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TOKYO, JAPAN

December 18, 2013

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

Attention: Mr. Perry Buckberg

Docket No. 52-021
MHI Ref: UAP-HF-13308

Subject: MHI's Supplemental Response to US-APWR DCD RAI No. 1031-7108 (SRP 03.11)

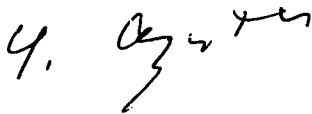
Reference: 1) "Request for Additional Information No. 1031-7108, SRP Section 03.11 – Environmental Qualification of Mechanical and Electrical Equipment", dated May 9, 2013, ML13129A137.
2) "MHI's Response to US-APWR DCD RAI No. 1031-7108 (SRP 03.11)," UAP-HF-13176, dated August 2, 2013, ML13220A230.

With this letter, Mitsubishi Heavy Industries, Ltd. ("MHI") transmits to the U.S. Nuclear Regulatory Commission ("NRC") a document entitled "Supplemental Response to Request for Additional Information No. 1031-7108."

Enclosed is the supplemental response to one RAI question, 03.11-62, contained within Reference 1. This question was responded to previously in Reference 2.

Please contact Mr. Joseph Tapia, General Manager of Licensing Department, Mitsubishi Nuclear Energy Systems, Inc. if the NRC has questions concerning any aspect of this submittal. His contact information is provided below.

Sincerely,



Yoshiaki Ogata,
Executive Vice President
Mitsubishi Nuclear Energy Systems, Inc.
On behalf of Mitsubishi Heavy Industries, Ltd.

Enclosure:

1. Supplemental Response to Request for Additional Information No. 1031-7108



CC: P. Buckberg
J. Tapia

Contact Information

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Docket No. 52-021
MHI Ref: UAP-HF- 13308

Enclosure 1

UAP-HF- 13308
Docket No. 52-021

Supplemental Response to Request for Additional Information
No. 1031-7108

December 2013

RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION

12/18/2013

US-APWR Design Certification

Mitsubishi Heavy Industries

Docket No. 52-021

RAI NO.: NO. 1031-7108
SRP SECTION: 03.11 - ENVIRONMENTAL QUALIFICATION OF MECHANICAL AND ELECTRICAL EQUIPMENT
APPLICATION SECTION: TIER 1 ITAAC TABLES TO EACH SYSTEMS
DATE OF RAI ISSUE: 05/09/2013

QUESTION NO. 03.11-62:

This is a supplement to RAI 901-6257, Question 3.11-55 that requested additional information regarding the environmental qualification of mechanical equipment for the US-APWR reactor plant design. By letter dated April 10, 2012, the applicant provided additional information describing the US-APWR equipment qualification program in regard to the environmental qualification of electrical equipment, qualification of non-active mechanical equipment for structural integrity (i.e., ASME Section III components), and functional qualification of active mechanical equipment in accordance with RG 1.100 Revision 3. Staff does not consider the April 10, 2012 response to fully address the US-APWR methodology and ITAAC for verification for the environmental qualification of non-metallic components (e.g., seals, gaskets, lubricants, fluids for hydraulic systems, and diaphragms) of mechanical equipment located in harsh environments. The environmental qualification of non-metallic components of mechanical equipment as described in US-APWR Chapter 3.11 addresses specific qualification attributes such as thermal aging, radiation aging, and mechanical wear aging to determine the qualified life of non-metallic components located in a harsh environment.

ASME QME-1-2007, Appendix QR-B as endorsed by RG 1.100 revision 3 is a staff approved methodology for the environmental qualification of non-metallic components of mechanical equipment such as pumps, valves and dynamic restraints. By response to RAI 901-6257, Question 3.11-51, dated April 10, 2012, the applicant stated that MUAP-08015 Section 6.2.3, "Qualification of Important to Safety Mechanical Equipment," will be revised to state that "nonmetallic components of mechanical equipment located in a harsh environment are qualified in accordance with ASME QME-1-2007, Appendix QR-B as endorsed by RG 1.100 revision 3." However, US-APWR Tier 1 tables do not contain ITAAC verification for non-metallic components of mechanical equipment located in a harsh environment. For example, the Design Commitment for ITAAC 9.a in Table 2.4.2-5, "Reactor Coolant System Inspections, Tests, Analyses, and Acceptance Criteria," in US-APWR DCD Tier 1 states "Class 1E equipment identified in Table 2.4.2-2, as being qualified for a harsh environment can withstand the environmental conditions that would exist before, during, and following a design basis accident without loss of safety function

for the time required to perform the safety function.” This ITAAC is specific to Class 1E electrical equipment and does not address non-metallic components of mechanical equipment. Therefore, staff requests the applicant to provide ITAAC verification in the applicable Tier 1 tables for the environmental qualification of nonmetallic components of mechanical equipment located in a harsh environment.

ANSWER:

MHI will revise DCD Tier 1 ITAAC tables of each applicable system ITAAC to include verification that nonmetallic components of active mechanical equipment located in a harsh environment can withstand the environmental conditions that would exist before, during, and following a design basis accident without loss of safety function for the time required to perform the safety function. The following additional related DCD changes will be made:

- A new ITAAC will be added to each applicable system ITAAC to verify that dynamic restraints of seismic Category I piping are similarly qualified.
- The equipment characteristics tables in applicable system ITAAC will be updated to reflect the harsh environment qualification requirements for active mechanical components not already indicated as being qualified for a harsh environment.
- HVAC backdraft dampers (identified during a review of active mechanical equipment and not previously included in Tier 1) will be added to Tier 1 HVAC figures and ITAAC tables.
- DCD Tier 2, Table 3D-2 “US-APWR Environmental Qualification Equipment List” will be revised to add missing equipment which has active safety function and correct editorial errors.
- DCD Tier 2 Table 3.9-14 “Valve Inservice Test Requirements” will be revised to correct safety related missions and some editorial errors.
- DCD Tier 2, Table 14.3-2, “Example of ITAAC Table” will be updated to reflect the latest approach used for environmental qualification ITAAC.

Impact on DCD

DCD Tier 1 ITAAC tables and HVAC figures, DCD Tier 2 Table 3.9-14, Table 3D-2 and Table 14.3-2 will be revised as shown in the attached markups.

Impact on R-COLA

There is no impact on the R-COLA.

Impact on PRA

There is no impact on the PRA.

Impact on Technical/Topical Report

There is no impact on the Technical / Topical Reports.

Supplemental Response

The initial response to this question was provided in letter UAP-HF-13176, dated August 2, 2013 (ML13220A230). This response supplements that response. In discussions with the NRC staff on November 14, 2013, the staff provided feedback regarding a note that was added to DCD Tier 1 ITAAC tables that list equipment characteristics. MHI will revise this note in DCD Tier 1, Tables 2.4.2-2, 2.4.4-2, 2.4.5-2, 2.4.6-2, 2.7.1.2-2, 2.7.1.9-2, 2.7.1.11-2, 2.7.3.3-2, 2.7.3.5-2, 2.7.5.2-1, 2.7.6.3-1, 2.7.6.7-1, 2.11.2-1, and 2.11.3-2 to address these comments.

Impact on DCD

DCD Tier 1 ITAAC Tables 2.4.2-2, 2.4.4-2, 2.4.5-2, 2.4.6-2, 2.7.1.2-2, 2.7.1.9-2, 2.7.1.11-2, 2.7.3.3-2, 2.7.3.5-2, 2.7.5.2-1, 2.7.6.3-1, 2.7.6.7-1, 2.11.2-1, and 2.11.3-2 will be revised as shown in the Attachment-1.

Impact on R-COLA

There is no impact on the R-COLA.

Impact on PRA

There is no impact on the PRA.

Impact on Technical/Topical Report

There is no impact on the Technical / Topical Reports.

This completes MHI's response to the NRC's question.

2.4 REACTOR SYSTEMS

US-APWR Design Control Document

Table 2.4.2-2 Reactor Coolant System Equipment Characteristics (Sheet 3 of 3)

Equipment Name	Tag No.	ASME Code Section III Class	Seismic Category I	Remotely Operated Valve	Class 1E/Qual. for Harsh Envir. ⁽²⁾	PSMS Control	Active Safety Function	Loss of Motive Power Position
Pressurizer Water Level	RCS-LT-061, 062, 063, 064	—	Yes	—	Yes/Yes	—	—	—
Reactor Coolant Pressure	RCS-PT-020, 030, 040, 050	—	Yes	—	Yes/Yes	—	—	—
Pressurizer Pressure	RCS-PT-061, 062, 063, 064	—	Yes	—	Yes/Yes	—	—	—
Reactor Coolant Hot Leg Temperature (Wide Range)	RCS-TE-020, 030, 040, 050	—	Yes	—	Yes/Yes	—	—	—
Reactor Coolant Cold Leg Temperature (Wide Range)	RCS-TE-025, 035, 045, 055	—	Yes	—	Yes/Yes	—	—	—
Reactor Coolant Hot Leg Temperature (Narrow Range)	RCS-TE-021A, 021B, 021C, 031A, 031B, 031C, 041A, 041B, 041C, 051A, 051B, 051C	—	Yes	—	Yes/Yes	—	—	—
Reactor Coolant Cold Leg Temperature (Narrow Range)	RCS-TE-021D, 031D, 041D, 051D	—	Yes	—	Yes/Yes	—	—	—
Reactor Coolant Pump Speed	RCS-SE-028A, 038A, 048A, 058A	—	Yes	—	Yes/Yes ⁽¹⁾	—	—	—

DCD_03.11-62

As of 10/16/2013

NOTE:

Dash (-) indicates not applicable

1. Qualification for harsh environment is not required for post-accident environmental condition.

2. Non-metallic parts having no failure modes under the specified environmental and service conditions that affect the safety function of the active mechanical equipment are excluded from qualification for harsh environment.

Insert "as described in ASME QME-1, Appendix QR-B" between "environment" and ".".

DCD_03.11-62
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2.4 REACTOR SYSTEMS

US-APWR Design Control Document

Table 2.4.4-2 Emergency Core Cooling System Equipment Characteristics (Sheet 4 of 4)

Equipment Name	Tag No.	ASME Code Section III Class	Seismic Category I	Remotely Operated Valve	Class 1E/Qual. For Harsh Envir. ⁽²⁾	PSMS Control	Active Safety Function	Loss of Motive Power Position
Safety Injection Pump Discharge Check Valves	SIS-VLV-004 A,B,C,D	2	Yes	No	-/-	—	Transfer Open	—
Safety Injection Pump Minimum Flow	SIS-FT-072, 073, 074, 075	—	Yes	—	Yes/Yes	—	—	—
Accumulator Water Level	SIS-LT-010, 020, 030,040	—	Yes	—	Yes/Yes	—	—	—
Accumulator Pressure	SIS-PT-010, 020, 030, 040	—	Yes	—	Yes/Yes	—	—	—
Safety Injection Pump Suction Pressure	SIS-PT-060, 061, 062, 063	—	Yes	—	Yes/No	—	—	—
Safety Injection Pump Discharge Pressure	SIS-PT-064, 065, 066, 067	—	Yes	—	Yes/No	—	—	—
Refueling Water Storage Pit Water Level	RWS-LT-010, 011, 012, 013	—	Yes	—	Yes/Yes	—	—	—
Safety Injection Pump Discharge Flow	SIS-FT-062, 063, 064, 065	—	Yes	—	Yes/No	—	—	—
Debris Interceptors	SIS-SST-001-A, B, C, D, E, F, G	—	Yes	—	-/-	—	—	—
RWSP Overflow Pipe Check Valves	RWS-VLV-078, 079	2	Yes	—	-/-	—	—	—
RWSP Sparger Nozzle	RWS-SNZ-001A, B	2	Yes	—	-/-	—	—	—

DCD_03.11-62

As of 10/16/2013

NOTE:

1. Dash (-) indicates not applicable.

2. Non-metallic parts having no failure modes under the specified environmental and service conditions that affect the safety function of the active mechanical equipment are excluded from qualification for harsh environment

Insert "as described in ASME QME-1, Appendix QR-B" between "environment" and ".".

DCD_03.11-62

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2.4 REACTOR SYSTEMS

US-APWR Design Control Document

Table 2.4.5-2 Residual Heat Removal System Equipment Characteristics (Sheet 3 of 3)

Equipment Name	Tag No.	ASME Code Section III Class	Seismic Category I	Remotely Operated Valve	Class 1E/Qual. For Harsh Envir. ⁽²⁾	PSMS Control	Active Safety Function	Loss of Motive Power Position
1 st RHR Discharge Line Check Valves	RHS-VLV-028A, B, C, D	1	Yes	No	-/Yes	-	Transfer Open	-
Containment Spray / Residual Heat Removal Pump Discharge Flow	RHS-FT-011, 021, 031, 041	—	Yes	—	Yes/No	-	—	—
Containment Spray / Residual Heat Removal Pump Minimum Flow	RHS-FT-014, 024, 034, 044	—	Yes	—	Yes/No	-	—	—
Containment Spray / Residual Heat Removal Pump Suction Pressure	RHS-PT-010, 020, 030, 040	—	Yes	—	Yes/No	-	—	—
Containment Spray / Residual Heat Removal Pump Discharge Pressure	RHS-PT-011, 021, 031, 041	—	Yes	—	Yes/No	-	—	—
Containment Spray / Residual Heat Removal Heat Exchanger Outlet Temperature	RHS-TE-014, 024, 034, 044	—	Yes	—	Yes/Yes	-	—	—

DCD_03.11-62

As of 10/16/2013

NOTE:

1. Dash (-) indicates not applicable.
2. Non-metallic parts having no failure modes under the specified environmental and service conditions that affect the safety function of the active mechanical equipment are excluded from qualification for harsh environment.

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Insert "as described in ASME QME-1, Appendix QR-B" between "environment" and ".".

2.4 REACTOR SYSTEMS

US-APWR Design Control Document

Table 2.4.6-2 Chemical and Volume Control System Equipment Characteristics (Sheet 6 of 6)

Equipment Name	Tag No.	ASME Code Section III Class	Seismic Category I	Remotely Operated Valve	Class 1E/Qual. For Harsh Envir. ⁽²⁾	PSMS Control	Active Safety Function	Loss of Motive Power Position
Charging pump alternate makeup line check valve	CVS-VLV-594	3	Yes	No	— / —	—	Transfer-Open	—
Charging pump alternate makeup line check valve	CVS-VLV-595	3	Yes	No	— / —	—	Transfer-Open	—
Primary Makeup Water Supply Flow	CVS-FT-128, 129	—	Yes	—	Yes/No	—	—	—

DCD_03.11-62

NOTE:

1. Dash (—) indicates not applicable.

2. Non-metallic parts having no failure modes under the specified environmental and service conditions that affect the safety function of the active mechanical equipment are excluded from qualification for harsh environment.

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Insert "as described in ASME QME-1, Appendix QR-B" between "environment" and ".".

As of 10/16/2013

2.7 PLANT SYSTEMS

US-APWR Design Control Document

Table 2.7.1.2-2 Main Steam Supply System Equipment Characteristics (Sheet 2 of 2)

Equipment Name	Tag No.	ASME Code Section III Class	Seismic Category I	Remotely Operated Valve	Class 1E/Qual. For Harsh Envir. ⁽²⁾	PSMS Control	Active Safety Function	Loss of Motive Power Position
Main Steam Drain Line Isolation Valves	MSS-MOV-701A,B,C,D	2	Yes	Yes	Yes/Yes	Remote Manual	Transfer Closed	As Is
Main Steam Check Valves	MSS-VLV-516A,B,C,D	3	Yes	No	-/Yes	-	Transfer Closed	-
Main Steam Line Pressure	MSS-PT-515, 516, 517, 518, 525, 526, 527, 528, 535, 536, 537, 538, 545, 546, 547, 548	-	Yes	-	Yes/No	-	-	-

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DCD_03.11-62_S01

Note:

1. Dash (-) indicates not applicable.

2. Non-metallic parts having no failure modes under the specified environmental and service conditions that affect the safety function of the active mechanical equipment are excluded from qualification for harsh environment.

Insert "as described in ASME QME-1, Appendix QR-B" between "environment" and ".".

As of 10/16/2013

2.7 PLANT SYSTEMS

US-APWR Design Control Document

Table 2.7.1.9-2 Condensate and Feedwater System Equipment Characteristics (Sheet 2 of 2)

Equipment Name	Tag No.	ASME Code Section III Class	Seismic Category I	Remotely Operated Valve	Class 1E/Qual. For Harsh Envir. (2)	PSMS Control	Active Safety Function	Loss of Motive Power Position
Steam Generator Water Level (Narrow Range)	FWS-LT-510, 511, 512, 513, 520, 521, 522, 523, 530, 531, 532, 533, 540, 541, 542, 543,	-	Yes	-	Yes/ Yes	-	-	-
Steam Generator Water Level (Wide Range)	FWS-LT-514, 524, 534, 544	-	Yes	-	Yes/ Yes	-	-	-

DCD_03.11-62

Note:

1. Dash (-) indicates not applicable.

2. Non-metallic parts having no failure modes under the specified environmental and service conditions that affect the safety function of the active mechanical equipment are excluded from qualification for harsh environment.

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Insert "as described in ASME QME-1, Appendix QR-B" between "environment" and ".".

As of 10/16/2013

2.7 PLANT SYSTEMS

US-APWR Design Control Document

Table 2.7.1.11-2 Emergency Feedwater System Equipment Characteristics (Sheet 10 of 10)

Equipment Name	Tag No.	ASME Code Section III Class	Seismic Category I	Remotely Operated Valve	Class 1E/Qual. For Harsh Envir. ⁽²⁾	PSMS Control	Active Safety Function	Loss of Motive Power Position
A, B-EFW pump turbine steam inlet drain line check valves	EFS-VLV-109A, B	3	Yes	No	-/Yes	-	Transfer Open Transfer Closed	-
C, D-EFW pump turbine steam inlet drain line check valves	EFS-VLV-109C, D	3	Yes	No	-/Yes	-	Transfer Open Transfer Closed	-
A, B-Emergency feedwater pits	MPT-001A, B	-	Yes	-	-/-	-	-	-

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Note:

1. Dash (-) indicates not applicable.

2. Non-metallic parts having no failure modes under the specified environmental and service conditions that affect the safety function of the active mechanical equipment are excluded from qualification for harsh environment.

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DCD_03.11-62_S01

Insert "as described in ASME QME-1, Appendix QR-B" between "environment" and ".".

As of 10/16/2013

2.7 PLANT SYSTEMS

US-APWR Design Control Document

Table 2.7.3.3-2 Component Cooling Water System Equipment Characteristics (Sheet 9 of 9)

Equipment Name	Tag No.	ASME Code Section III Class	Seismic Category I	Remotely Operated Valve	Class 1E/Qual. For Harsh Envir. ⁽²⁾	PSMS Control	Active Safety Function	Loss of Motive Power Position
Containment fan cooler alternative cooling water return isolation valve	NCS-MOV-242	3	Yes	Yes	Yes/No	-	-	As Is
Nitrogen pressure control valves for CCW surge tanks	NCS-PCV-012, 022	3	Yes	Yes	-/-	-	-	Closed

DCD_03.11-62

NOTE:

1. Dash (-) indicates not applicable.

2. Non-metallic parts having no failure modes under the specified environmental and service conditions that affect the safety function of the active mechanical equipment are excluded from qualification for harsh environment.

DCD_03.11-62

DCD_03.11-62_S01

Insert "as described in ASME QME-1, Appendix QR-B" between "environment" and ".".

As of 10/16/2013

2.7 PLANT SYSTEMS

US-APWR Design Control Document

Table 2.7.3.5-2 Essential Chilled Water System Equipment Characteristics (Sheet 3 of 3)

Equipment Name	Tag No.	ASME Code Section III Class	Seismic Category I	Remotely Operated Valve	Class 1E/Qual. For Harsh Envir.(2)	PSMS Control	Active safety Function	Loss of Motive Power Position
Penetration Area Air Handling Unit Chilled Water Control Valves	VWS-TCV-622, 632, 642, 652	3	Yes	Yes	Yes/Yes	Penetration Area High Temperature	Transfer Open	Open
Spent Fuel Pit Pump Area Air Handling Unit Chilled Water Control Valves	VWS-TCV-662A, 662B, 672A, 672B	3	Yes	Yes	Yes/Yes	Spent Fuel Pit Pump Area High Temperature	Transfer Open	Open
Essential chilled water pump discharge check valves	VWS-VLV-005 A, B, C, D	3	Yes	-	-/No	-	Transfer Open	-
Compression tank relief valves	VWS-SRV-253 A, B, C, D	3	Yes	-	-/No	-	Transfer Open	-
Nitrogen supply check valves	VWS-VLV-252 A, B, C, D	3	Yes	-	-/No	-	Transfer Closed	-
Makeup water supply check valves	VWS-VLV-258 A, B, C, D	3	Yes	-	-/No	-	Transfer Closed	-

NOTE:

1. Dash (-) indicates not applicable.

2. Non-metallic parts having no failure modes under the specified environmental and service conditions that affect the safety function of the active mechanical equipment are excluded from qualification for harsh environment.

Insert "as described in ASME QME-1, Appendix QR-B" between "environment" and ".".

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2.7 PLANT SYSTEMS

US-APWR Design Control Document

Table 2.7.5.2-1 Engineered Safety Features Ventilation System Equipment Characteristics (Sheet 10 of 10)

Equipment Name	Tag No.	ASME Code Section III Class	Seismic Category I	Remotely Operated Damper	Class 1E/Qual. For Harsh Envir. (2)	PSMS Control	Active Safety Function	Loss of Motive Power Position
Essential Chiller Unit Area Temperature	VRS-TS-541, 544, 545, 551, 554, 555, 561, 564, 565, 571, 574, 575	—	Yes	—	Yes/No	—	—	—
Charging Pump Area Temperature	VRS-TS-581, 584, 585, 591, 594, 595	—	Yes	—	Yes/Yes	—	—	—
Annulus Emergency Exhaust Filtration Unit Area Temperature	VRS-TS-601, 604, 605, 611, 614, 615	—	Yes	—	Yes/Yes	—	—	—
Penetration Area Temperature	VRS-TS-621, 624, 625, 631, 634, 635, 641, 644, 645, 651, 654, 655	—	Yes	—	Yes/Yes	—	—	—
Spent Fuel Pit Pump Area Temperature	VRS-TS-661, 664, 665, 671, 674, 675	—	Yes	—	Yes/Yes	—	—	—

DCD_03.11-62

As of 10/16/2013

NOTE:

- 1. Dash (-) indicates not applicable.
- 2. Non-metallic parts having no failure modes under the specified environmental and service conditions that affect the safety function of the active mechanical equipment are excluded from qualification for harsh environment.

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Insert "as described in ASME QME-1, Appendix QR-B" between "environment" and ".".

2.7 PLANT SYSTEMS

US-APWR Design Control Document

Table 2.7.6.3-1 Spent Fuel Pit Cooling and Purification System Equipment Characteristics (Sheet 2 of 2)

Equipment Name	Tag No.	ASME Code Section III Class	Seismic Category I	Remotely Operated Valve	Class 1E/Qual. For Harsh Envir. ⁽²⁾	PSMS Control	Active Safety Function	Loss of Motive Power Position
Spent fuel pit pump discharge flow	SFS-FT-032, 042	—	Yes	—	Yes/Yes	—	—	—
Refueling water recirculation pumps	RWS-MPP-001A,B	3	Yes	—	Yes/Yes	Remote Manual	Start	—
Refueling water recirculation pump discharge check valves	RWS-VLV-012A,B	3	Yes	—	—/—Yes	—	Transfer Open	—
<u>Spent fuel pit purification subsystem outlet check valves</u>	<u>SFS-VLV-036A,B</u>	<u>3</u>	<u>Yes</u>	<u>—</u>	<u>—/Yes</u>	<u>—</u>	<u>Transfer Close</u>	<u>—</u>

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Note:

1. Dash (-) indicates not applicable.

2. Non-metallic parts having no failure modes under the specified environmental and service conditions that affect the safety function of the active mechanical equipment are excluded from qualification for harsh environment.

DCD_03.11-62

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Insert "as described in ASME QME-1, Appendix QR-B" between "environment" and ".".

As of 10/16/2013

2.7 PLANT SYSTEMS

US-APWR Design Control Document

Table 2.7.6.7-1 Process and Post-accident Sampling System Equipment Characteristics

Equipment Name	Tag No.	ASME Code Section III Class	Seismic Category I	Remotely Operated Valve	Class 1E/Qual For Harsh Envir. ⁽²⁾	PSMS Control	Active Safety Function	Loss of Motive Power Position
Isolation valves on RHR down stream of containment spray and residual heat removal heat exchanger	PSS-MOV-052A,B,C,D	2	Yes	Yes	Yes / Yes	Remote Manual	Transfer Closed	As Is
Containment isolation valves inside CV on sample from RCS Hot Leg	PSS-MOV-013,023	2	Yes	Yes	Yes/Yes	Containment Isolation Phase A	Transfer Closed	As Is
Containment isolation valves outside containment on sample from RCS Hot Leg	PSS-MOV-031A,B	2	Yes	Yes	Yes/ Yes	Containment Isolation Phase A	Transfer Closed	As Is
Containment isolation valve outside CV on post-accident liquid sample return to containment sump	PSS-MOV-071	2	Yes	Yes	Yes/ Yes	Remote Manual	Transfer Closed	As Is
Containment isolation valve inside CV on post-accident liquid sample return to containment sump	PSS-VLV-072	2	Yes	No	— / —Yes	—	Transfer Closed	—
Containment isolation valve inside CV on gas sample from Pressurizer	PSS-AOV-003	2	Yes	Yes	Yes/Yes	Containment Isolation Phase A	Transfer Closed	Closed
Containment isolation valve inside CV on liquid sample from Pressurizer	PSS-MOV-006	2	Yes	Yes	Yes/Yes	Containment Isolation Phase A	Transfer Closed	As Is
Containment isolation valves inside CV on sample from Accumulator	PSS-AOV-062A,B,C,D	2	Yes	Yes	Yes /Yes	Containment Isolation Phase A	Transfer Closed	Closed
Containment isolation valve outside CV on sample from Accumulator	PSS-AOV-063	2	Yes	Yes	Yes /Yes	Containment Isolation Phase A	Transfer Closed	Closed

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DCD_03.11-62_S01

As of 10/16/2013

Note:

1. Dash (-) indicates not applicable.

2. Non-metallic parts having no failure modes under the specified environmental and service conditions that affect the safety function of the active mechanical equipment are excluded from qualification for harsh environment.

Tier 1

Insert "as described in ASME QME-1, Appendix QR-B" between "environment" and ".".

Revision-4

2.11 CONTAINMENT SYSTEMS

US-APWR Design Control Document

Table 2.11.2-1 Containment Isolation System Equipment Characteristics (Sheet 10 of 10)

System Name	Tag No.	ASME Code Section III Class	Seismic Category I	Remotely Operated Valve	Class 1E/ Qual. For Harsh Envir. ⁽²⁾	Safety-Related Display	PSMS Control	Active Safety Function	Loss of Motive Power Position
PSS	PSS-MOV-013,023	Refer to Table 2.7.6.7-1 and 2.7.6.7-4							
PSS	PSS-MOV-031A,B								
PSS	PSS-MOV-071								
PSS	PSS-VLV-072								
PSS	PSS-AOV-003								
PSS	PSS-MOV-006								
PSS	PSS-AOV-062A,B,C,D								
PSS	PSS-AOV-063								
CSS	CSS-MOV-001 A, B, C, D	Refer to Table 2.11.3-2 and 2.11.3-4							
CSS	CSS-MOV-004 A, B, C, D								
CSS	CSS-VLV-005 A, B, C, D								

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NOTE:

1. Dash (-) indicates not applicable.

2. Non-metallic parts having no failure modes under the specified environmental and service conditions that affect the safety function of the active mechanical equipment are excluded from qualification for harsh environment.

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Insert "as described in ASME QME-1, Appendix QR-B" between "environment" and ".".

2.11 CONTAINMENT SYSTEMS

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Table 2.11.3-2 Containment Spray System Equipment Characteristics

Equipment Name	Tag No.	ASME Code Section III Class	Seismic Category I	Remotely Operated Valve	Class 1E/Qual. For Harsh Envir. ⁽²⁾	PSMS Control	Active Safety Function	Loss of Motive Power Position
Containment Spray Nozzles	-	2	Yes	-	-/-	-	-	-
CS/RHR Pump RWSP Suction Isolation Valves	CSS-MOV-001 A, B, C, D	2	Yes	Yes	Yes/ Yes	Remote Manual	Transfer Closed	As Is
Containment Spray Header Containment Isolation Valves	CSS-MOV-004A, B, C, D	2	Yes	Yes	Yes/Yes	Containment Spray Actuation	Transfer Open	As Is
						Remote Manual with CS/RHR Valve Open Block Interlock	Transfer Closed	
Containment Spray Header Containment Isolation Check Valves	CSS-VLV-005A, B, C, D	2	Yes	-	-/Yes	-	Transfer Open/ Transfer Closed	-
Containment Spray Header Fire Water Supply Line Stop Valve	CSS-MOV-011	2	Yes	Yes	Yes/Yes/No	-	-	As Is
Containment Pressure	CSS-PT-010, 011, 012, 013	-	Yes	-	Yes/Yes	-	-	-
Containment Pressure	CSS-PT-014 (instrument line)	-	Yes	-	-/-	-	-	-
Containment Temperature	CSS-TE-020	-	Yes	-	Yes/Yes	-	-	-

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NOTE:

2.11 CONTAINMENT SYSTEMS

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1. Dash (-) indicates not applicable.

2. Non-metallic parts having no failure modes under the specified environmental and service conditions that affect the safety function of the active mechanical equipment are excluded from qualification for harsh environment.

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←
Insert "as described in ASME QME-1, Appendix QR-B" between "environment" and ".".

As of 10/16/2013