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TOKYO, JAPAN

July 16, 2010

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-10206

Subject: MHI's Response to US-APWR DCD RAI No.582-4456 Revision 2

References: 1) "Request for Additional Information No. 582-4456 Revision 2, SRP Section: 09.04.01 – Control Room Area Ventilation System Application Section: DCD Section 9.4.1" dated May 10, 2010.

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.582-4456 Revision 2".

Enclosed are the responses to 8 RAIs 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,

Y. Ogata

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

Enclosure:

1. Responses to Request for Additional Information No. 582-4456, Revision 2

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

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NRO

Docket No. 52-021
MHI Ref: UAP-HF-10206

Enclosure 1

UAP-HF-10206
Docket Number 52-021

Responses to Request for Additional Information
No. 582-4456, Revision 2

July, 2010

RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION

07/16/2010

US-APWR Design Certification

Mitsubishi Heavy Industries

Docket No. 52-021

RAI NO.:	**NO.582-4456 REVISION 2**
SRP SECTION:	**09.04.01 –CONTROL ROOM AREA VENTILATION SYSTEM**
APPLICATION SECTION:	**DCD SECTION 9.4.1**
DATE OF RAI ISSUE:	**05/10/2010**

QUESTION NO. : 09.04.01-16

This is a follow-up RAI to RAI No. 63(-849) / Question No. 09.04.01-19. The staff found the committed to revision of Figure 9.4.1-1 and Figures 6.4-2 through 6.4-4 as incomplete. The applicant maintains that most of the instrumentation displayed on these four Figures is non-safety related (NSR).

Chapter 3 of the DCD reads that the MCR HVAC system is designed to Equipment Class 3, Seismic Category I standards. The CRE is an area of the control room complex in the power block. Accordingly, the CRE is, by definition, the same equipment class and seismic category (e.g., Equipment Class 3, Seismic Category I) as the MCR.

The staff observes that most if not all the instrumentation displayed on Figure 9.4.1-1 and Figures 6.4-2 through 6.4-4 breach the boundary of the CRE. Any tubing or appendages to the CRE boundary related to these instruments are in fact part of the CRE. By the definition above, these instruments and related tubing, tube fittings etc are Equipment Class 3, Seismic Category I. There is no line of demarcation between the Class 3, Seismic Category I instrumentation piece parts and Seismic Category II portions of the NSR instrument loops displayed on these Figures. In particular, these figures need to depict where the boundary of the CRE ends and where the Seismic Category II boundary ends.

In addition, Table 3.2-2 does not contain a line item(s) for the dampers of the MCR HVAC System. The third line item of page 46 of 57 of this table reads: "Ductwork and dampers excluding main control room exhaust and smoke purge ductwork and dampers between and excluding VRS-AOD-122, 132, VRS-OTD-124, 133". The staff is confused what this line item statement includes or does not include. Should this line item not reference the back draft dampers?

The staff repeats the basis of the original RAI No. 63, Question No. 09.04.01-19 in that an excerpt from SRP 9.4.1 Section III "Review Procedures" 2.B reads: *"... SAR component and system descriptions of mechanical and performance characteristics are reviewed to verify that the classifications are included and that the P&IDs indicate any points of change in design classification."*

Table 3.2-2, Figure 9.4.1-1 and Figures 6.4-2 through 6.4-4 as contained in Revision 2 of the DCD, do not satisfy this SRP guidance. The staff requests that the DCD applicant amend this Table and these Figures to satisfy the guidance of SRP 9.4.1.

Reference: MHI's Responses to US-APWR DCD RAI No. 63; MHI Ref: UAPHF- 08215; dated October 3, 2008; ML082810407.

ANSWER:

DCD figures 9.4.1-1, 6.4-2, 6.4-3 and 6.4-4 will be revised to reflect the seismic category break required to maintain the Control Room Envelope boundary integrity.

The Note's on Figure 9.4.1-1, 6.4-2, 6.4-3 and 6.4-4 will be revised as follows:

NOTES:
1. The air sampling lines to the radiation monitors are changeable through a selector valve.
2. Non-safety related components but seismic category I, only to maintain CRE boundary integrity.
3. The instruments that provide the CRE boundary are classified as safety related to maintain the CRE boundary integrity only. The associated instrument tubing is seismic category I only to maintain the CRE boundary integrity.

Only a revised Figure 9.4.1-1 has been included in this response to show the above notes within the flow diagram. The Figures 6.4-2, 6.4-3 and 6.4-4 were generated from Figure 9.4.1-1 and represent the MCR HVAC system in the different modes of operation, showing the airflow path in that mode of operation. All changes to Figure 9.4.1-1 will be identically made to Figures 6.4-2, 6.4-3 and 6.4-4. Seismic Category II components will conform to the requirements of DCD Subsection 3.2.1.1.2 in regards to pressure boundary integrity and related requirements.

A line item(s) for the dampers of the MCR HVAC system shown in Table 3.2-2 will be revised to clarify the statement.

Impact on DCD

Figure 9.4.1-1 and associated Figures 6.4-2, 6.4-3 and 6.4-4 will be revised as described in the answer. Attachment-1 shows the mark-ups for figure 9.4.1-1.

The third line under the first column of DCD Revision 2 Table 3.2-2, on page 3.2-62 will be revised as follows

System and Components	Equipment Class	Location	Quality Group	10 CFR 50 Appendix B (Reference 3.2-8)	Codes and Standards[3]	Seismic Category[4]	Notes
Ductwork and dampers **excluding the following:** ~~excluding main control room exhaust and smoke purge ductwork and dampers between and excluding VRS-AOD-122, 132, VRS-OTD-124, 133~~ - **The smoke purge ductwork between VRS-AOD-132 and VRS-OTD-133** - **The exhaust ductwork and backdraft dampers between VRS-AOD-122 and VRS-OTD-124**	3	R/B	C	YES	5	I	

The seventh and eighth line under the first column of DCD Revision 2 Table 3.2-2, on page 3.2-62 will be revised as follows

System and Components	Equipment Class	Location	Quality Group	10 CFR 50 Appendix B (Reference 3.2-8)	Codes and Standards[3]	Seismic Category[4]	Notes
~~Main control room~~ **The** exhaust ductwork and dampers **VRS-OTD-123A,B** between ~~and excluding~~ VRS-AOD-122 and VRS-OTD-124	5	R/B	NA	YES	5	II	
~~Main control room~~ **The** smoke purge ductwork ~~and dampers~~ between ~~and excluding~~ VRS-AOD-132 and VRS-OTD-133	5	R/B	NA	YES	5	II	

Impact on COLA

There is no impact on the COLA.

Impact on PRA

There is no impact on the PRA.

Attachment - 1

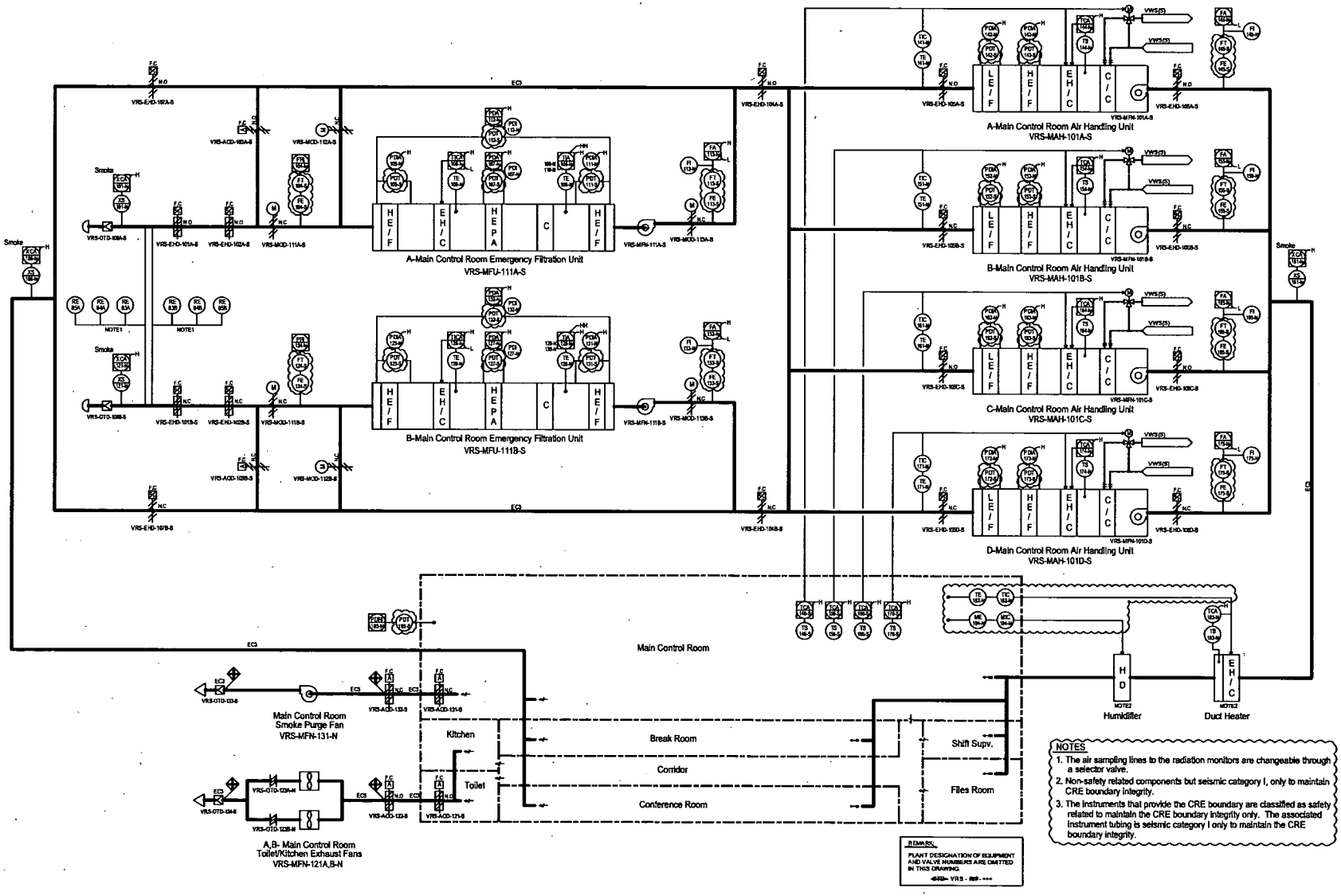

Figure 9.4.1-1 MCR HVAC System Flow Diagram

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RAI NO.:	**NO.582-4456 REVISION 2**
SRP SECTION:	**09.04.01 –CONTROL ROOM AREA VENTILATION SYSTEM**
APPLICATION SECTION:	**DCD SECTION 9.4.1**
DATE OF RAI ISSUE:	**05/10/2010**

QUESTION NO. : 09.04.01-17

This is a follow-up RAI to RAI No. 63(-849), Question No. 09.04.01-21. The applicant committed to revise the second paragraph of DCD subsection 9.4.1.4 with the following words:

"The MCR HVAC system is designed to permit periodic inspection and testing of major components, such as fans, motors, dampers, coils, filters and ducts to verify their integrity, operability and capability. The MCR HVAC system equipment and components are provided with proper access for initial and periodic inspection and maintenance activities."

The second paragraph of DCD (i.e. Revision 2) subsection 9.4.1.4 reads:

"The MCR HVAC system is designed to permit periodic inspection and testing of major components, such as fans, motors, dampers, coils, filters and ducts to verify their integrity, provided with proper access for initial and periodic inspection and maintenance activities."

The applicant failed to amend the second paragraph with the underlined words above. The staff requests that the applicant amend the second paragraph of subsection 9.4.1.4 per the applicant's response to RAI No. 63, Question No. 09.04.01-21.

In addition, the applicant's response to Question No. 09.04.01-21 included the words:

"A table or list of probable "degraded" component conditions (i.e. cooling coil failure, supply fan failure, damper sealing deficiencies) that result in loss of cooling function or damper leakage does not currently exist. It is thought that this information is probably best denoted within the context of a Table or list associated with an FMEA study. The FMEA for MCR HVAC system will be added in DCD revision 2. Refer to Question No. 09.04.01-8."

The applicant did not in Revision 2 of the DCD, create a Table or include the degraded component conditions in Table 9.4.1-2 "Main Control Room HVAC System Failure Modes and Effects Analysis". The staff requests that the applicant amend Table 9.4.1.2 to include these degraded component conditions.

Reference: MHI's Responses to US-APWR DCD RAI No. 63(-849); MHI Ref: UAP-HF-08215; dated October 3, 2008; ML082810407.

ANSWER:

1) The second paragraph of DCD subsection 9.4.1.4 will be revised to reflect the response of RAI No. 63(-849), Question No. 09.04.01-21.

2) The degraded component conditions (i.e., cooling coil failure, supply fan failure, damper sealing deficiencies) that result in loss of cooling function or damper leakage are described in Table 9.4.1-2 "Main Control Room HVAC System Failure Modes and Effects Analysis" as part of the component failure evaluation since these degraded conditions would prevent the function of the component. The evaluation of multiple concurrent equipment and component failures due to degradation is not required based on the performance of periodic inspection and testing of major components, such as fans, motors, dampers, coils, filters and ducts to verify their integrity, operability and capability as described in the response to RAI No. 63, Question No. 09.04.01-21. Thus, MHI believes that degraded component conditions do not adversely affect the system operation for safe shutdown.

Impact on DCD

The second paragraph of DCD subsection 9.4.1.4 will be revised as follows;

> "The MCR HVAC system is designed to permit periodic inspection and testing of major components, such as fans, motors, dampers, coils, filters and ducts to verify their integrity, **operability and capability. The MCR HVAC system equipment and components are** provided with proper access for initial and periodic inspection and maintenance activities."

Impact on COLA

There is no impact on the COLA.

Impact on PRA

There is no impact on the PRA.

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SRP SECTION:	**09.04.01 –CONTROL ROOM AREA VENTILATION SYSTEM**
APPLICATION SECTION:	**DCD SECTION 9.4.1**
DATE OF RAI ISSUE:	**05/10/2010**

QUESTION NO. : 09.04.01-18

This is a follow-up RAI to RAI No. 63(-849), Question No. 09.04.01-8.

The staff's review of Table 9.4.1-2 found the FMEA did not address a failure mode of concern. This Table was added to Revision 2 of the DCD as a result of RAI No. 63, Question No. 09.04.01-8. The staff notes that the HVAC AHUs are directly above the Main Control Room. What design features will prevent the failure of a service water cooling coil leak inside the HVAC AHUs above from adversely impacting the Main Control Room below?

Reference: MHI's Responses to US-APWR DCD RAI No. 63(-849); MHI Ref: UAP-HF-08215; dated October 3, 2008; ML082810407.

ANSWER:

The AHU housing is designed to facilitate removal of water leaked from cooling coil inside the housing as described in Subsection 3.4.1.5.2.2. In case of water leakage from the cooling coil inside the housing, the leaked water drains to the non-radioactive drain sump via the drain system. Thus, water leakage resulting from the failure of the cooling coil inside HVAC AHUs does not adversely impact the Main Control Room.

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.

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SRP SECTION:	**09.04.01 –CONTROL ROOM AREA VENTILATION SYSTEM**
APPLICATION SECTION:	**DCD SECTION 9.4.1**
DATE OF RAI ISSUE:	**05/10/2010**

QUESTION NO. : 09.04.01-19

This is a follow-up RAI question to RAI No. 327-2401, Question No. 09.04.01-3 and its subsequent follow-up RAI No. 475-3780, Question No. 09.04.01-13.

Table 9.4-1 Area Design Temperature and Relative Humidity provides minimum and maximum humidity parameters of 25%RH and 60%RH respectively, for the Normal Condition. The applicant's response to Question No. 09.04.01-13 read *"Safety related electrical equipment and instrumentation in the MCR are qualified for maximum 95% (noncondensing)."* The applicant did not provide in its response a minimum RH% value that the electrical equipment and instrumentation in the MCR are qualified for.

The function of the humidifier is to keep the relative humidity levels within the main control room above 25% during all seasons of the year. The applicant maintains that, ". . . the MCR HVAC System humidifier is installed in the supply air duct to the MCR to provide humidification of the MCR environment for personnel comfort purposes" and that the humidifier maintains no safety function.

The staff requests that the applicant:

(a) provide an FSAR design commitment wiht ITAAC, if appropriate, that all safety-related electrical equipment and instrumentation in the MCR will be qualified to maintain operability down to a relative humidity of 0%:

OR

(b) provide a US-APWR design that includes redundant safety-related humidifiers capable of maintaining main control room relative humidity levels above the minimum relative humidity levels contained in the purchase specifications for all safety-related electrical equipment and instrumentation in the MCR.

The staff submits this request for additional information per the guidance of SRP 9.4.1 section IV.1 "Evaluation Findings" as documented in up RAI No. 327-2401, Question No. 09.04.01-3.

References:
MHI's Responses to US-APWR DCD RAI No. 327-2401; MHI Ref: UAP-HF-09323; dated June 19, 2009; ML091751095.

ANSWER:

As stated in the response to RAI Question 09.04.01-13, the humidifier is provided in the MCR HVAC System for personnel comfort purposes only. Relative humidity levels below about 25% - 30%, in the temperature range of 73F to 78F specified for the MCR in DCD Table 9.4-1, can lead to drying of the skin and mucous surfaces causing uncomfortable working conditions for control room operators. As such, the humidifier is provided to control relative humidity at a comfortable level.

Electrical equipment and instrumentation reliability and performance is sensitive to high relative humidity levels, particularly when condensation can result. As stated in the response to RAI Question 09.04.01-13, safety related electrical equipment and instrumentation in the MCR are qualified for maximum 95% relative humidity (non-condensing). In many cases, only an upper bound relative humidity level is specified for equipment qualification testing. Although purchase specifications, and some qualification testing specifications, may specify a range of expected operating relative humidity levels, the lower bound is typically considered informational since higher levels are more detrimental.

Generally, the relative humidity within the CRE would not be expected to decrease to very low levels even without a functioning humidifier. As a practical matter, 0% relative humidity is not a credible environmental condition in a ventilated space. Zero percent relative humidity is only achievable under controlled conditions where the objective is to provide an ultra-low water vapor environment, using specialized dehumidification equipment such as desiccant-type dryers. The influence of outside air supply, moisture from occupant skin and respiration evaporation, and evaporation of liquids within the CRE prevent very low relative humidity levels in the MCR environment.

A review of the MCR HVAC systems installed at a sample of operating nuclear plants in the U.S. showed that many designs do not include a humidifier. For the reviewed plants that have installed humidifiers, they are non-safety related and are not relied upon to control humidity under abnormal conditions (i.e., LOOP, LOCA, etc.). In addition, the design certification applications currently under NRC review were reviewed and it was determined that each of the designs have non-safety related humidifiers within the MCR HVAC system that are used for relative humidity control under normal conditions and are not relied upon during abnormal events / accidents such as LOOP and LOCA. Based on this review, the US-APWR MCR HVAC humidifier design is consistent with typical operating nuclear plants and with the design certifications under NRC review.

Based on the above, and the responses previously provided for RAI Questions 09.04.01-3 and - 13, MHI does not believe that either a FSAR design commitment that all safety-related electrical equipment and instrumentation in the MCR will be qualified to maintain operability down to a relative humidity of 0%; or the provision of a design that includes redundant safety-related humidifiers capable of maintaining MCR relative humidity levels above the minimum relative humidity levels contained in the purchase specifications for all safety-related electrical equipment and instrumentation in the MCR is warranted.

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.

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RAI NO.:	**NO.582-4456 REVISION 2**
SRP SECTION:	**09.04.01 –CONTROL ROOM AREA VENTILATION SYSTEM**
APPLICATION SECTION:	**DCD SECTION 9.4.1**
DATE OF RAI ISSUE:	**05/10/2010**

QUESTION NO. : 09.04.01-20

This is a follow-up RAI to RAI No. 63(-849), Question No. 09.04.01-18; RAI No. 327-2401, Question No. 09.04.01-6; & RAI 475-3780, Question No. 09.04.01-14.

The staff does not agree with the applicant's conclusion that RG 1.155 and NSAC-108 allows site specific EDG reliability, or in this case a site specific GTG reliability, to be based on industry operating experience. NSAC-108 is a survey documenting EDG reliabilities from the early 1980s and identifies what criteria (i.e. testing methodologies) were used to form the bases of the documented historical liabilities.

Regulatory Guide 1.155 Section 3.3.5, #5 reads in its entirety:
"The AAC power system should be inspected, maintained, and tested periodically to demonstrate operability and reliability. The reliability of the AAC power system should meet or exceed 95 percent as determined in accordance with NSAC-108 (Ref. 11) or equivalent methodology."

This clearly indicates that site specific AAC reliability is to be based on site specific testing and analysis. More specifically, the AAC reliability can not be based on analysis alone of historical industry data.

Based on the above, the staff repeats its request of RAI 475-3780, Question No. 09.04.01-14 that the applicant change the ITA for line item 12 of ITAAC Table 2.6.5-1, from "An analysis of the reliability of the as-built AAC power sources will be performed" to read "Demonstrate through testing and analysis the reliability of the as-built AAC power source".

References:
MHI's Responses to US-APWR DCD RAI No. 63(-849); MHI Ref: UAP-HF-08215; dated October 3, 2008; ML082810407.
MHI's Responses to US-APWR DCD RAI No. 327-2401; MHI Ref: UAP-HF-09323; dated June 19, 2009; ML091751095.
MHI's Responses to US-APWR DCD RAI No. 475-3780; MHI Ref: UAP-HF-09531; dated November 20, 2009; ML093290031.

ANSWER:

In the teleconference meeting between MHI and NRC on July 7th, NRC has shown clearly that NRC requires performing the "Site acceptance test" of AAC-GTGs described in section 7.2 of IEEE 387. MHI agrees with NRC's requirement. And Table 2.6.5-1 of Tier 1 will be revised to add ITAAC item performing test.

Impact on DCD

Table 2.6.5-1 of Tier 1 ITAAC will be revised to add the following ITAAC item:

Design Commitment	Inspections, Tests, Analyses	Acceptance Criteria
12. The reliability of the AAC power sources meet or exceed 95 percent **and the AAC power sources provide the required capability**.	12a. An analysis of the reliability of the as-built AAC power sources will be performed.	12a. The reliability of the as-built AAC power sources meet or exceed 95 percent.
	12b. **A site acceptance test will be performed to demonstrate the capability of the as-built AAC power sources to perform required function.**	12b. **The as-built AAC power sources provide the required capability**.

Impact on COLA

There is no impact on the COLA.

Impact on PRA

There is no impact on the PRA.

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RAI NO.:	**NO.582-4456 REVISION 2**
SRP SECTION:	**09.04.01 –CONTROL ROOM AREA VENTILATION SYSTEM**
APPLICATION SECTION:	**DCD SECTION 9.4.1**
DATE OF RAI ISSUE:	**05/10/2010**

QUESTION NO. : 09.04.01-21

This is a follow-up RAI to RAI No. 63(-849), Question No. 09.04.01-30.

The staff found the applicant's response (RAI No. 63, Question No. 09.04.01-30) as fundamentally acceptable but incomplete. With the supplemental information provided the applicant adequately fills in the gaps in information specific to fire protection system operation and its impact on the MCR HVAC system. However, the applicant did not commit to add this information to the DCD in either subsections 9.4.1 or 9.5.1.

The staff requests that the applicant amend DCD subsection 9.4.1 with the fire protection attributes described in the response of RAI No. 63, Question No. 09.04.01-30.

Reference: MHI's Responses to US-APWR DCD RAI No. 63(-849); MHI Ref: UAP-HF-08215; dated October 3, 2008; ML082810407.

ANSWER:

DCD subsection 9.4.1.2 will be revised to describe the information for fire protection system operation and its impact on the MCR HVAC system.

Impact on DCD

The last paragraph of DCD subsection 9.4.1.2 will be revised to add as follows;

"All duct penetrations in fire walls are protected by fire dampers to prevent the spread of fire from an affected area to the adjacent redundant component areas. **The fire dampers will close automatically on a high temperature condition within the duct.** "

Impact on COLA

There is no impact on the COLA.

Impact on PRA

There is no impact on the PRA.

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RAI NO.:	**NO.582-4456 REVISION 2**
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APPLICATION SECTION:	**DCD SECTION 9.4.1**
DATE OF RAI ISSUE:	**05/10/2010**

QUESTION NO. : 09.04.01-22

This is a follow-up RAI to RAI No. 63(-849), Question No. 09.04.01-26

The staff notes that the applicant did complete in Revision 2 of the DCD the committed to change of RAI No. 63, Question No. 09.04.01-26. However, the implementation was not in synch with other cause and effect changes of the DCD. The applicant did revise DCD Subsection 9.4.1.5, "Instrumentation Requirements" to add the following new paragraph at the end of the section: "*The requirements for controls and instrumentation associated with fire protection for the control room are provided in Section 9.5.1, and Appendix 9A, Subsection 9A.3.44 Main Control Room.*" However, the staff found that Subsection 9A.3.44 in Revision 2 of the DCD is no longer entitled "FA2-308 Main Control Room" as in previous revisions of the DCD. "FA2-308 Main Control Room" is listed against subsection 9A.3.51 in Revision 2 of the DCD.

The staff requests that applicant amend Revision 2 the DCD to correct this deficiency.

References:
MHI's Responses to US-APWR DCD RAI No. 63(-849); MHI Ref: UAP-HF-08215; dated October 3, 2008; ML082810407.
MHI's Responses to US-APWR DCD RAI No. 327-2401; MHI Ref: UAP-HF-09323; dated June 19, 2009; ML091751095.
MHI's Responses to US-APWR DCD RAI No. 475-3780; MHI Ref: UAP-HF-09531; dated November 20, 2009; ML093290031

ANSWER:

The last paragraph of DCD Subsection 9.4.1.5 will be revised.

Impact on DCD

The last paragraph of DCD subsection 9.4.1.5 will be revised as follows;

"The requirements for controls and instrumentation associated with fire protection for the control room are provided in Subsection 9.5.1, and Appendix 9A, Subsection ~~9A.3.44~~**9A.3.51** Main Control Room."

Impact on COLA

There is no impact on the COLA.

Impact on PRA

There is no impact on the PRA.

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RAI NO.:	**NO.582-4456 REVISION 2**
SRP SECTION:	**09.04.01 –CONTROL ROOM AREA VENTILATION SYSTEM**
APPLICATION SECTION:	**DCD SECTION 9.4.1**
DATE OF RAI ISSUE:	**05/10/2010**

QUESTION NO. : 09.04.01-23

This is a follow-up RAI to RAI No. 63(-849), Question No. 09.04.01-6.

The applicant wrongly concludes in their response to Question No. 09.04.01-6 that " ... the MCR HVAC system does not need to satisfy GDC 60 requirement." The staff notes that the MCR HVAC System contains an ESF filter trains governed by the regulatory guidance of subsection C.3 "Design Criteria" of Regulatory Guide 1.52.

The staff further notes that "Acceptance Criteria" #5 of SRP 9.5.1 and it's associated "Technical Rational" #5 read:
Control of Releases of Radioactive Material to the Environment. Information that addresses the requirements of GDC 60 regarding the suitable control of the release of gaseous radioactive effluents to the environment will be considered acceptable if the guidance of RGs 1.52 and 1.140 as related to design, inspection, testing, and maintenance criteria for post-accident and normal atmosphere cleanup systems, ventilation exhaust systems, air filtration, and adsorption units of light-watercooled nuclear power plants are appropriately addressed. For RG 1.52 rev 2, the applicable regulatory position is C.2. For RG 1.52 rev 3, the applicable regulatory position is C.3. ...

...GDC 60 requires nuclear power unit designs to include provisions to control the release of radioactive materials entrained in gaseous effluents during normal reactor operation, including anticipated operational occurrences. RGs 1.140 and 1.52 offer design, testing, and inspection criteria acceptable to the staff for air filtration and adsorption units of normal ventilation systems and for post-accident engineered-safety-feature atmosphere cleanup systems in light-water-cooled nuclear power plants. Atmosphere cleanup systems are included in the design to reduce the quantities of radioactive materials entrained in gaseous effluents released to the environment."

The staff requests that the applicant amend DCD subsection 9.4.1, to document as to how the ESF filter trains of the of the MCR HVAC system satisfy the "System Design Criteria" of subsection C.3 "Design Criteria" of Regulatory Guide 1.52.

Reference: MHI's Responses to US-APWR DCD RAI No. 63(-849); MHI Ref: UAP-HF-08215; dated October 3, 2008; ML082810407.

ANSWER:

DCD Section 6.4, Table 6.4-2 presents design feature and fission product removal capabilities of the MCR emergency filtration system, compared to Regulatory Guide 1.52. This table includes the design information as to how the ESF filter trains of the MCR HVAC system satisfy the "System Design Criteria" of subsection C.3 "Design Criteria" of Regulatory Guide 1.52. Therefore, as described in Table 6.4-2, MCR Emergency Filtration System complies with Regulatory Guide 1.52 Regulatory Position C.3.

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.