss of instrument air, with reference to DCD Tier 2 Table 9.3.1-1. Table 9.3.1-1 refers to the ABVS isolation dampers that are normally open and fail to their safe (closed) position on loss of air supply. Preoperational testing of air-operated ABVS dampers' failure position on loss of motive power will be performed as part of the instrument air system preoperational test.

Impact on DCD

Refer to Attachment 1 to MHI's response to RAI 337-2398 (MHI Ref: UAP-HF-09248, dated May 18, 2009), for changes to the instrument air system preoperational test abstract in DCD Tier 2 Subsection 14.2.12.1.91.

Impact on COLA

There is no impact on the COLA.

Impact on PRA

There is no impact on the PRA.

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AND ACCEPTANCE CRITERIA
APPLICATION SECTION: DCD SECTIONS 6.4, 6.5.1, 9.4.1 THROUGH 9.4.6
DATE OF RAI ISSUE: 06/1/2009

QUESTION NO.: 14.03.07-40

The staff finds the applicant's response for RAI #54-891/Question Number 14.03.07-3, RAI 14.3.7.3.4-12 as insufficient.

With respect to Tier 1 inclusion of test attributes, the applicant responded:

"MHI considers that the level of detail in Tier 1 is governed by a graded approach to the SSCs of the US-APWR design, based on the safety significance of the functions they perform. Thus, safety-related features are specifically described in Tier 1 with a greater amount of detail than non-safety features. Non-safety SSCs with special regulatory treatment are described in greater detail than non-safety SSCs that warrant no special regulatory treatment.

Therefore, MHI believes that above two Key Design Features is not needed to add in Tier1 Subsection 2.7.5.4.1.2."

The staff believes that explosion concerns and fire concerns (i.e. 10CFR50.48) fit into the applicant's self described middle plateau (i.e. regulated events of Fire Protection, EQ, PTS, ATWS and SBO) and should be included in the ITAAC.

The applicant's response fails to address the issue of the required flow to the battery rooms to prevent exceeding the hydrogen explosive limit. The staff requests that the applicant provide this value in scfm and to review any supporting calculations used in the derivation of this value. The staff desires the option of doing its own independent confirmatory calculation and requests that the applicant provide all necessary information required to perform a confirmatory calculation. The staff again requests that this information be included in the DCD and a means for demonstrating the design basis be provided.

If the applicant's response to this RAI warrants an amendment of the DCD, the staff requests that the applicant include in their response the revision of the DCD that the amendment will appear.

ANSWER:

Refer to MHI's response to RAI No. 356, question 09.04.05-4. for information regarding the calculation of required ventilation flow for the Class 1E battery rooms. Refer to MHI's response to RAI No. 184, question 14.03.07-26 for ITAAC for Class 1E battery room ventilation flow to maintain hydrogen concentration within the design limit. In response to RAI 54, question 14.03.07.03.06-14 MHI agreed to expand ITAAC item 4.a in Table 2.7.5.2-3 to address the subsystems of ESFVS, and to make conforming changes to the DCD for consistency. These changes include addition of the following to Key Design Features in Tier 1 Subsection 2.7.5.2.1.2:

"The battery rooms are ventilated with sufficient supply and exhaust airflow during all modes of operation in order to limit the hydrogen concentration."

Impact on DCD

There is no impact on the DCD other than the changes from previous RAIs described above.

Impact on COLA

There is no impact on the COLA.

Impact on PRA

There is no impact on the PRA.

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APPLICATION SECTION: DCD SECTIONS 6.4, 6.5.1, 9.4.1 THROUGH 9.4.6
DATE OF RAI ISSUE: 06/1/2009

QUESTION NO.: 14.03.07-41

The staff finds the applicant's response for RAI #54-891/Question Number 14.03.07-3, RAI 14.3.7.3.4-14 as insufficient. The staff acknowledges its misuse of the word "interface" in the original RAI 14.3.7.3.4-14. However, the issues that pertain to fire protection and 10 CFR 50.48 are in the arena of special regulated events (i.e. Fire Protection, EQ, PTS, ATWS & SBO) and warrant elevated attention as opposed NSR systems. Therefore, the staff believes that Tier 1 should capture these issues against the relevant subsystems of the Auxiliary Building Ventilation System.

The staff recommends that the applicant include (as applicable) in the following Tier 1 sections:

- 2.7.5.4.1.1 Auxiliary Building HVAC System;
- 2.7.5.4.1.2 Non-Class 1E Electrical Room HVAC System;
- 2.7.5.4.1.3 Main Steam / Feedwater Piping Area HVAC System;
- 2.7.5.4.1.4 Technical Support Center HVAC System

The relevant fire protection attributes as captured in US APWR Section 9.5.1.2.7 which reads:

"Ventilation system fire dampers close automatically against full airflow, if required, on high temperature to limit the spread of fire and combustion products. Fire dampers serving certain safety-related, smoke-sensitive areas are also closed in response to an initiation signal from the fire detection system. In selected areas, the fire alarm system will provide interface with the HVAC systems such as to shut down HVAC operation upon a fire alarm signal. Where continued HVAC system operation is deemed necessary for radiological control the HVAC system incorporates design features to allow operation under fire conditions."

If the applicant's response to this RAI warrants an amendment of the DCD, the staff requests that the applicant include in their response the revision of the DCD that the amendment will appear.

ANSWER:

- 1) The auxiliary building ventilation system has ductwork, which passes through fire barriers throughout the buildings it services (auxiliary building, reactor building, power source building and access control building). All fire barriers penetrated by a duct will have a fire damper. These fire dampers can close against full airflow.

- 2) The Non-Class 1E electrical room HVAC system has ductwork that passes through fire barriers throughout the areas it services. All fire barriers penetrated by a duct will have a fire damper. These fire dampers can close against full airflow.
- 3) The main steam/feedwater piping area HVAC system has ductwork that passes through walls, but these walls are not fire barriers and do not require a fire damper.
- 4) The technical support center (TSC) HVAC system has ductwork that passes through fire barriers. All fire barriers penetrated by a duct will have a fire damper. These fire dampers can close against full airflow. Heat detectors are located in the charcoal filter housing. These fire detectors will alarm in the MCR when fire is detected.

As stated in response to RAI No. 30, question 09.05.01-11, MHI will add ITAAC for testing the ability of ABVS fire dampers to close when called upon to do so under design air flow conditions. The ABVS ITAAC apply to each of the ABVS subsystems referenced in this question, i.e., Auxiliary Building HVAC System, Non-Class 1E Electrical Room HVAC System, Main Steam / Feedwater Piping Area HVAC System, and the Technical Support Center HVAC System.

Tier 1 Subsection 2.7.6.9 addresses fire detectors, including ITAAC Item 2 in Table 2.7.6.9-2 to verify the fire detectors' capability to initiate fire alarms.

MHI will further revise Tier 1 as shown below.

Impact on DCD

In DCD Revision 2, MHI will revise the DCD as described below.

- 1) Revise Tier 1 DCD Subsection 2.7.5.4.1.1, "Auxiliary Building HVAC System - Design Description" under "Key Design Features," to add the following new sentence.

"The ventilation system has fire dampers to limit the spread of fire and combustion products. The fire dampers are capable of closing against full airflow."

- 2) Revise Tier 1 DCD Subsection 2.7.5.4.1.2, "Non-Class 1E Electrical Room HVAC System - Design Description" under "Key Design Features," to add the following new sentences.

"The ventilation system has fire dampers to limit the spread of fire and combustion products. The fire dampers are capable of closing against full airflow."

- 4) Revise Tier 1 DCD Subsection 2.7.5.4.1.4, "Technical Support Center (TSC) HVAC System - Design Description," under "Key Design Features," to add the following new sentence.

"The ventilation system has fire dampers to limit the spread of fire and combustion products. The fire dampers are capable of closing against full airflow."

The heat detectors located in the charcoal filter housing when detecting the presence of smoke or heat respectively will alarm in the MCR."

Impact on COLA

There is no impact on the COLA.

Impact on PRA

There is no impact on the PRA.

RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION

07/17/2009

US-APWR Design Certification

Mitsubishi Heavy Industries

Docket No. 52-021

RAI NO.: NO. 381-2806 REVISION 1
SRP SECTION: 14.03.07 - PLANT SYSTEMS - INSPECTIONS, TESTS, ANALYSES,
AND ACCEPTANCE CRITERIA
APPLICATION SECTION: DCD SECTIONS 6.4, 6.5.1, 9.4.1 THROUGH 9.4.6
DATE OF RAI ISSUE: 06/1/2009

QUESTION NO.: 14.03.07-42

The staff finds the applicant's response for RAI #54-891/Question Number 14.03.07-5, RAI 14.3.7.3.6-3 as insufficient. The staff finds that the applicant's response is inconsistent with the references cited in section 9.4.5.5.

The first paragraph of DCD section 9.4.5.5 reads "Instrumentation for controlling and monitoring the ESF ventilation system meets the requirements of ANSI/ANS 51.1 (Ref. 9.4.8-11), IEEE Std. 603 (Ref. 9.4.8-12) and are qualified in accordance with IEEE Std. 323 (Ref. 9.4.8-13) and IEEE Std. 344 (Ref. 9.4.8-14)."

The four references cited are entitled as:

- 9.4.8-10 "Nuclear Safety Criteria for the Design of Stationary Pressurized Water Reactor Plants," ANSI/ANS-51.1-1988.
- 9.4.8-11 "IEEE Standard Criteria for Safety Systems for Nuclear Power Generating Stations," IEEE Std 603-1998.
- 9.4.8-12 "IEEE Standard for Qualifying Class 1E Equipment for Nuclear Power Generating Stations," IEEE Std 323™-2003.
- 9.4.8-13 "IEEE Recommended Practice for Seismic Qualification of Class 1E Equipment for Nuclear Power Generating Stations," IEEE Std 344™-1987.

From these four references it appears that the listed instrumentation would be categorized as safety related and therefore should be included in Tier 1 section 2.7.5.2.

The staff notes that the above mis-matched Reference numbers are accurate (i.e. not typographical errors) and recommends that the applicant amend DCD section 9.4.1.5 or section 9.4.8 to remove this mismatch from the DCD.

For each individual instrumentation component listed in the original RAI #54/Question Number 14.03.07-5, RAI 14.3.7.3.6-3, the staff requests that the applicant provide further justification and the basis for the conclusion that each is not safety related.

More specifically the instruments of contention are as follows:

- a) Figure 2.7.5.2-1 "Annulus Emergency Exhaust System" and Figure 2.7.5.2-3 "Safeguard Component Area HVAC System" both fail to display the room differential pressure transmitters associated with each rooms (e.g. dPT-2330, dPT-2331 etc). Given the significance of each dPT with respect to the safety function of the Annulus

Emergency Exhaust System, these instruments should be displayed on these two Figures.

- b) Table 2.7.5.2-2 Engineered Safety Features Ventilation System Equipment Displays and Control Functions (Sheet 1 of 4) for the "Annulus Emergency Exhaust System" should display:
- the differential pressure recorder/indicators (i.e. dPRI-2570, dPRI-2580, dPRI-2590 and dPRI-2600) for the four Safeguard Component Areas of Figure 9.4.5-3; and
 - the four differential pressure recorder/indicators (i.e. dPRI- 2330, dPRI-2331, dPRI-2340 and dPRI-2341)for the four Penetration Areas of Figure 9.4.5-1.

The staff also finds the applicant's original RAI response as incomplete due to fact that the applicant failed to provide, as requested, information about the basis for the frequency of surveillance testing identified in US APWR Section 16 (3.7.11) (e.g. 31 days and 24 months).

If the applicant's response to this RAI warrants an amendment of the DCD, the staff requests that the applicant include in their response the revision of the DCD that the amendment will appear.

ANSWER:

The instruments identified in RAI #54-891/Question Number 14.03.07-5, RAI 14.3.7.3.6-3 are neither safety related nor required for post accident monitoring as required by RG 1.97. These instruments render no safety-related function with respect to their function as instrumentation. Engineered Safety Feature (ESF) Ventilation system related temperature switches which control fans or cooling coils are safety related and are listed in Tier 1 Table 2.7.5.2-1.

The ESF ventilation system includes:

- Annulus Emergency Exhaust System
- Class 1E Electrical Room HVAC System
- Safeguard Component Area HVAC System
- Emergency Feedwater Pump Area HVAC System
- Safety Related Component Area HVAC System
 1. Component Cooling Water Pump Area
 2. Essential Chiller Unit Area
 3. Charging Pump Area
 4. Annulus Emergency Exhaust Filtration Unit Area
 5. Penetration Area

DCD Subsection 9.4.5.5 "Instrumentation Requirements" will be revised to reflect the above clarification

The frequencies of 31 days and 24 months for the surveillance requirements in DCD Chapter 16, Technical Specifications Section 3.7.11, "Annulus Emergency Exhaust System," are consistent with the surveillance frequencies of standard Technical Specifications in NUREG 1431, Rev. 3.1 December, 2005, "Standard Technical Specifications Westinghouse Plants". As described in DCD Subsection 16.1.1.2, NUREG-1431 was used as guidance in developing the US-APWR Technical Specifications, including surveillance frequencies. The 24-month frequency is consistent with the US-APWR refueling outage interval.

Impact on DCD

MHI will include the following changes in DCD Revision 2:

- 1) Revise DCD Subsection 9.4.5.5 "Instrumentation Requirements" to change the first paragraph as follows:

"Safety-related instrumentation ~~for controlling and monitoring~~ associated with the Engineered Safety Feature (ESF) ventilation system are identified in Table 3.D-2 and meet the requirements of ~~RG 1.52, ANSI/ANS 51.1 (Ref. 9.4.8-11), IEEE Std. 603 (Ref. 9.4.8-12~~ 9.4.8-11), IEEE Std. 323 (Ref. ~~9.4.8-13~~9.4.8-12), and IEEE Std. 344 (Ref. ~~9.4.8-14~~9.4.8-13)."

Impact on COLA

There is no impact on the COLA.

Impact on PRA

There is no impact on the PRA.

RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION

07/17/2009

US-APWR Design Certification

Mitsubishi Heavy Industries

Docket No. 52-021

RAI NO.: NO. 381-2806 REVISION 1
SRP SECTION: 14.03.07 - PLANT SYSTEMS - INSPECTIONS, TESTS, ANALYSES,
AND ACCEPTANCE CRITERIA
APPLICATION SECTION: DCD SECTIONS 6.4, 6.5.1, 9.4.1 THROUGH 9.4.6
DATE OF RAI ISSUE: 06/1/2009

QUESTION NO.: 14.03.07-43

The staff finds the applicant's response for RAI #54-891/Question Number 14.03.07-5, RAI 14.3.7.6.5 as insufficient.

The applicant deferred to the resolution of Question 14.03.07-5, RAI 14.3.7.3.6-6 for the resolution of the staff's concern identified in this RAI. However, the applicant neither addresses Table 2.7.5.2-3 nor commits to revise Table 2.7.5.2-3 ITAAC 4.b in their response to Question 14.03.07-5, RAI 14.3.7.3.6-6.

Based on this, the staff requests that the applicant redress its response to RAI #54-891/Question Number 14.03.07-5, RAI 14.3.7.6.5. If the applicant's response to this RAI warrants an amendment of the DCD, the staff requests that the applicant include in their response the revision of the DCD that the amendment will appear.

ANSWER:

RAI No. 54 question 14.03.07-5, RAI 14.3.7.3.6-6 requests that ITAAC specify the negative pressure to be obtained within the penetration and safeguard area negative pressure arrival time in DCD Tier 1 Subsection 2.7.5.2.1.1.

ITAAC Item 4.b in DCD Revision 1, Tier 1 Table 2.7.5.2-3, addresses the numeric performance values of Tier 1 Subsection 2.7.5.2.1 and requires testing to verify the negative pressure arrival time for the as-built annulus emergency exhaust system. In response to RAI 14.3.7.3.6-23, MHI is revising ITAAC acceptance criterion 4.b.ii to state the following:

"The as-built Annulus Emergency Exhaust System is capable of drawing down all four penetration areas and all four safeguard component areas to the design basis value (i.e. negative pressure) within the arrival time identified in Subsection 2.7.5.2.1.1."

In response to RAI 14.3.7.3.6-5 and RAI 14.3.7.3.6-6, MHI committed to revise Subsection 2.7.5.2.1.1, including clarification of the reference pressure for determining the negative pressure value. Tier 1 DCD Subsection 2.7.5.2.1.1, "Annulus Emergency Exhaust System - Design Description," under "Key Design Features," will be revised as following:

"The annulus emergency exhaust system exhausts air and maintains a negative pressure **of less than or equal to - 0.25 inches w.g.** in the penetration and safeguard component areas relative to

the adjacent areas”.

MHI will revise the acceptance criteria in ITAAC Item 4.b in DCD Tier 1 Table 2.7.5.2-3 to specify the minimum pressure value.

Impact on DCD

In addition to the changes described in the answer above for previous RAIs, MHI will revise the acceptance criteria in ITAAC Item 4.b in DCD Tier 1 Table 2.7.5.2-3 in DCD Revision 2 as follows:

"The as-built Annulus Emergency Exhaust System is capable of drawing down all four penetration areas and all four safeguard component areas to ~~the design-basis value (i.e. negative pressure)~~ **less than or equal to -0.25 inches w.g. relative to adjacent areas,** within the arrival time identified in Subsection 2.7.5.2.1.1."

Impact on COLA

There is no impact on the COLA.

Impact on PRA

There is no impact on the PRA.

RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION

07/17/2009

US-APWR Design Certification

Mitsubishi Heavy Industries

Docket No. 52-021

RAI NO.: NO. 381-2806 REVISION 1
SRP SECTION: 14.03.07 - PLANT SYSTEMS - INSPECTIONS, TESTS, ANALYSES,
AND ACCEPTANCE CRITERIA
APPLICATION SECTION: DCD SECTIONS 6.4, 6.5.1, 9.4.1 THROUGH 9.4.6
DATE OF RAI ISSUE: 06/1/2009

QUESTION NO.: 14.03.07-44

The staff finds the applicant's response for RAI #54-891/Question Number 14.03.07-5, RAI 14.3.7.3.6-19 as insufficient.

The staff does not agree with the applicant's position on verifying the completion of the loss of motive power testing. After review of the subject preoperational tests (i.e. 14.2.12.1.70, 14.2.12.1.96, 14.2.12.1.97, 14.2.12.1.98 and 14.2.12.1.106) cited by the staff in the original RAI, the staff cannot conclude that the loss of motive power test will be captured with the preoperational test's completion. Satisfying a generically worded prerequisite contained in each of the preoperational tests which reads "Required construction testing is completed" does not guarantee the completion of the loss of motive power testing.

The staff requests that the applicant redress its response to RAI #54-891/Question Number 14.03.07-5, RAI 14.3.7.3.6-19.

If the applicant's response to this RAI warrants an amendment of the DCD, the staff requests that the applicant include in their response the revision of the DCD that the amendment will appear.

ANSWER:

RAI No. 54, question 14.03.07-5, RAI 14.3.7.6-19, applies to engineered safety feature ventilation system (ESFVS) dampers listed in DCD Tier 1 Table 2.7.5.2-1. MHI will revise the applicable DCD Tier 2 preoperational test abstracts to ensure the test prerequisites include verification of the dampers' loss of motive power position.

Impact on DCD

In DCD Revision 2, MHI will revise Prerequisite B.2 of the following preoperational test abstracts:

- 14.2.12.1.70, "Annulus Emergency Exhaust System Preoperational Test"
- 14.2.12.1.96, "Safeguard Component Area HVAC System Preoperational Test"
- 14.2.12.1.97, "Emergency Feedwater Pump Area HVAC System Preoperational Test"
- 14.2.12.1.98, "Class 1E Electrical Room HVAC System Preoperational Test"
- 14.2.12.1.106, "Safety-Related Component Area HVAC System Preoperational Test"

For each of the above listed subsections, Prerequisite B. 2 will be revised as shown below:

14.03.07-24

B. Prerequisites

1. Required construction testing is completed.
2. Component testing, including tests of the system dampers' loss of motive power position, and instrument calibration is completed.

Impact on COLA

There is no impact on the COLA.

Impact on PRA

There is no impact on the PRA.

RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION

07/17/2009

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AND ACCEPTANCE CRITERIA
APPLICATION SECTION: DCD SECTIONS 6.4, 6.5.1, 9.4.1 THROUGH 9.4.6
DATE OF RAI ISSUE: 06/1/2009

QUESTION NO.: 14.03.07-45

The staff finds the applicant's response for RAI #54-891/Question Number 14.03.07-5, RAI 14.3.7.3.6-21 as incomplete.

The applicant's explanation and reasoning for not including the back draft dampers in Tier 1 is acceptable to the staff. However, the staff recommends that the applicant clarify the relevant Tier 2 sections (e.g. DCD sections 6.5.1, 9.4.3 and 9.4.5) with an explanation about the existence of and the purpose of the back draft dampers. Based on this, the staff requests that the applicant redress its response to RAI #54-891/Question Number 14.03.07-5, RAI 14.3.7.3.6-21.

If the applicant's response to this RAI warrants an amendment of the DCD, the staff requests that the applicant include in their response the revision of the DCD that the amendment will appear.

ANSWER:

- 1) DCD Subsection 6.5.1.3 "Equipment Description" is to be revised to include the following new components: The Penetration Area Exhaust backdraft damper and the Safeguard Component Area Exhaust backdraft damper on the annulus emergency exhaust system.
- 2) DCD Figure 6.5-1 is to be revised to reflect the current design configurations.
- 3) DCD Subsection 9.4.3.2.1 "Auxiliary Building HVAC System" is to be revised to describe the function of the backdraft dampers.
- 4) DCD Subsection 9.4.5.2.1 "Annulus Emergency Exhaust System" is to be revised to describe the function of the backdraft dampers.
- 5) DCD Subsection 9.4.5.2.3 "Safeguard Component Area HVAC System" is to be revised to describe the function of the backdraft dampers.

Impact on DCD

In DCD Revision 2, MHI will revise the DCD as described below.

- 1) Revise DCD Subsection 6.5.1.3 "Equipment Description" to add the following two new description of the backdraft dampers, one set on the exhaust from the penetration areas and the other set on the exhaust from the safeguard component areas:

a. **Penetration Area Exhaust Backdraft Damper**

As shown in Figure 6.5-1, one backdraft damper is installed on a common exhaust duct header from the A and B Penetration Area and another backdraft damper is installed on a common exhaust duct header from the C and D Penetration Area. These backdraft dampers perform the following functions:

1. The backdraft dampers close to prevent drawing airflow backwards through the annulus emergency exhaust system, while the auxiliary building ventilation system is operating.
2. The backdraft dampers have to open and remain functional when the annulus emergency exhaust system is operating to ensure flow from the penetration areas to maintain them at a negative pressure.

The penetration area exhaust backdraft dampers are Equipment Class 3, Seismic Category I components located in the reactor building.

b. **Safeguard Component Area Exhaust Backdraft Damper**

As shown in Figure 6.5-1, one backdraft damper is installed on each exhaust duct from each Safeguard Component Area. These backdraft dampers perform the following functions:

1. The backdraft dampers prevent short circuiting air between the safeguard component areas, while the safeguard component area AHU's are operating during a DBA.
2. The backdraft dampers prevent backward airflow through the annulus emergency exhaust system, while the auxiliary building ventilation system is operating.
3. The backdraft dampers have to remain functional and open when the annulus emergency exhaust system is operating to ensure flow from the safeguard component areas to maintain them at a negative pressure.

The safeguard component area exhaust backdraft dampers are Equipment Class 3, Seismic Category I components located in the reactor building.”

2) Revise DCD Figure 6.5-1 to reflect the current design configurations.

3) Revise DCD Subsection 9.4.3.2.1 “Auxiliary Building HVAC System” by adding after the fifth paragraph, the following new paragraph to describe the function of the backdraft dampers on the common duct section that interfaces between the annulus emergency exhaust system and the auxiliary building ventilation system.

“There are several common duct sections that interface between the auxiliary building ventilation system and the annulus emergency exhaust system at the penetration areas and the safeguard component areas. There are backdraft damper at these interface points that perform the following functions:

- 1. At the penetration area interface**
 - The backdraft dampers close to prevent drawing airflow backwards through the annulus emergency exhaust system, while the auxiliary building ventilation system is operating.**
 - The backdraft dampers have to open and remain functional when the annulus emergency exhaust system is operating to ensure flow from the penetration areas to maintain them at a negative pressure.**
- 2. At the safeguard component areas interface**
 - The backdraft dampers prevent short circuiting air between the safeguard component areas, while the safeguard component area AHU's are operating during a DBA.**

- The backdraft dampers prevent backward airflow through the annulus emergency exhaust system, while the auxiliary building ventilation system is operating.
- The backdraft dampers have to remain functional and open when the annulus emergency exhaust system is operating to ensure flow from the safeguard component areas to maintain them at a negative pressure.

These backdraft dampers are considered part of the annulus emergency exhaust system and are equipment class 3, seismic Category I.”

- 4) Revise DCD Subsection 9.4.5.2.1 “Annulus Emergency Exhaust System” by adding at the end of the section, the following new paragraph to describe the function of the backdraft dampers on the common duct section that interfaces between the annulus emergency exhaust system and the auxiliary building ventilation system.

“There are several common duct sections that interface between the annulus emergency exhaust system and the auxiliary building ventilation system at the penetration areas and the safeguard component areas. There are backdraft damper at these interface points that perform the following functions:

1. **At the penetration area interface**
 - The backdraft dampers close to prevent drawing airflow backwards through the annulus emergency exhaust system, while the auxiliary building ventilation system is operating.
 - The backdraft dampers have to open and remain functional when the annulus emergency exhaust system is operating to ensure flow from the penetration areas to maintain them at a negative pressure.
2. **At the safeguard component areas interface**
 - The backdraft dampers prevent short circuiting air between the safeguard component areas, while the safeguard component area AHU’s are operating during a DBA.
 - The backdraft dampers prevent backward airflow through the annulus emergency exhaust system, while the auxiliary building ventilation system is operating.
 - The backdraft dampers have to remain functional and open when the annulus emergency exhaust system is operating to ensure flow from the safeguard component areas to maintain them at a negative pressure.

These backdraft dampers are considered part of the annulus emergency exhaust system and are equipment class 3, seismic Category I.”

- 5) Revise DCD Subsection 9.4.5.2.3 “Safeguard Component Area HVAC System” by adding at the end of the section, the following new paragraph to describe the function of the backdraft dampers on the common duct section that interfaces between the annulus emergency exhaust system at the safeguard component area and the auxiliary building ventilation system.

“See DCD Subsection 9.4.5.2.1 “Annulus Emergency Exhaust System” for a description of the function of the backdraft dampers at the common duct section that interfaces between the annulus emergency exhaust system at the safeguard component area and the auxiliary building ventilation system.”

Impact on COLA

There is no impact on the COLA.

Impact on PRA

There is no impact on the PRA.

RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION

07/17/2009

**US-APWR Design Certification
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Docket No. 52-021**

RAI NO.: NO. 381-2806 REVISION 1
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AND ACCEPTANCE CRITERIA
APPLICATION SECTION: DCD SECTIONS 6.4, 6.5.1, 9.4.1 THROUGH 9.4.6
DATE OF RAI ISSUE: 06/1/2009

QUESTION NO.: 14.03.07-46

The staff finds the applicant's response for RAI #54-891/Question Number 14.03.07-6, RAI 14.3.7.3.7-1 as insufficient.

The staff concurs with the applicant that preoperational test 14.2.12.1.55, "ECCS Actuation and Containment Isolation Logic Preoperational Test" adequately tests the active safety related function of the Containment High Volume and Low Volume systems' CIVs.

In contrast, the staff does not agree with the applicant's position on verifying the completion of the loss of motive power testing. After review of both preoperational tests (i.e. 14.2.12.1.55 and 14.2.12.1.62) cited in the applicant's response, the staff cannot conclude that the loss of motive power test will be captured with the preoperational test's completion. Satisfying a generically worded prerequisite contained in preoperational test 14.2.12.1.55 which reads "Required construction testing is completed" does not guarantee the completion of the loss of motive power testing.

The staff requests that the applicant re-evaluate its response to RAI #54-891/Question Number 14.03.07-6, RAI 14.3.7.3.7-1.

If the applicant's response to this RAI warrants an amendment of the DCD, the staff requests that the applicant include in their response the revision of the DCD that the amendment will appear.

ANSWER:

RAI No. 54, question 14.03.07-6, RAI 14.3.7.7-1, applies to the containment purge system containment isolation valves (CIVs). The containment purge system CIVs are air-operated valves that fail closed on loss of air. These valves are referenced in DCD Tier 2 Table 9.3.1-1, and will be subjected to loss of motive power testing as part of the preoperational test of the instrument air system. Refer to MHI's response to RAI No. 381, question 14.03.07-39 for additional information regarding instrument air system preoperational testing.

Impact on DCD

There is no impact on the DCD.

Impact on COLA

There is no impact on the COLA.

Impact on PRA

There is no impact on the PRA.

RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION

07/17/2009

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SRP SECTION: 14.03.07 - PLANT SYSTEMS - INSPECTIONS, TESTS, ANALYSES,
AND ACCEPTANCE CRITERIA
APPLICATION SECTION: DCD SECTIONS 6.4, 6.5.1, 9.4.1 THROUGH 9.4.6
DATE OF RAI ISSUE: 06/1/2009

QUESTION NO.: 14.03.07-47

The staff finds the applicant's response for RAI #54-891/Question Number 14.03.07-3, RAI 14.3.7.3.4-10 as incomplete.

The applicant in their response committed to a concise change to DCD Tier 1 Table 2.7.5.4-2 that somewhat addresses the staff's concern. There appears to be a cut and paste error in the "committed to" revision of ITAAC Acceptance Criteria item 3.a of Table 2.7.5.4-2. The staff asks the applicant should not the revision read:

"The simulated test signal exists at the as-built Class 1E equipment identified in Table 2.7.5.4-1 under test in the as-built Auxiliary Building Ventilation System."

Based on this, the staff requests that the applicant re-evaluate its response to RAI #54-891/Question Number 14.03.07-3, RAI 14.3.7.3.4-10.

If the applicant's response to this RAI warrants an amendment of the DCD, the staff requests that the applicant include in their response the revision of the DCD that the amendment will appear.

ANSWER:

As described in response to RAI No. 184-1912, question 14.03.07-16 (MHI Ref: UAP-HF-09166 dated April 9, 2009), MHI will revise the acceptance criteria of ITAAC item 3.a of (re-numbered) Table 2.7.5.4-3 to state the following:

"3.a The simulated test signal exists at the as-built Class 1E isolation dampers, identified in Table 2.7.5.4-1, under test."

This change will be included in DCD Revision 2.

Impact on DCD

Refer to the change described in response to RAI No. 184-1912, question 14.03.07-16, and shown above.

Impact on COLA

There is no impact on the COLA.

Impact on PRA

There is no impact on the PRA.