

  
**MITSUBISHI HEAVY INDUSTRIES, LTD.**  
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TOKYO, JAPAN

May 21, 2009

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

Attention: Mr. Jeffery A. Ciocco

Docket No. 52-021  
MHI Ref: UAP-HF-09251

**Subject:** Amended MHI's Responses to US-APWR DCD RAI No. 220-2058

**Reference:** 1) "Request for Additional Information No. 220-2058 Revision 1, SRP Section: 03.04.01 – Internal Flood Protection for Onsite Equipment Failures, Application Section: 3.4.1," dated 2/26/2009.  
2) "MHI's Responses to US-APWR DCD RAI No. 220-2058, UAP-HF-09152, dated 4/8/2009.

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. 220-2058, Revision 1."

Enclosed are the responses to the remaining 15 RAIs contained within Reference 1. Five additional RAI responses contained within Reference 1 were previously provided in Reference 2.

These responses amend the previously transmitted answers submitted under MHI Reference UAP-HF-09193 on April 23, 2009.

Please contact Dr. C. Keith Paulson, Senior Technical Manager, 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,  
General Manager- APWR Promoting Department  
Mitsubishi Heavy Industries, LTD.

Enclosure:

1. Responses to Request for Additional Information No. 220-2058, Revision 1

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CC: J. A. Ciocco  
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Contact Information

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Docket No. 52-021  
MHI Ref. UAP-HF-09251

Enclosure 1

UAP-HF-09251  
Docket No. 52-021

Responses to Request for Additional Information No. 220-2058,  
Revision 1

May, 2009

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**RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION**

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5/21/2009

**US-APWR Design Certification**

**Mitsubishi Heavy Industries**

**Docket No. 52-021**

**RAI NO.:** NO. 220-2058 REVISION 1  
**SRP SECTION:** 03.04.01 – Internal Flood Protection for Onsite Equipment  
Failures  
**APPLICATION SECTION:** 03.04.01  
**DATE OF RAI ISSUE:** 02/26/09

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**QUESTION NO. RAI 3.4.1-02:**

DCD Tier 1, Table 2.2-3, "Main Components Protected against External Floods, Internal Floods and Internal Fires," and DCD Tier 2, Sections 3.4.1.3 and 3.4.1.5.1 identify SSCs that require protection from internal flood according to specific buildings or building areas, including SSCs located inside the prestressed concrete containment vessel (PCCV). It is not clear that the DCD has identified a complete set of SSCs located inside the PCCV that must be protected from flood. For example, the DCD does not identify SSCs inside the PCCV that provide safety-related electrical power, monitoring, and actuation functions.

GDC 2 requires in part that "structures, systems, and components important to safety shall be designed to withstand the effects of natural phenomena such as ... floods ... without loss of capability to perform their safety functions." SRP Section 3.4.1, Acceptance Criteria 1 states that acceptable guidance for meeting the seismic design and classification requirements of GDC 2 is provided in Regulatory Guide (RG) 1.29, "Seismic Design Classification," Revision 4, March 2007, Position C.1 for safety-related SSCs and Position C.2 for nonsafety-related SSCs. For example, equipment required for monitoring and actuating systems important to safety should be protected as indicated in Position C.1 of RG 1.29, Item (k). Also, Class 1E electrical systems that provide emergency power for functioning of plant features should be protected as indicated in Position C.1 of RG 1.29, Item (q). In addition, per SRP 3.4.1, Item I.1, the set of SSCs that must be protected from flooding should be reviewed, and therefore, should be identified in the DCD.

Provide a complete list of SSCs located within the PCCV that require protection from internal flooding. Include this information in the DCD and provide a markup in your response.

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**ANSWER:**

A complete list of SSCs located within the PCCV that require protection from internal flooding, and the component's capability to perform their intended safety function in the event of flooding, will be provided in Table 3K-1 of new Appendix 3K to be incorporated in DCD.

**Impact on DCD**

See Attachment 1 for the mark-up of new Appendix 3K to be incorporated at the end of US-APWR DCD.

- Insert the following Table 3K-1 as the first table in new Appendix 3K:

**Table 3K-1 PCCV Components Protected From Internal Flooding  
(Sheet 1 of 23)**

Item No.	Equipment Tag	Description	Location					Flood Elevation above Floor [ft]	Notes
			Building	Side	Floor Elevation	Fire Zone No.	Location Elevation above Floor		
1	RCS-CTK-001	Reactor Vessel	PCCV	N/A	-9'-2"	FA1-103-03	below flood elevation	max. El. 25'-3"	1
2	RCS-CHX-001A	A-Steam Generator	PCCV	N/A	25'-3"	FA1-101-11	above flood elevation	max. El. 25'-3"	
3	RCS-CHX-001B	B-Steam Generator	PCCV	N/A	25'-3"	FA1-101-08	above flood elevation	max. El. 25'-3"	
4	RCS-CHX-001C	C-Steam Generator	PCCV	N/A	25'-3"	FA1-101-09	above flood elevation	max. El. 25'-3"	
5	RCS-CHX-001D	D-Steam Generator	PCCV	N/A	25'-3"	FA1-101-10	above flood elevation	max. El. 25'-3"	
6	RCS-CTK-002	Pressurizer	PCCV	N/A	58'-5"	FA1-101-21	above flood elevation	max. El. 25'-3"	
7	RCS-CPP-001A	A-Reactor Coolant Pump	PCCV	N/A	25'-3"	FA1-101-11	above flood elevation	max. El. 25'-3"	
8	RCS-CPP-001B	B-Reactor Coolant Pump	PCCV	N/A	25'-3"	FA1-101-08	above flood elevation	max. El. 25'-3"	
9	RCS-CPP-001C	C-Reactor Coolant Pump	PCCV	N/A	25'-3"	FA1-101-09	above flood elevation	max. El. 25'-3"	
10	RCS-CPP-001D	D-Reactor Coolant Pump	PCCV	N/A	25'-3"	FA1-101-10	above flood elevation	max. El. 25'-3"	
11	RCS-VLV-120	A-Pressurizer Safety Valve	PCCV	N/A	58'-5"	FA1-101-21	above flood elevation	max. El. 25'-3"	
12	RCS-VLV-121	B-Pressurizer Safety Valve	PCCV	N/A	58'-5"	FA1-101-21	above flood elevation	max. El. 25'-3"	
13	RCS-VLV-122	C-Pressurizer Safety Valve	PCCV	N/A	58'-5"	FA1-101-21	above flood elevation	max. El. 25'-3"	
14	RCS-VLV-123	D-Pressurizer Safety Valve	PCCV	N/A	58'-5"	FA1-101-21	above flood elevation	max. El. 25'-3"	
15	RCS-MOV-002A	Motor Operated Valve	PCCV	N/A	76'-5"	FA1-101-24	above flood elevation	max. El. 25'-3"	
16	RCS-MOV-002B	Motor Operated Valve	PCCV	N/A	76'-5"	FA1-101-24	above flood elevation	max. El. 25'-3"	
17	RCS-MOV-003A	Motor Operated Valve	PCCV	N/A	76'-5"	FA1-101-24	above flood elevation	max. El. 25'-3"	

**Table 3K-1 PCCV Components Protected From Internal Flooding  
(Sheet 2 of 23)**

Item No.	Equipment Tag	Description	Location				Flood Elevation above Floor [ft]	Notes	
			Building	Side	Floor Elevation	Fire Zone No.			Location Elevation above Floor
18	RCS-MOV-003B	Motor Operated Valve	PCCV	N/A	76'-5"	FA1-101-24	above flood elevation	max. El. 25'-3"	
19	RCS-MOV-111A	Motor Operated Valve	PCCV	N/A	50'-2"	FA1-101-15	above flood elevation	max. El. 25'-3"	
20	RCS-MOV-111B	Motor Operated Valve	PCCV	N/A	50'-2"	FA1-101-16	above flood elevation	max. El. 25'-3"	
21	RCS-MOV-116A	Motor Operated Valve	PCCV	N/A	58'-5"	FA1-101-21	above flood elevation	max. El. 25'-3"	
22	RCS-MOV-116B	Motor Operated Valve	PCCV	N/A	58'-5"	FA1-101-21	above flood elevation	max. El. 25'-3"	
23	RCS-MOV-117A	A-Safety Depressurization Valve	PCCV	N/A	58'-5"	FA1-101-21	above flood elevation	max. El. 25'-3"	
24	RCS-MOV-117B	B-Safety Depressurization Valve	PCCV	N/A	58'-5"	FA1-101-21	above flood elevation	max. El. 25'-3"	
25	RCS-MOV-118	Motor Operated Valve	PCCV	N/A	58'-5"	FA1-101-21	above flood elevation	max. El. 25'-3"	
26	RCS-MOV-119	Depressurization Valve	PCCV	N/A	58'-5"	FA1-101-21	above flood elevation	max. El. 25'-3"	
27	RCS-PCV-451A	A-Pressurizer Spray Valve	PCCV	N/A	50'-2"	FA1-101-15	above flood elevation	max. El. 25'-3"	
28	RCS-PCV-451B	B-Pressurizer Spray Valve	PCCV	N/A	50'-2"	FA1-101-16	above flood elevation	max. El. 25'-3"	
29	RCS-AOV-147	Air Operated Valve	PCCV	N/A	25'-3"	FA1-101-06	above flood elevation	max. El. 25'-3"	
30	CVS-MOV-203	Motor Operated Valve	PCCV	N/A	25'-3"	FA1-101-06	above flood elevation	max. El. 25'-3"	
31	CVS-AOV-005	Air Operated Valve	PCCV	N/A	25'-3"	FA1-101-06	above flood elevation	max. El. 25'-3"	
32	CVS-AOV-155	Air Operated Valve	PCCV	N/A	25'-3"	FA1-101-09	above flood elevation	max. El. 25'-3"	
33	CVS-AOV-159	Air Operated Valve	PCCV	N/A	50'-2"	FA1-101-20	above flood elevation	max. El. 25'-3"	
34	CVS-LCV-451	Level Control Valve	PCCV	N/A	25'-3"	FA1-101-10	above flood elevation	max. El. 25'-3"	

**Table 3K-1 PCCV Components Protected From Internal Flooding  
(Sheet 3 of 23)**

Item No.	Equipment Tag	Description	Location				Flood Elevation above Floor [ft]	Notes	
			Building	Side	Floor Elevation	Fire Zone No.			Location Elevation above Floor
35	CVS-LCV-452	Level Control Valve	PCCV	N/A	25'-3"	FA1-101-10	above flood elevation	max. El. 25'-3"	
36	CVS-AOV-192A	Air Operated Valve	PCCV	N/A	25'-3"	FA1-101-11	above flood elevation	max. El. 25'-3"	
37	CVS-AOV-192B	Air Operated Valve	PCCV	N/A	25'-3"	FA1-101-08	above flood elevation	max. El. 25'-3"	
38	CVS-AOV-221	Air Operated Valve	PCCV	N/A	25'-3"	FA1-101-11	above flood elevation	max. El. 25'-3"	
39	CVS-AOV-222	Air Operated Valve	PCCV	N/A	25'-3"	FA1-101-11	above flood elevation	max. El. 25'-3"	
40	CVS-AOV-192C	Air Operated Valve	PCCV	N/A	25'-3"	FA1-101-09	above flood elevation	max. El. 25'-3"	
41	CVS-AOV-192D	Air Operated Valve	PCCV	N/A	25'-3"	FA1-101-10	above flood elevation	max. El. 25'-3"	
42	CVS-AOV-196A	Air Operated Valve	PCCV	N/A	25'-3"	FA1-101-11	above flood elevation	max. El. 25'-3"	
43	CVS-AOV-196B	Air Operated Valve	PCCV	N/A	25'-3"	FA1-101-08	above flood elevation	max. El. 25'-3"	
44	CVS-AOV-196C	Air Operated Valve	PCCV	N/A	25'-3"	FA1-101-09	above flood elevation	max. El. 25'-3"	
45	CVS-AOV-196D	Air Operated Valve	PCCV	N/A	25'-3"	FA1-101-10	above flood elevation	max. El. 25'-3"	
46	SIS-CTK-001A	A-Accumulator	PCCV	N/A	25'-3"	FA1-101-07	above flood elevation	max. El. 25'-3"	
47	SIS-CTK-001B	B-Accumulator	PCCV	N/A	25'-3"	FA1-101-04	above flood elevation	max. El. 25'-3"	
48	SIS-CTK-001C	C-Accumulator	PCCV	N/A	25'-3"	FA1-101-05	above flood elevation	max. El. 25'-3"	
49	SIS-CTK-001D	D-Accumulator	PCCV	N/A	25'-3"	FA1-101-06	above flood elevation	max. El. 25'-3"	
50	SIS-MOV-011A	Motor Operated Valve	PCCV	N/A	25'-3"	FA1-101-07	above flood elevation	max. El. 25'-3"	
51	SIS-MOV-011B	Motor Operated Valve	PCCV	N/A	25'-3"	FA1-101-04	above flood elevation	max. El. 25'-3"	



**Table 3K-1 PCCV Components Protected From Internal Flooding  
(Sheet 4 of 23)**

Item No.	Equipment Tag	Description	Location					Flood Elevation above Floor [ft]	Notes
			Building	Side	Floor Elevation	Fire Zone No.	Location Elevation above Floor		
52	SIS-MOV-014A	Motor Operated Valve	PCCV	N/A	25'-3"	FA1-101-07	above flood elevation	max. El. 25'-3"	
53	SIS-MOV-014B	Motor Operated Valve	PCCV	N/A	25'-3"	FA1-101-04	above flood elevation	max. El. 25'-3"	
54	SIS-MOV-031B	Motor Operated Valve	PCCV	N/A	25'-3"	FA1-101-08	above flood elevation	max. El. 25'-3"	
55	SIS-MOV-032B	Motor Operated Valve	PCCV	N/A	25'-3"	FA1-101-08	above flood elevation	max. El. 25'-3"	
56	SIS-MOV-011C	Motor Operated Valve	PCCV	N/A	25'-3"	FA1-101-05	above flood elevation	max. El. 25'-3"	
57	SIS-MOV-011D	Motor Operated Valve	PCCV	N/A	25'-3"	FA1-101-06	above flood elevation	max. El. 25'-3"	
58	SIS-MOV-014C	Motor Operated Valve	PCCV	N/A	25'-3"	FA1-101-05	above flood elevation	max. El. 25'-3"	
59	SIS-MOV-014D	Motor Operated Valve	PCCV	N/A	25'-3"	FA1-101-06	above flood elevation	max. El. 25'-3"	
60	SIS-MOV-024A	Motor Operated Valve	PCCV	N/A	25'-3"	FA1-101-07	above flood elevation	max. El. 25'-3"	
61	SIS-MOV-024B	Motor Operated Valve	PCCV	N/A	25'-3"	FA1-101-04	above flood elevation	max. El. 25'-3"	
62	SIS-MOV-024C	Motor Operated Valve	PCCV	N/A	25'-3"	FA1-101-05	above flood elevation	max. El. 25'-3"	
63	SIS-MOV-024D	Motor Operated Valve	PCCV	N/A	25'-3"	FA1-101-06	above flood elevation	max. El. 25'-3"	
64	SIS-MOV-031D	Motor Operated Valve	PCCV	N/A	25'-3"	FA1-101-10	above flood elevation	max. El. 25'-3"	
65	SIS-MOV-032D	Motor Operated Valve	PCCV	N/A	25'-3"	FA1-101-10	above flood elevation	max. El. 25'-3"	
66	SIS-MOV-121A	Motor Operated Valve	PCCV	N/A	50'-2"	FA1-101-17	above flood elevation	max. El. 25'-3"	
67	SIS-MOV-121B	Motor Operated Valve	PCCV	N/A	50'-2"	FA1-101-17	above flood elevation	max. El. 25'-3"	
68	SIS-MOV-125A	Motor Operated Valve	PCCV	N/A	50'-2"	FA1-101-18	above flood elevation	max. El. 25'-3"	

**Table 3K-1 PCCV Components Protected From Internal Flooding  
(Sheet 5 of 23)**

Item No.	Equipment Tag	Description	Location					Flood Elevation above Floor [ft]	Notes
			Building	Side	Floor Elevation	Fire Zone No.	Location Elevation above Floor		
69	SIS-MOV-125B	Motor Operated Valve	PCCV	N/A	50'-2"	FA1-101-15	above flood elevation	max. El. 25'-3"	
70	SIS-MOV-125C	Motor Operated Valve	PCCV	N/A	50'-2"	FA1-101-16	above flood elevation	max. El. 25'-3"	
71	SIS-MOV-125D	Motor Operated Valve	PCCV	N/A	50'-2"	FA1-101-17	above flood elevation	max. El. 25'-3"	
72	SIS-MOV-101A	Motor Operated Valve	PCCV	N/A	25'-3"	FA1-101-07	above flood elevation	max. El. 25'-3"	
73	SIS-MOV-101B	Motor Operated Valve	PCCV	N/A	25'-3"	FA1-101-04	above flood elevation	max. El. 25'-3"	
74	SIS-MOV-101C	Motor Operated Valve	PCCV	N/A	25'-3"	FA1-101-05	above flood elevation	max. El. 25'-3"	
75	SIS-MOV-101D	Motor Operated Valve	PCCV	N/A	25'-3"	FA1-101-06	above flood elevation	max. El. 25'-3"	
76	SIS-VLV-116	Safety Valve	PCCV	N/A	25'-3"	FA1-101-04	above flood elevation	max. El. 25'-3"	
77	SIS-VLV-126A	Safety Valve	PCCV	N/A	50'-2"	FA1-101-18	above flood elevation	max. El. 25'-3"	
78	SIS-VLV-126B	Safety Valve	PCCV	N/A	50'-2"	FA1-101-15	above flood elevation	max. El. 25'-3"	
79	SIS-VLV-126C	Safety Valve	PCCV	N/A	50'-2"	FA1-101-16	above flood elevation	max. El. 25'-3"	
80	SIS-VLV-126D	Safety Valve	PCCV	N/A	50'-2"	FA1-101-17	above flood elevation	max. El. 25'-3"	
81	SIS-HCV-917	Air Operated Valve	PCCV	N/A	50'-2"	FA1-101-17	above flood elevation	max. El. 25'-3"	
82	SIS-AOV-215A	Air Operated Valve	PCCV	N/A	25'-3"	FA1-101-07	above flood elevation	max. El. 25'-3"	
83	SIS-AOV-215B	Air Operated Valve	PCCV	N/A	25'-3"	FA1-101-04	above flood elevation	max. El. 25'-3"	
84	SIS-AOV-215C	Air Operated Valve	PCCV	N/A	25'-3"	FA1-101-05	above flood elevation	max. El. 25'-3"	
85	SIS-AOV-215D	Air Operated Valve	PCCV	N/A	25'-3"	FA1-101-06	above flood elevation	max. El. 25'-3"	

**Table 3K-1 PCCV Components Protected From Internal Flooding  
(Sheet 6 of 23)**

Item No.	Equipment Tag	Description	Location				Flood Elevation above Floor [ft]	Notes	
			Building	Side	Floor Elevation	Fire Zone No.			Location Elevation above Floor
86	SIS-AOV-201B	Air Operated Valve	PCCV	N/A	25'-3"	FA1-101-05	above flood elevation	max. El. 25'-3"	
87	SIS-AOV-201C	Air Operated Valve	PCCV	N/A	25'-3"	FA1-101-05	above flood elevation	max. El. 25'-3"	
88	RHS-MOV-001A	Motor Operated Valve	PCCV	N/A	25'-3"	FA1-101-11	above flood elevation	max. El. 25'-3"	
89	RHS-MOV-001B	Motor Operated Valve	PCCV	N/A	25'-3"	FA1-101-08	above flood elevation	max. El. 25'-3"	
90	RHS-MOV-002A	Motor Operated Valve	PCCV	N/A	25'-3"	FA1-101-07	above flood elevation	max. El. 25'-3"	
91	RHS-MOV-002B	Motor Operated Valve	PCCV	N/A	25'-3"	FA1-101-04	above flood elevation	max. El. 25'-3"	
92	RHS-MOV-025A	Motor Operated Valve	PCCV	N/A	25'-3"	FA1-101-07	above flood elevation	max. El. 25'-3"	
93	RHS-MOV-025B	Motor Operated Valve	PCCV	N/A	25'-3"	FA1-101-04	above flood elevation	max. El. 25'-3"	
94	RHS-MOV-026A	Motor Operated Valve	PCCV	N/A	25'-3"	FA1-101-07	above flood elevation	max. El. 25'-3"	
95	RHS-MOV-026B	Motor Operated Valve	PCCV	N/A	25'-3"	FA1-101-04	above flood elevation	max. El. 25'-3"	
96	RHS-AOV-024A	Air Operated Valve	PCCV	N/A	25'-3"	FA1-101-07	above flood elevation	max. El. 25'-3"	
97	RHS-MOV-001C	Motor Operated Valve	PCCV	N/A	25'-3"	FA1-101-09	above flood elevation	max. El. 25'-3"	
98	RHS-MOV-001D	Motor Operated Valve	PCCV	N/A	25'-3"	FA1-101-10	above flood elevation	max. El. 25'-3"	
99	RHS-MOV-002C	Motor Operated Valve	PCCV	N/A	25'-3"	FA1-101-05	above flood elevation	max. El. 25'-3"	
100	RHS-MOV-002D	Motor Operated Valve	PCCV	N/A	25'-3"	FA1-101-06	above flood elevation	max. El. 25'-3"	
101	RHS-MOV-025C	Motor Operated Valve	PCCV	N/A	25'-3"	FA1-101-05	above flood elevation	max. El. 25'-3"	
102	RHS-MOV-025D	Motor Operated Valve	PCCV	N/A	25'-3"	FA1-101-06	above flood elevation	max. El. 25'-3"	

**Table 3K-1 PCCV Components Protected From Internal Flooding  
(Sheet 7 of 23)**

Item No.	Equipment Tag	Description	Location				Flood Elevation above Floor [ft]	Notes
			Building	Side	Floor Elevation	Fire Zone No.		
103	RHS-MOV-026C	Motor Operated Valve	PCCV	N/A	25'-3"	FA1-101-05	above flood elevation	max. El. 25'-3"
104	RHS-MOV-026D	Motor Operated Valve	PCCV	N/A	25'-3"	FA1-101-06	above flood elevation	max. El. 25'-3"
105	RHS-AOV-024D	Air Operated Valve	PCCV	N/A	25'-3"	FA1-101-06	above flood elevation	max. El. 25'-3"
106	RHS-VLV-003A	Safety Valve	PCCV	N/A	25'-3"	FA1-101-07	above flood elevation	max. El. 25'-3"
107	RHS-VLV-003B	Safety Valve	PCCV	N/A	25'-3"	FA1-101-04	above flood elevation	max. El. 25'-3"
108	RHS-VLV-003C	Safety Valve	PCCV	N/A	25'-3"	FA1-101-05	above flood elevation	max. El. 25'-3"
109	RHS-VLV-003D	Safety Valve	PCCV	N/A	25'-3"	FA1-101-06	above flood elevation	max. El. 25'-3"
110	RHS-VLV-023A	Safety Valve	PCCV	N/A	25'-3"	FA1-101-07	above flood elevation	max. El. 25'-3"
111	RHS-VLV-023B	Safety Valve	PCCV	N/A	25'-3"	FA1-101-04	above flood elevation	max. El. 25'-3"
112	RHS-VLV-023C	Safety Valve	PCCV	N/A	25'-3"	FA1-101-05	above flood elevation	max. El. 25'-3"
113	RHS-VLV-023D	Safety Valve	PCCV	N/A	25'-3"	FA1-101-06	above flood elevation	max. El. 25'-3"
114	CSS-COT-001	Spray Nozzle	PCCV	N/A	76'-5"	FA1-101-26	above flood elevation	max. El. 25'-3"
115	CSS-COT-001	Spray Nozzle	PCCV	N/A	76'-5"	FA1-101-23	above flood elevation	max. El. 25'-3"
116	CSS-COT-001	Spray Nozzle	PCCV	N/A	76'-5"	FA1-101-24	above flood elevation	max. El. 25'-3"
117	CSS-COT-001	Spray Nozzle	PCCV	N/A	76'-5"	FA1-101-25	above flood elevation	max. El. 25'-3"
118	NCS-MOV-436B	Motor Operated Valve	PCCV	N/A	25'-3"	FA1-101-05	above flood elevation	max. El. 25'-3"
119	NCS-VLV-406A	Safety Valve	PCCV	N/A	25'-3"	FA1-101-07	above flood elevation	max. El. 25'-3"

**Table 3K-1 PCCV Components Protected From Internal Flooding  
(Sheet 8 of 23)**

Item No.	Equipment Tag	Description	Location				Flood Elevation above Floor [ft]	Notes	
			Building	Side	Floor Elevation	Fire Zone No.			Location Elevation above Floor
120	NCS-VLV-406B	Safety Valve	PCCV	N/A	25'-3"	FA1-101-04	above flood elevation	max. El. 25'-3"	
121	NCS-VLV-406C	Safety Valve	PCCV	N/A	25'-3"	FA1-101-05	above flood elevation	max. El. 25'-3"	
122	NCS-VLV-406D	Safety Valve	PCCV	N/A	25'-3"	FA1-101-06	above flood elevation	max. El. 25'-3"	
123	NCS-VLV-435A	Safety Valve	PCCV	N/A	25'-3"	FA1-101-04	above flood elevation	max. El. 25'-3"	
124	NCS-VLV-435B	Safety Valve	PCCV	N/A	25'-3"	FA1-101-05	above flood elevation	max. El. 25'-3"	
125	NCS-MOV-436A	Motor Operated Valve	PCCV	N/A	25'-3"	FA1-101-04	above flood elevation	max. El. 25'-3"	
126	NCS-FCV-1321A	Flow Control Valve	PCCV	N/A	25'-3"	FA1-101-05	above flood elevation	max. El. 25'-3"	
127	NCS-FCV-1321B	Flow Control Valve	PCCV	N/A	25'-3"	FA1-101-05	above flood elevation	max. El. 25'-3"	
128	NCS-TCV-103	Temperature Control Valve	PCCV	N/A	50'-2"	FA1-101-16	above flood elevation	max. El. 25'-3"	
129	NCS-FCV-1319A	Flow Control Valve	PCCV	N/A	25'-3"	FA1-101-07	above flood elevation	max. El. 25'-3"	
130	NCS-FCV-1319B	Flow Control Valve	PCCV	N/A	25'-3"	FA1-101-07	above flood elevation	max. El. 25'-3"	
131	NCS-MOV-446A	Motor Operated Valve	PCCV	N/A	50'-2"	FA1-101-18	above flood elevation	max. El. 25'-3"	
132	NCS-MOV-446B	Motor Operated Valve	PCCV	N/A	50'-2"	FA1-101-15	above flood elevation	max. El. 25'-3"	
133	NCS-MOV-446C	Motor Operated Valve	PCCV	N/A	50'-2"	FA1-101-16	above flood elevation	max. El. 25'-3"	
134	NCS-MOV-446D	Motor Operated Valve	PCCV	N/A	50'-2"	FA1-101-17	above flood elevation	max. El. 25'-3"	
135	NCS-MOV-447A	Motor Operated Valve	PCCV	N/A	25'-3"	FA1-101-04	above flood elevation	max. El. 25'-3"	
136	NCS-MOV-447B	Motor Operated Valve	PCCV	N/A	25'-3"	FA1-101-05	above flood elevation	max. El. 25'-3"	

**Table 3K-1 PCCV Components Protected From Internal Flooding  
(Sheet 9 of 23)**

Item No.	Equipment Tag	Description	Location					Flood Elevation above Floor [ft]	Notes
			Building	Side	Floor Elevation	Fire Zone No.	Location Elevation above Floor		
137	NCS-FCV-1320A	Flow Control Valve	PCCV	N/A	25'-3"	FA1-101-04	above flood elevation	max. El. 25'-3"	
138	NCS-FCV-1320B	Flow Control Valve	PCCV	N/A	25'-3"	FA1-101-04	above flood elevation	max. El. 25'-3"	
139	NCS-FCV-1322A	Flow Control Valve	PCCV	N/A	25'-3"	FA1-101-06	above flood elevation	max. El. 25'-3"	
140	NCS-FCV-1322B	Flow Control Valve	PCCV	N/A	25'-3"	FA1-101-06	above flood elevation	max. El. 25'-3"	
141	NCS-VLV-513	Safety Valve	PCCV	N/A	50'-2"	FA1-101-18	above flood elevation	max. El. 25'-3"	
142	NCS-VLV-533	Safety Valve	PCCV	N/A	50'-2"	FA1-101-16	above flood elevation	max. El. 25'-3"	
143	LMS-AOV-052	Air Operated Valve	PCCV	N/A	25'-3"	FA1-101-06	above flood elevation	max. El. 25'-3"	
144	LMS-AOV-055	Air Operated Valve	PCCV	N/A	25'-3"	FA1-101-06	above flood elevation	max. El. 25'-3"	
145	LMS-LCV-1000A	Level Control Valve	PCCV	N/A	25'-3"	FA1-101-07	above flood elevation	max. El. 25'-3"	
146	LMS-AOV-104	Air Operated Valve	PCCV	N/A	25'-3"	FA1-101-07	above flood elevation	max. El. 25'-3"	
147	PSS-AOV-003	Air Operated Valve	PCCV	N/A	25'-3"	FA1-101-05	above flood elevation	max. El. 25'-3"	
148	PSS-MOV-006	Motor Operated Valve	PCCV	N/A	25'-3"	FA1-101-05	above flood elevation	max. El. 25'-3"	
149	PSS-MOV-013	Motor Operated Valve	PCCV	N/A	25'-3"	FA1-101-06	above flood elevation	max. El. 25'-3"	
150	PSS-MOV-023	Motor Operated Valve	PCCV	N/A	25'-3"	FA1-101-06	above flood elevation	max. El. 25'-3"	
151	PSS-AOV-062A	Air Operated Valve	PCCV	N/A	25'-3"	FA1-101-05	above flood elevation	max. El. 25'-3"	
152	PSS-AOV-062B	Air Operated Valve	PCCV	N/A	25'-3"	FA1-101-06	above flood elevation	max. El. 25'-3"	
153	PSS-AOV-062C	Air Operated Valve	PCCV	N/A	25'-3"	FA1-101-06	above flood elevation	max. El. 25'-3"	

**Table 3K-1 PCCV Components Protected From Internal Flooding  
(Sheet 10 of 23)**

Item No.	Equipment Tag	Description	Location					Flood Elevation above Floor [ft]	Notes
			Building	Side	Floor Elevation	Fire Zone No.	Location Elevation above Floor		
154	PSS-AOV-062D	Air Operated Valve	PCCV	N/A	25'-3"	FA1-101-06	above flood elevation	max. El. 25'-3"	
155	RWS-CPT-001	Refueling Water Storage Pit	PCCV	N/A	3'-7"	-	0	max. El. 25'-3"	2
156	RWS-MOV-002	Motor Operated Valve	PCCV	N/A	9'-6"	FA1-101-01	above flood elevation	max. El. 25'-3"	
157	RMS-MOV-001	Motor Operated Valve	PCCV	N/A	25'-3"	FA1-101-06	above flood elevation	max. El. 25'-3"	
158	VCS-AOV-305	Air Operated Valve	PCCV	N/A	76'-5"	FA1-101-23	above flood elevation	max. El. 25'-3"	
159	VCS-AOV-306	Air Operated Valve	PCCV	N/A	76'-5"	FA1-101-25	above flood elevation	max. El. 25'-3"	
160	VCS-AOV-355	Air Operated Valve	PCCV	N/A	76'-5"	FA1-101-23	above flood elevation	max. El. 25'-3"	
161	VCS-AOV-356	Air Operated Valve	PCCV	N/A	76'-5"	FA1-101-25	above flood elevation	max. El. 25'-3"	
162	VWS-VLV-405	Safety Valve	PCCV	N/A	76'-5"	FA1-101-25	above flood elevation	max. El. 25'-3"	
163	VWS-MOV-411A	Motor Operated Valve	PCCV	N/A	76'-5"	FA1-101-26	above flood elevation	max. El. 25'-3"	
164	VWS-MOV-411B	Motor Operated Valve	PCCV	N/A	76'-5"	FA1-101-23	above flood elevation	max. El. 25'-3"	
165	VWS-MOV-411C	Motor Operated Valve	PCCV	N/A	76'-5"	FA1-101-24	above flood elevation	max. El. 25'-3"	
166	VWS-MOV-411D	Motor Operated Valve	PCCV	N/A	76'-5"	FA1-101-25	above flood elevation	max. El. 25'-3"	
167	VWS-TCV-412A	Chilled Water Control Valve	PCCV	N/A	76'-5"	FA1-101-26	above flood elevation	max. El. 25'-3"	
168	VWS-TCV-412B	Chilled Water Control Valve	PCCV	N/A	76'-5"	FA1-101-23	above flood elevation	max. El. 25'-3"	
169	VWS-TCV-412C	Chilled Water Control Valve	PCCV	N/A	76'-5"	FA1-101-24	above flood elevation	max. El. 25'-3"	
170	VWS-TCV-412D	Chilled Water Control Valve	PCCV	N/A	76'-5"	FA1-101-25	above flood elevation	max. El. 25'-3"	

**Table 3K-1 PCCV Components Protected From Internal Flooding  
(Sheet 11 of 23)**

Item No.	Equipment Tag	Description	Location					Flood Elevation above Floor [ft]	Notes
			Building	Side	Floor Elevation	Fire Zone No.	Location Elevation above Floor		
171	VWS-MOV-414	Motor Operated Valve	PCCV	N/A	76'-5"	FA1-101-24	above flood elevation	max. El. 25'-3"	
172		Containment Electrical Penetration	PCCV	N/A	50'-2"	FA1-101-18	above flood elevation	max. El. 25'-3"	
173		Containment Electrical Penetration	PCCV	N/A	50'-2"	FA1-101-15	above flood elevation	max. El. 25'-3"	
174		Containment Electrical Penetration	PCCV	N/A	50'-2"	FA1-101-16	above flood elevation	max. El. 25'-3"	
175		Containment Electrical Penetration	PCCV	N/A	50'-2"	FA1-101-17	above flood elevation	max. El. 25'-3"	
176		Containment Electrical Penetration	PCCV	N/A	76'-5"	FA1-101-23	above flood elevation	max. El. 25'-3"	
177		Containment Electrical Penetration	PCCV	N/A	76'-5"	FA1-101-24	above flood elevation	max. El. 25'-3"	
178	RCS-FT-412	Loop A - Reactor Coolant Flow	PCCV	N/A	25'-3"	FA1-101-07	above flood elevation	max. El. 25'-3"	
179	RCS-FT-413	Loop A - Reactor Coolant Flow	PCCV	N/A	25'-3"	FA1-101-07	above flood elevation	max. El. 25'-3"	
180	RCS-FT-414	Loop A - Reactor Coolant Flow	PCCV	N/A	25'-3"	FA1-101-07	above flood elevation	max. El. 25'-3"	
181	RCS-FT-415	Loop A - Reactor Coolant Flow	PCCV	N/A	25'-3"	FA1-101-07	above flood elevation	max. El. 25'-3"	
182	RCS-FT-422	Loop B - Reactor Coolant Flow	PCCV	N/A	25'-3"	FA1-101-04	above flood elevation	max. El. 25'-3"	
183	RCS-FT-423	Loop B - Reactor Coolant Flow	PCCV	N/A	25'-3"	FA1-101-04	above flood elevation	max. El. 25'-3"	
184	RCS-FT-424	Loop B - Reactor Coolant Flow	PCCV	N/A	25'-3"	FA1-101-04	above flood elevation	max. El. 25'-3"	
185	RCS-FT-425	Loop B - Reactor Coolant Flow	PCCV	N/A	25'-3"	FA1-101-04	above flood elevation	max. El. 25'-3"	
186	RCS-FT-432	Loop C - Reactor Coolant Flow	PCCV	N/A	25'-3"	FA1-101-05	above flood elevation	max. El. 25'-3"	
187	RCS-FT-433	Loop C - Reactor Coolant Flow	PCCV	N/A	25'-3"	FA1-101-05	above flood elevation	max. El. 25'-3"	



**Table 3K-1 PCCV Components Protected From Internal Flooding  
(Sheet 12 of 23)**

Item No.	Equipment Tag	Description	Location					Flood Elevation above Floor [ft]	Notes
			Building	Side	Floor Elevation	Fire Zone No.	Location Elevation above Floor		
188	RCS-FT-434	Loop C - Reactor Coolant Flow	PCCV	N/A	25'-3"	FA1-101-05	above flood elevation	max. El. 25'-3"	
189	RCS-FT-435	Loop C - Reactor Coolant Flow	PCCV	N/A	25'-3"	FA1-101-05	above flood elevation	max. El. 25'-3"	
190	RCS-FT-442	Loop D - Reactor Coolant Flow	PCCV	N/A	25'-3"	FA1-101-06	above flood elevation	max. El. 25'-3"	
191	RCS-FT-443	Loop D - Reactor Coolant Flow	PCCV	N/A	25'-3"	FA1-101-06	above flood elevation	max. El. 25'-3"	
192	RCS-FT-444	Loop D - Reactor Coolant Flow	PCCV	N/A	25'-3"	FA1-101-06	above flood elevation	max. El. 25'-3"	
193	RCS-FT-445	Loop D - Reactor Coolant Flow	PCCV	N/A	25'-3"	FA1-101-06	above flood elevation	max. El. 25'-3"	
194	RCS-LT-451	Pressurizer Water Level	PCCV	N/A	50'-2"	FA1-101-16	above flood elevation	max. El. 25'-3"	
195	RCS-LT-452	Pressurizer Water Level	PCCV	N/A	50'-2"	FA1-101-16	above flood elevation	max. El. 25'-3"	
196	RCS-LT-453	Pressurizer Water Level	PCCV	N/A	50'-2"	FA1-101-15	above flood elevation	max. El. 25'-3"	
197	RCS-LT-454	Pressurizer Water Level	PCCV	N/A	50'-2"	FA1-101-15	above flood elevation	max. El. 25'-3"	
198	RCS-PT-410	Loop A - Reactor Coolant Pressure	PCCV	N/A	25'-3"	FA1-101-07	above flood elevation	max. El. 25'-3"	
199	RCS-PT-420	Loop B - Reactor Coolant Pressure	PCCV	N/A	25'-3"	FA1-101-04	above flood elevation	max. El. 25'-3"	
200	RCS-PT-430	Loop C - Reactor Coolant Pressure	PCCV	N/A	25'-3"	FA1-101-05	above flood elevation	max. El. 25'-3"	
201	RCS-PT-440	Loop D - Reactor Coolant Pressure	PCCV	N/A	25'-3"	FA1-101-06	above flood elevation	max. El. 25'-3"	
202	RCS-PT-451	Pressurizer Pressure	PCCV	N/A	76'-5"	FA1-101-24	above flood elevation	max. El. 25'-3"	
203	RCS-PT-452	Pressurizer Pressure	PCCV	N/A	76'-5"	FA1-101-24	above flood elevation	max. El. 25'-3"	
204	RCS-PT-453	Pressurizer Pressure	PCCV	N/A	76'-5"	FA1-101-24	above flood elevation	max. El. 25'-3"	

**Table 3K-1 PCCV Components Protected From Internal Flooding  
(Sheet 13 of 23)**

Item No.	Equipment Tag	Description	Location				Flood Elevation above Floor [ft]	Notes	
			Building	Side	Floor Elevation	Fire Zone No.			Location Elevation above Floor
205	RCS-PT-454	Pressurizer Pressure	PCCV	N/A	76'-5"	FA1-101-24	above flood elevation	max. El. 25'-3"	
206	SIS-FT-972	A - Safety Injection Pump Minimum Flow	PCCV	N/A	25'-3"	FA1-101-07	above flood elevation	max. El. 25'-3"	
207	SIS-FT-973	B - Safety Injection Pump Minimum Flow	PCCV	N/A	25'-3"	FA1-101-04	above flood elevation	max. El. 25'-3"	
208	SIS-FT-974	C - Safety Injection Pump Minimum Flow	PCCV	N/A	25'-3"	FA1-101-05	above flood elevation	max. El. 25'-3"	
209	SIS-FT-975	D - Safety Injection Pump Minimum Flow	PCCV	N/A	25'-3"	FA1-101-06	above flood elevation	max. El. 25'-3"	
210	SIS-LT-910	A - Accumulator Water Level	PCCV	N/A	25'-3"	FA1-101-07	above flood elevation	max. El. 25'-3"	
211	SIS-LT-920	B - Accumulator Water Level	PCCV	N/A	25'-3"	FA1-101-04	above flood elevation	max. El. 25'-3"	
212	SIS-LT-930	C - Accumulator Water Level	PCCV	N/A	25'-3"	FA1-101-05	above flood elevation	max. El. 25'-3"	
213	SIS-LT-940	D - Accumulator Water Level	PCCV	N/A	25'-3"	FA1-101-06	above flood elevation	max. El. 25'-3"	
214	SIS-PT-910	A - Accumulator Pressure	PCCV	N/A	25'-3"	FA1-101-07	above flood elevation	max. El. 25'-3"	
215	SIS-PT-920	B - Accumulator Pressure	PCCV	N/A	25'-3"	FA1-101-04	above flood elevation	max. El. 25'-3"	
216	SIS-PT-930	C - Accumulator Pressure	PCCV	N/A	25'-3"	FA1-101-05	above flood elevation	max. El. 25'-3"	
217	SIS-PT-940	D - Accumulator Pressure	PCCV	N/A	25'-3"	FA1-101-06	above flood elevation	max. El. 25'-3"	
218	NFS-LT-460	A - Steam Generator Water Level (Narrow Range)	PCCV	N/A	76'-5"	FA1-101-26	above flood elevation	max. El. 25'-3"	
219	NFS-LT-461	A - Steam Generator Water Level (Narrow Range)	PCCV	N/A	76'-5"	FA1-101-26	above flood elevation	max. El. 25'-3"	

**Table 3K-1 PCCV Components Protected From Internal Flooding  
(Sheet 14 of 23)**

Item No.	Equipment Tag	Description	Location					Flood Elevation above Floor [ft]	Notes
			Building	Side	Floor Elevation	Fire Zone No.	Location Elevation above Floor		
220	NFS-LT-462	A - Steam Generator Water Level (Narrow Range)	PCCV	N/A	76'-5"	FA1-101-26	above flood elevation	max. El. 25'-3"	
221	NFS-LT-463	A - Steam Generator Water Level (Narrow Range)	PCCV	N/A	76'-5"	FA1-101-26	above flood elevation	max. El. 25'-3"	
222	NFS-LT-464	A - Steam Generator Water Level (Wide Range)	PCCV	N/A	76'-5"	FA1-101-26	above flood elevation	max. El. 25'-3"	
223	NFS-LT-470	B - Steam Generator Water Level (Narrow Range)	PCCV	N/A	76'-5"	FA1-101-23	above flood elevation	max. El. 25'-3"	
224	NFS-LT-471	B - Steam Generator Water Level (Narrow Range)	PCCV	N/A	76'-5"	FA1-101-23	above flood elevation	max. El. 25'-3"	
225	NFS-LT-472	B - Steam Generator Water Level (Narrow Range)	PCCV	N/A	76'-5"	FA1-101-23	above flood elevation	max. El. 25'-3"	
226	NFS-LT-473	B - Steam Generator Water Level (Narrow Range)	PCCV	N/A	76'-5"	FA1-101-23	above flood elevation	max. El. 25'-3"	
227	NFS-LT-474	B - Steam Generator Water Level (Wide Range)	PCCV	N/A	76'-5"	FA1-101-23	above flood elevation	max. El. 25'-3"	
228	NFS-LT-480	C - Steam Generator Water Level (Narrow Range)	PCCV	N/A	76'-5"	FA1-101-24	above flood elevation	max. El. 25'-3"	
229	NFS-LT-481	C - Steam Generator Water Level (Narrow Range)	PCCV	N/A	76'-5"	FA1-101-24	above flood elevation	max. El. 25'-3"	
230	NFS-LT-482	C - Steam Generator Water Level (Narrow Range)	PCCV	N/A	76'-5"	FA1-101-24	above flood elevation	max. El. 25'-3"	
231	NFS-LT-483	C - Steam Generator Water Level (Narrow Range)	PCCV	N/A	76'-5"	FA1-101-24	above flood elevation	max. El. 25'-3"	
232	NFS-LT-484	C - Steam Generator Water Level (Wide Range)	PCCV	N/A	76'-5"	FA1-101-24	above flood elevation	max. El. 25'-3"	

**Table 3K-1 PCCV Components Protected From Internal Flooding  
(Sheet 15 of 23)**

Item No.	Equipment Tag	Description	Location				Flood Elevation above Floor [ft]	Notes
			Building	Side	Floor Elevation	Fire Zone No.		
233	NFS-LT-490	D - Steam Generator Water Level (Narrow Range)	PCCV	N/A	76'-5"	FA1-101-25	above flood elevation	max. El. 25'-3"
234	NFS-LT-491	D - Steam Generator Water Level (Narrow Range)	PCCV	N/A	76'-5"	FA1-101-25	above flood elevation	max. El. 25'-3"
235	NFS-LT-492	D - Steam Generator Water Level (Narrow Range)	PCCV	N/A	76'-5"	FA1-101-25	above flood elevation	max. El. 25'-3"
236	NFS-LT-493	D - Steam Generator Water Level (Narrow Range)	PCCV	N/A	76'-5"	FA1-101-25	above flood elevation	max. El. 25'-3"
237	NFS-LT-494	D - Steam Generator Water Level (Wide Range)	PCCV	N/A	76'-5"	FA1-101-25	above flood elevation	max. El. 25'-3"
238	RWS-LT-1400	Refueling Water Storage Pit Water Level (Narrow Range)	PCCV	N/A	25'-3"	FA1-101-07	above flood elevation	max. El. 25'-3"
239	RWS-LT-1401	Refueling Water Storage Pit Water Level (Wide Range)	PCCV	N/A	25'-3"	FA1-101-07	above flood elevation	max. El. 25'-3"
240	RWS-LT-1402	Refueling Water Storage Pit Water Level (Narrow Range)	PCCV	N/A	25'-3"	FA1-101-06	above flood elevation	max. El. 25'-3"
241	RWS-LT-1403	Refueling Water Storage Pit Water Level (Wide Range)	PCCV	N/A	25'-3"	FA1-101-06	above flood elevation	max. El. 25'-3"
242	RCS-TE-410	Loop A - Reactor Coolant Hot Leg Temperature (Wide Range)	PCCV	N/A	25'-3"	FA1-101-11	above flood elevation	max. El. 25'-3"
243	RCS-TE-411A	Loop A - Reactor Coolant Hot Leg Temperature (Narrow Range)	PCCV	N/A	25'-3"	FA1-101-11	above flood elevation	max. El. 25'-3"
244	RCS-TE-411B	Loop A - Reactor Coolant Hot Leg Temperature (Narrow Range)	PCCV	N/A	25'-3"	FA1-101-11	above flood elevation	max. El. 25'-3"
245	RCS-TE-411C	Loop A - Reactor Coolant Hot Leg Temperature (Narrow Range)	PCCV	N/A	25'-3"	FA1-101-11	above flood elevation	max. El. 25'-3"

**Table 3K-1 PCCV Components Protected From Internal Flooding  
(Sheet 16 of 23)**

Item No.	Equipment Tag	Description	Location				Flood Elevation above Floor [ft]	Notes	
			Building	Side	Floor Elevation	Fire Zone No.			Location Elevation above Floor
246	RCS-TE-411D	Loop A - Reactor Coolant Cold Leg Temperature (Narrow Range)	PCCV	N/A	25'-3"	FA1-101-11	above flood elevation	max. El. 25'-3"	
247	RCS-TE-413A	Loop A - Reactor Coolant Hot Leg Temperature (Narrow Range) (spare)	PCCV	N/A	25'-3"	FA1-101-11	above flood elevation	max. El. 25'-3"	
248	RCS-TE-413B	Loop A - Reactor Coolant Hot Leg Temperature (Narrow Range) (spare)	PCCV	N/A	25'-3"	FA1-101-11	above flood elevation	max. El. 25'-3"	
249	RCS-TE-413C	Loop A - Reactor Coolant Hot Leg Temperature (Narrow Range) (spare)	PCCV	N/A	25'-3"	FA1-101-11	above flood elevation	max. El. 25'-3"	
250	RCS-TE-413D	Loop A - Reactor Coolant Cold Leg Temperature (Narrow Range) (spare)	PCCV	N/A	25'-3"	FA1-101-11	above flood elevation	max. El. 25'-3"	
251	RCS-TE-415	Loop A - Reactor Coolant Cold Leg Temperature (Wide Range)	PCCV	N/A	25'-3"	FA1-101-11	above flood elevation	max. El. 25'-3"	
252	RCS-TE-420	Loop B - Reactor Coolant Hot Leg Temperature (Wide Range)	PCCV	N/A	25'-3"	FA1-101-08	above flood elevation	max. El. 25'-3"	
253	RCS-TE-421A	Loop B - Reactor Coolant Hot Leg Temperature (Narrow Range)	PCCV	N/A	25'-3"	FA1-101-08	above flood elevation	max. El. 25'-3"	
254	RCS-TE-421B	Loop B - Reactor Coolant Hot Leg Temperature (Narrow Range)	PCCV	N/A	25'-3"	FA1-101-08	above flood elevation	max. El. 25'-3"	
255	RCS-TE-421C	Loop B - Reactor Coolant Hot Leg Temperature (Narrow Range)	PCCV	N/A	25'-3"	FA1-101-08	above flood elevation	max. El. 25'-3"	
256	RCS-TE-421D	Loop B - Reactor Coolant Cold Leg Temperature (Narrow Range)	PCCV	N/A	25'-3"	FA1-101-08	above flood elevation	max. El. 25'-3"	

**Table 3K-1 PCCV Components Protected From Internal Flooding  
(Sheet 17 of 23)**

Item No.	Equipment Tag	Description	Location				Flood Elevation above Floor [ft]	Notes
			Building	Side	Floor Elevation	Fire Zone No.		
257	RCS-TE-423A	Loop B - Reactor Coolant Hot Leg Temperature (Narrow Range) (spare)	PCCV	N/A	25'-3"	FA1-101-08	above flood elevation	max. El. 25'-3"
258	RCS-TE-423B	Loop B - Reactor Coolant Hot Leg Temperature (Narrow Range) (spare)	PCCV	N/A	25'-3"	FA1-101-08	above flood elevation	max. El. 25'-3"
259	RCS-TE-423C	Loop B - Reactor Coolant Hot Leg Temperature (Narrow Range) (spare)	PCCV	N/A	25'-3"	FA1-101-08	above flood elevation	max. El. 25'-3"
260	RCS-TE-423D	Loop B - Reactor Coolant Cold Leg Temperature (Narrow Range) (spare)	PCCV	N/A	25'-3"	FA1-101-08	above flood elevation	max. El. 25'-3"
261	RCS-TE-425	Loop B - Reactor Coolant Cold Leg Temperature (Wide Range)	PCCV	N/A	25'-3"	FA1-101-08	above flood elevation	max. El. 25'-3"
262	RCS-TE-430	Loop C - Reactor Coolant Hot Leg Temperature (Wide Range)	PCCV	N/A	25'-3"	FA1-101-09	above flood elevation	max. El. 25'-3"
263	RCS-TE-431A	Loop C - Reactor Coolant Hot Leg Temperature (Narrow Range)	PCCV	N/A	25'-3"	FA1-101-09	above flood elevation	max. El. 25'-3"
264	RCS-TE-431B	Loop C - Reactor Coolant Hot Leg Temperature (Narrow Range)	PCCV	N/A	25'-3"	FA1-101-09	above flood elevation	max. El. 25'-3"
265	RCS-TE-431C	Loop C - Reactor Coolant Hot Leg Temperature (Narrow Range)	PCCV	N/A	25'-3"	FA1-101-09	above flood elevation	max. El. 25'-3"
266	RCS-TE-431D	Loop C - Reactor Coolant Cold Leg Temperature (Narrow Range)	PCCV	N/A	25'-3"	FA1-101-09	above flood elevation	max. El. 25'-3"

**Table 3K-1 PCCV Components Protected From Internal Flooding  
(Sheet 18 of 23)**

Item No.	Equipment Tag	Description	Location				Flood Elevation above Floor [ft]	Notes	
			Building	Side	Floor Elevation	Fire Zone No.			Location Elevation above Floor
267	RCS-TE-433A	Loop C - Reactor Coolant Hot Leg Temperature (Narrow Range) (spare)	PCCV	N/A	25'-3"	FA1-101-09	above flood elevation	max. El. 25'-3"	
268	RCS-TE-433B	Loop C - Reactor Coolant Hot Leg Temperature (Narrow Range) (spare)	PCCV	N/A	25'-3"	FA1-101-09	above flood elevation	max. El. 25'-3"	
269	RCS-TE-433C	Loop C - Reactor Coolant Hot Leg Temperature (Narrow Range) (spare)	PCCV	N/A	25'-3"	FA1-101-09	above flood elevation	max. El. 25'-3"	
270	RCS-TE-433D	Loop C - Reactor Coolant Cold Leg Temperature (Narrow Range) (spare)	PCCV	N/A	25'-3"	FA1-101-09	above flood elevation	max. El. 25'-3"	
271	RCS-TE-435	Loop C - Reactor Coolant Cold Leg Temperature (Wide Range)	PCCV	N/A	25'-3"	FA1-101-09	above flood elevation	max. El. 25'-3"	
272	RCS-TE-440	Loop D - Reactor Coolant Hot Leg Temperature (Wide Range)	PCCV	N/A	25'-3"	FA1-101-10	above flood elevation	max. El. 25'-3"	
273	RCS-TE-441A	Loop D - Reactor Coolant Hot Leg Temperature (Narrow Range)	PCCV	N/A	25'-3"	FA1-101-10	above flood elevation	max. El. 25'-3"	
274	RCS-TE-441B	Loop D - Reactor Coolant Hot Leg Temperature (Narrow Range)	PCCV	N/A	25'-3"	FA1-101-10	above flood elevation	max. El. 25'-3"	
275	RCS-TE-441C	Loop D - Reactor Coolant Hot Leg Temperature (Narrow Range)	PCCV	N/A	25'-3"	FA1-101-10	above flood elevation	max. El. 25'-3"	
276	RCS-TE-441D	Loop D - Reactor Coolant Cold Leg Temperature (Narrow Range)	PCCV	N/A	25'-3"	FA1-101-10	above flood elevation	max. El. 25'-3"	

**Table 3K-1 PCCV Components Protected From Internal Flooding  
(Sheet 19 of 23)**

Item No.	Equipment Tag	Description	Location					Flood Elevation above Floor [ft]	Notes
			Building	Side	Floor Elevation	Fire Zone No.	Location Elevation above Floor		
277	RCS-TE-443A	Loop D - Reactor Coolant Hot Leg Temperature (Narrow Range) (spare)	PCCV	N/A	25'-3"	FA1-101-10	above flood elevation	max. El. 25'-3"	
278	RCS-TE-443B	Loop D - Reactor Coolant Hot Leg Temperature (Narrow Range) (spare)	PCCV	N/A	25'-3"	FA1-101-10	above flood elevation	max. El. 25'-3"	
279	RCS-TE-443C	Loop D - Reactor Coolant Hot Leg Temperature (Narrow Range) (spare)	PCCV	N/A	25'-3"	FA1-101-10	above flood elevation	max. El. 25'-3"	
280	RCS-TE-443D	Loop D - Reactor Coolant Cold Leg Temperature (Narrow Range) (spare)	PCCV	N/A	25'-3"	FA1-101-10	above flood elevation	max. El. 25'-3"	
281	RCS-TE-445	Loop D - Reactor Coolant Cold Leg Temperature (Wide Range)	PCCV	N/A	25'-3"	FA1-101-10	above flood elevation	max. El. 25'-3"	
282	CSS-TE-1990	Containment Temperature	PCCV	N/A	76'-5"	FA1-101-26	above flood elevation	max. El. 25'-3"	
283	RCS-SE-418A	A - Reactor Coolant Pump Speed	PCCV	N/A	25'-3"	FA1-101-11	above flood elevation	max. El. 25'-3"	
284	RCS-SE-418B	A - Reactor Coolant Pump Speed (spare)	PCCV	N/A	25'-3"	FA1-101-11	above flood elevation	max. El. 25'-3"	
285	RCS-SE-428A	B - Reactor Coolant Pump Speed	PCCV	N/A	25'-3"	FA1-101-08	above flood elevation	max. El. 25'-3"	
286	RCS-SE-428B	B - Reactor Coolant Pump Speed (spare)	PCCV	N/A	25'-3"	FA1-101-08	above flood elevation	max. El. 25'-3"	
287	RCS-SE-438A	C - Reactor Coolant Pump Speed	PCCV	N/A	25'-3"	FA1-101-09	above flood elevation	max. El. 25'-3"	
288	RCS-SE-438B	C - Reactor Coolant Pump Speed (spare)	PCCV	N/A	25'-3"	FA1-101-09	above flood elevation	max. El. 25'-3"	



**Table 3K-1 PCCV Components Protected From Internal Flooding  
(Sheet 20 of 23)**

Item No.	Equipment Tag	Description	Location					Flood Elevation above Floor [ft]	Notes
			Building	Side	Floor Elevation	Fire Zone No.	Location Elevation above Floor		
289	RCS-SE-448A	D - Reactor Coolant Pump Speed	PCCV	N/A	25'-3"	FA1-101-10	above flood elevation	max. El. 25'-3"	
290	RCS-SE-448B	D - Reactor Coolant Pump Speed (spare)	PCCV	N/A	25'-3"	FA1-101-10	above flood elevation	max. El. 25'-3"	
291	CIS-NE-31	Source Range Neutron Flux	PCCV	N/A	20'-2"	FA1-101-03	below flood elevation	max. El. 25'-3"	3
292	CIS-NE-32	Source Range Neutron Flux	PCCV	N/A	20'-2"	FA1-101-03	below flood elevation	max. El. 25'-3"	3
293	CIS-NE-35	Intermediate Range Neutron Flux	PCCV	N/A	20'-2"	FA1-101-03	above flood elevation	max. El. 25'-3"	
294	CIS-NE-36	Intermediate Range Neutron Flux	PCCV	N/A	20'-2"	FA1-101-03	above flood elevation	max. El. 25'-3"	
295	CIS-NE-41A	Power Range Neutron Flux (Upper)	PCCV	N/A	20'-2"	FA1-101-03	above flood elevation	max. El. 25'-3"	
296	CIS-NE-41B	Power Range Neutron Flux (Lower)	PCCV	N/A	20'-2"	FA1-101-03	below flood elevation	max. El. 25'-3"	3
297	CIS-NE-42A	Power Range Neutron Flux (Upper)	PCCV	N/A	20'-2"	FA1-101-03	above flood elevation	max. El. 25'-3"	
298	CIS-NE-42B	Power Range Neutron Flux (Lower)	PCCV	N/A	20'-2"	FA1-101-03	below flood elevation	max. El. 25'-3"	3
299	CIS-NE-43A	Power Range Neutron Flux (Upper)	PCCV	N/A	20'-2"	FA1-101-03	above flood elevation	max. El. 25'-3"	
300	CIS-NE-43B	Power Range Neutron Flux (Lower)	PCCV	N/A	20'-2"	FA1-101-03	below flood elevation	max. El. 25'-3"	3
301	CIS-NE-44A	Power Range Neutron Flux (Upper)	PCCV	N/A	20'-2"	FA1-101-03	above flood elevation	max. El. 25'-3"	
302	CIS-NE-44B	Power Range Neutron Flux (Lower)	PCCV	N/A	20'-2"	FA1-101-03	below flood elevation	max. El. 25'-3"	3
303	CIS-NE-33	Wide Range Neutron Flux	PCCV	N/A	20'-2"	FA1-101-03	above flood elevation	max. El. 25'-3"	
304	CIS-NE-34	Wide Range Neutron Flux	PCCV	N/A	20'-2"	FA1-101-03	above flood elevation	max. El. 25'-3"	
305	RCS-LE-571	Reactor Vessel Water Level	PCCV	N/A	46'-11"	-	above flood elevation	max. El. 25'-3"	4

**Table 3K-1 PCCV Components Protected From Internal Flooding  
(Sheet 21 of 23)**

Item No.	Equipment Tag	Description	Location				Flood Elevation above Floor [ft]	Notes	
			Building	Side	Floor Elevation	Fire Zone No.			Location Elevation above Floor
306	RCS-LE-572	Reactor Vessel Water Level	PCCV	N/A	46'-11"	-	above flood elevation	max. El. 25'-3"	4
307	CIS-TE-01	Core Exit Temperature	PCCV	N/A	46'-11"	-	above flood elevation	max. El. 25'-3"	4
308	CIS-TE-02	Core Exit Temperature	PCCV	N/A	46'-11"	-	above flood elevation	max. El. 25'-3"	4
309	CIS-TE-03	Core Exit Temperature	PCCV	N/A	46'-11"	-	above flood elevation	max. El. 25'-3"	4
310	CIS-TE-04	Core Exit Temperature	PCCV	N/A	46'-11"	-	above flood elevation	max. El. 25'-3"	4
311	CIS-TE-05	Core Exit Temperature	PCCV	N/A	46'-11"	-	above flood elevation	max. El. 25'-3"	4
312	CIS-TE-06	Core Exit Temperature	PCCV	N/A	46'-11"	-	above flood elevation	max. El. 25'-3"	4
313	CIS-TE-07	Core Exit Temperature	PCCV	N/A	46'-11"	-	above flood elevation	max. El. 25'-3"	4
314	CIS-TE-08	Core Exit Temperature	PCCV	N/A	46'-11"	-	above flood elevation	max. El. 25'-3"	4
315	CIS-TE-09	Core Exit Temperature	PCCV	N/A	46'-11"	-	above flood elevation	max. El. 25'-3"	4
316	CIS-TE-10	Core Exit Temperature	PCCV	N/A	46'-11"	-	above flood elevation	max. El. 25'-3"	4
317	CIS-TE-11	Core Exit Temperature	PCCV	N/A	46'-11"	-	above flood elevation	max. El. 25'-3"	4
318	CIS-TE-12	Core Exit Temperature	PCCV	N/A	46'-11"	-	above flood elevation	max. El. 25'-3"	4
319	CIS-TE-13	Core Exit Temperature	PCCV	N/A	46'-11"	-	above flood elevation	max. El. 25'-3"	4
320	CIS-TE-14	Core Exit Temperature	PCCV	N/A	46'-11"	-	above flood elevation	max. El. 25'-3"	4
321	CIS-TE-15	Core Exit Temperature	PCCV	N/A	46'-11"	-	above flood elevation	max. El. 25'-3"	4
322	CIS-TE-16	Core Exit Temperature	PCCV	N/A	46'-11"	-	above flood elevation	max. El. 25'-3"	4

**Table 3K-1 PCCV Components Protected From Internal Flooding  
(Sheet 22 of 23)**

Item No.	Equipment Tag	Description	Location					Flood Elevation above Floor [ft]	Notes
			Building	Side	Floor Elevation	Fire Zone No.	Location Elevation above Floor		
323	CIS-TE-17	Core Exit Temperature	PCCV	N/A	46'-11"	-	above flood elevation	max. El. 25'-3"	4
324	CIS-TE-18	Core Exit Temperature	PCCV	N/A	46'-11"	-	above flood elevation	max. El. 25'-3"	4
325	CIS-TE-19	Core Exit Temperature	PCCV	N/A	46'-11"	-	above flood elevation	max. El. 25'-3"	4
326	CIS-TE-20	Core Exit Temperature	PCCV	N/A	46'-11"	-	above flood elevation	max. El. 25'-3"	4
327	CIS-TE-21	Core Exit Temperature	PCCV	N/A	46'-11"	-	above flood elevation	max. El. 25'-3"	4
328	CIS-TE-22	Core Exit Temperature	PCCV	N/A	46'-11"	-	above flood elevation	max. El. 25'-3"	4
329	CIS-TE-23	Core Exit Temperature	PCCV	N/A	46'-11"	-	above flood elevation	max. El. 25'-3"	4
330	CIS-TE-24	Core Exit Temperature	PCCV	N/A	46'-11"	-	above flood elevation	max. El. 25'-3"	4
331	CIS-TE-25	Core Exit Temperature	PCCV	N/A	46'-11"	-	above flood elevation	max. El. 25'-3"	4
332	CIS-TE-26	Core Exit Temperature	PCCV	N/A	46'-11"	-	above flood elevation	max. El. 25'-3"	4
333	RMS-RE-91	Containment High Range Area Radiation	PCCV	N/A	76'-5"	FA1-101-26	above flood elevation	max. El. 25'-3"	
334	RMS-RE-92	Containment High Range Area Radiation	PCCV	N/A	76'-5"	FA1-101-23	above flood elevation	max. El. 25'-3"	
335	RMS-RE-93	Containment High Range Area Radiation	PCCV	N/A	76'-5"	FA1-101-24	above flood elevation	max. El. 25'-3"	
336	RMS-RE-94	Containment High Range Area Radiation	PCCV	N/A	76'-5"	FA1-101-25	above flood elevation	max. El. 25'-3"	

**Table 3K-1 PCCV Components Protected From Internal Flooding  
(Sheet 23 of 23)**

**Notes:**

1. Lower portion of reactor vessel is flooded; however there is no impact to function of this component.
2. There is no impact to function of refueling water storage pit, even if outside of pit is flooded.
3. Installation area of these components is not flooded, except during LOCA. Functions of these components are not required during LOCA.
4. These components are located on the top of reactor vessel.

**Impact on COLA**

There is no impact on the COLA.

**Impact on PRA**

There is no impact on the PRA.

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**RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION**

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5/21/2009

**US-APWR Design Certification**

**Mitsubishi Heavy Industries**

**Docket No. 52-021**

**RAI NO.:** NO. 220-2058 REVISION 1  
**SRP SECTION:** 03.04.01 – Internal Flood Protection for Onsite Equipment  
Failures  
**APPLICATION SECTION:** 03.04.01  
**DATE OF RAI ISSUE:** 02/26/09

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**QUESTION NO. RAI 3.4.1-04:**

DCD Tier 1, Table 2.2-3, "Main Components Protected against External Floods, Internal Floods and Internal Fires," and DCD Tier 2, Sections 3.4.1.3 and 3.4.1.5.2.1 identify SSCs that require protection from internal flooding according to specific buildings or building areas, including SSCs located inside the Radiological Controlled Area (RCA) of the Reactor Building (R/B). It is not clear that the DCD has identified a complete set of SSCs located inside the RCA portion of the R/B that must be protected from flooding.

For example, the DCD does not identify SSCs inside the RCA that provide safety-related monitoring and actuation functions.

GDC 2 requires in part that "structures, systems, and components important to safety shall be designed to withstand the effects of natural phenomena such as ... floods ... without loss of capability to perform their safety functions." SRP Section 3.4.1, Acceptance Criteria 1 states that acceptable guidance for meeting the seismic design and classification requirements of GDC 2 can be based on meeting Regulatory Guide (RG) 1.29, "Seismic Design Classification," Revision 4, March 2007, Position C.1 for safety-related SSCs and Position C.2 for nonsafety-related SSCs. For example, systems required for monitoring and actuating systems important to safety should be protected as indicated in Position C.1 of RG 1.29, Item (k). Also, per SRP 3.4.1, Item I.1, the set of SSCs that must be protected from flooding should be reviewed, and therefore, should be identified in the DCD.

Provide a complete list of SSCs located within the RCA portion of the R/B that require protection from internal flooding. Include this information in the DCD and provide a markup in your response.

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**ANSWER:**

A complete list of SSCs located within the RCA portion of the R/B that require protection from internal flooding, and the component's capability to perform their intended safety function in the event of flooding, will be provided in Table 3K-2 of new Appendix 3K to be incorporated in the DCD.

### **Impact on DCD**

See Attachment 1 for the mark-up of new Appendix 3K to be incorporated at the end of US-APWR DCD.

- Insert the following Table 3K-2 as the second table in new Appendix 3K:

**Table 3K-2 R/B RCA Components Protected From Internal Flooding  
(Sheet 1 of 20)**

Item No.	Equipment Tag	Description	Location					Flood Elevation above Floor [ft]	Notes
			Building	Side	Floor Elevation	Fire Zone No.	Location Elevation above Floor		
1	RCS-AOV-132	Air Operated Valve	R/B RCA	W	25'-3"	FA2-152-06	above flood elevation	0.69	
2	RCS-AOV-148	Air Operated Valve	R/B RCA	W	25'-3"	FA2-153-05	above flood elevation	0.69	
3	RCS-AOV-138	Air Operated Valve	R/B RCA	W	25'-3"	FA2-152-05	above flood elevation	0.69	
4	CVS-MOV-151	Motor Operated Valve	R/B RCA	W	25'-3"	FA2-117-24	above flood elevation	0.69	
5	CVS-MOV-152	Motor Operated Valve	R/B RCA	W	25'-3"	FA2-117-24	above flood elevation	0.69	
6	CVS-MOV-204	Motor Operated Valve	R/B RCA	W	25'-3"	FA2-153-05	above flood elevation	0.69	
7	CVS-MOV-178A	Motor Operated Valve	R/B RCA	W	25'-3"	FA2-117-24	above flood elevation	0.69	
8	CVS-MOV-178B	Motor Operated Valve	R/B RCA	W	25'-3"	FA2-117-24	above flood elevation	0.69	
9	CVS-AOV-006	Air Operated Valve	R/B RCA	W	25'-3"	FA2-117-24	above flood elevation	0.69	
10	CVS-MOV-178C	Motor Operated Valve	R/B RCA	W	25'-3"	FA2-117-24	above flood elevation	0.69	
11	CVS-MOV-178D	Motor Operated Valve	R/B RCA	W	25'-3"	FA2-117-24	above flood elevation	0.69	
12	SIS-RPP-001A	A-Safety Injection Pump	R/B RCA	E	-26'-4"	FA2-113-01	N/A	-	1
13	SIS-RPP-001B	B-Safety Injection Pump	R/B RCA	E	-26'-4"	FA2-114-01	N/A	-	1
14	SIS-RPP-001C	C-Safety Injection Pump	R/B RCA	W	-26'-4"	FA2-115-01	N/A	-	1
15	SIS-RPP-001D	D-Safety Injection Pump	R/B RCA	W	-26'-4"	FA2-116-01	N/A	-	1
16	SIS-MOV-001A	Motor Operated Valve	R/B RCA	E	-8'-7"	FA2-120-02	N/A	-	1
17	SIS-MOV-001B	Motor Operated Valve	R/B RCA	E	-8'-7"	FA2-151-01	N/A	-	1



**Table 3K-2 R/B RCA Components Protected From Internal Flooding  
(Sheet 2 of 20)**

Item No.	Equipment Tag	Description	Location					Flood Elevation above Floor [ft]	Notes
			Building	Side	Floor Elevation	Fire Zone No.	Location Elevation above Floor		
18	SIS-MOV-009A	Motor Operated Valve	R/B RCA	E	25'-3"	FA2-120-06	above flood elevation	0.54	
19	SIS-MOV-009B	Motor Operated Valve	R/B RCA	E	25'-3"	FA2-151-05	above flood elevation	0.54	
20	SIS-MOV-001C	Motor Operated Valve	R/B RCA	W	-8'-7"	FA2-152-01	N/A	-	1
21	SIS-MOV-001D	Motor Operated Valve	R/B RCA	W	-8'-7"	FA2-153-01	N/A	-	1
22	SIS-MOV-009C	Motor Operated Valve	R/B RCA	W	25'-3"	FA2-152-05	above flood elevation	0.69	
23	SIS-MOV-009D	Motor Operated Valve	R/B RCA	W	25'-3"	FA2-153-05	above flood elevation	0.69	
24	SIS-AOV-114	Air Operated Valve	R/B RCA	E	25'-3"	FA2-151-06	above flood elevation	0.54	
25	RHS-RPP-001A	A-Containment Spray/Residual Heat Removal Pump	R/B RCA	E	-26'-4"	FA2-113-02	N/A	-	1
26	RHS-RPP-001B	B-Containment Spray/Residual Heat Removal Pump	R/B RCA	E	-26'-4"	FA2-114-02	N/A	-	1
27	RHS-RPP-001C	C-Containment Spray/Residual Heat Removal Pump	R/B RCA	W	-26'-4"	FA2-115-02	N/A	-	1
28	RHS-RPP-001D	D-Containment Spray/Residual Heat Removal Pump	R/B RCA	W	-26'-4"	FA2-116-02	N/A	-	1
29	RHS-RHX-001A	A-Containment Spray/Residual Heat Removal Heat Exchanger	R/B RCA	E	3'-7"	FA2-120-04	N/A	-	1
30	RHS-RHX-001B	B-Containment Spray/Residual Heat Removal Heat Exchanger	R/B RCA	E	3'-7"	FA2-151-03	N/A	-	1
31	RHS-RHX-001C	C-Containment Spray/Residual Heat Removal Heat Exchanger	R/B RCA	W	3'-7"	FA2-152-03	N/A	-	1

**Table 3K-2 R/B RCA Components Protected From Internal Flooding  
(Sheet 3 of 20)**

Item No.	Equipment Tag	Description	Location					Flood Elevation above Floor [ft]	Notes
			Building	Side	Floor Elevation	Fire Zone No.	Location Elevation above Floor		
32	RHS-RHX-001D	D-Containment Spray/Residual Heat Removal Heat Exchanger	R/B RCA	W	3'-7"	FA2-153-03	N/A	-	1
33	RHS-MOV-021A	Motor Operated Valve	R/B RCA	E	25'-3"	FA2-120-06	above flood elevation	0.54	
34	RHS-MOV-021B	Motor Operated Valve	R/B RCA	E	25'-3"	FA2-151-05	above flood elevation	0.54	
35	RHS-HCV-603	Hand Control Valve	R/B RCA	E	3'-7"	FA2-120-02	N/A	-	1
36	RHS-FCV-601	Flow Control Valve	R/B RCA	E	3'-7"	FA2-120-02	N/A	-	1
37	RHS-MOV-021C	Motor Operated Valve	R/B RCA	W	25'-3"	FA2-152-05	above flood elevation	0.69	
38	RHS-MOV-021D	Motor Operated Valve	R/B RCA	W	25'-3"	FA2-153-05	above flood elevation	0.69	
39	RHS-HCV-633	Hand Control Valve	R/B RCA	W	3'-7"	FA2-153-01	N/A	-	1
40	RHS-FCV-631	Flow Control Valve	R/B RCA	W	3'-7"	FA2-153-01	N/A	-	1
41	CSS-MOV-004A	Motor Operated Valve	R/B RCA	E	25'-3"	FA2-120-06	above flood elevation	0.54	
42	CSS-MOV-004B	Motor Operated Valve	R/B RCA	E	25'-3"	FA2-151-05	above flood elevation	0.54	
43	CSS-MOV-001A	Motor Operated Valve	R/B RCA	E	-8'-7"	FA2-120-02	N/A	-	1
44	CSS-MOV-001B	Motor Operated Valve	R/B RCA	E	-8'-7"	FA2-151-01	N/A	-	1
45	CSS-MOV-004C	Motor Operated Valve	R/B RCA	W	25'-3"	FA2-152-05	above flood elevation	0.69	
46	CSS-MOV-004D	Motor Operated Valve	R/B RCA	W	25'-3"	FA2-153-05	above flood elevation	0.69	
47	CSS-MOV-001C	Motor Operated Valve	R/B RCA	W	-8'-7"	FA2-152-01	N/A	-	1
48	CSS-MOV-001D	Motor Operated Valve	R/B RCA	W	-8'-7"	FA2-153-01	N/A	-	1

**Table 3K-2 R/B RCA Components Protected From Internal Flooding  
(Sheet 4 of 20)**

Item No.	Equipment Tag	Description	Location					Flood Elevation above Floor [ft]	Notes
			Building	Side	Floor Elevation	Fire Zone No.	Location Elevation above Floor		
49	CSS-MOV-011	Motor Operated Valve	R/B RCA	E	3'-7"	FA2-151-01	N/A	-	1
50	NCS-MOV-145A	Motor Operated Valve	R/B RCA	E	3'-7"	FA2-117-08	above flood elevation	0.67	
51	NCS-MOV-438A	Motor Operated Valve	R/B RCA	E	25'-3"	FA2-151-06	above flood elevation	0.54	
52	NCS-MOV-145B	Motor Operated Valve	R/B RCA	E	3'-7"	FA2-151-04	above flood elevation	0.67	
53	NCS-MOV-145C	Motor Operated Valve	R/B RCA	W	3'-7"	FA2-152-04	above flood elevation	0.87	
54	NCS-MOV-145D	Motor Operated Valve	R/B RCA	W	3'-7"	FA2-117-07	above flood elevation	0.87	
55	NCS-MOV-232A	Motor Operated Valve	R/B RCA	E	25'-3"	FA2-151-06	above flood elevation	0.54	
56	NCS-MOV-232B	Motor Operated Valve	R/B RCA	W	25'-3"	FA2-152-06	above flood elevation	0.69	
57	NCS-MOV-233A	Motor Operated Valve	R/B RCA	E	25'-3"	FA2-151-06	above flood elevation	0.54	
58	NCS-MOV-233B	Motor Operated Valve	R/B RCA	W	25'-3"	FA2-152-06	above flood elevation	0.69	
59	NCS-MOV-234A	Motor Operated Valve	R/B RCA	E	25'-3"	FA2-151-06	above flood elevation	0.54	
60	NCS-MOV-234B	Motor Operated Valve	R/B RCA	W	25'-3"	FA2-152-06	above flood elevation	0.69	
61	NCS-MOV-511	Motor Operated Valve	R/B RCA	E	25'-3"	FA2-151-06	above flood elevation	0.54	
62	NCS-MOV-517	Motor Operated Valve	R/B RCA	E	25'-3"	FA2-151-06	above flood elevation	0.54	
63	NCS-MOV-402A	Motor Operated Valve	R/B RCA	E	25'-3"	FA2-151-06	above flood elevation	0.54	
64	NCS-MOV-531	Motor Operated Valve	R/B RCA	W	25'-3"	FA2-152-06	above flood elevation	0.69	
65	NCS-MOV-537	Motor Operated Valve	R/B RCA	W	25'-3"	FA2-152-06	above flood elevation	0.69	

**Table 3K-2 R/B RCA Components Protected From Internal Flooding  
(Sheet 5 of 20)**

Item No.	Equipment Tag	Description	Location					Flood Elevation above Floor [ft]	Notes
			Building	Side	Floor Elevation	Fire Zone No.	Location Elevation above Floor		
66	NCS-MOV-402B	Motor Operated Valve	R/B RCA	W	25'-3"	FA2-152-06	above flood elevation	0.69	
67	NCS-MOV-445A	Motor Operated Valve	R/B RCA	E	25'-3"	FA2-151-06	above flood elevation	0.54	
68	NCS-MOV-445B	Motor Operated Valve	R/B RCA	W	25'-3"	FA2-152-06	above flood elevation	0.69	
69	NCS-MOV-448A	Motor Operated Valve	R/B RCA	E	25'-3"	FA2-151-06	above flood elevation	0.54	
70	NCS-MOV-448B	Motor Operated Valve	R/B RCA	W	25'-3"	FA2-152-06	above flood elevation	0.69	
71	NCS-MOV-438B	Motor Operated Valve	R/B RCA	W	25'-3"	FA2-152-06	above flood elevation	0.69	
72	LMS-AOV-053	Air Operated Valve	R/B RCA	W	25'-3"	FA2-153-05	above flood elevation	0.69	
73	LMS-AOV-056	Air Operated Valve	R/B RCA	W	25'-3"	FA2-153-05	above flood elevation	0.69	
74	LMS-AOV-060	Air Operated Valve	R/B RCA	W	25'-3"	FA2-153-05	above flood elevation	0.69	
75	LMS-LCV-1000B	Level Control Valve	R/B RCA	E	25'-3"	FA2-120-06	above flood elevation	0.54	
76	LMS-AOV-105	Air Operated Valve	R/B RCA	E	25'-3"	FA2-120-06	above flood elevation	0.54	
77	PSS-MOV-031A	Motor Operated Valve	R/B RCA	W	25'-3"	FA2-153-05	above flood elevation	0.69	
78	PSS-MOV-031B	Motor Operated Valve	R/B RCA	W	25'-3"	FA2-153-05	above flood elevation	0.69	
79	PSS -MOV-052A	Motor Operated Valve	R/B RCA	W	25'-3"	FA2-117-23	above flood elevation	0.69	
80	PSS -MOV-052B	Motor Operated Valve	R/B RCA	W	25'-3"	FA2-117-23	above flood elevation	0.69	
81	PSS-AOV-063	Air Operated Valve	R/B RCA	W	25'-3"	FA2-153-05	above flood elevation	0.69	
82	PSS-MOV-071	Motor Operated Valve	R/B RCA	W	25'-3"	FA2-153-05	above flood elevation	0.69	

**Table 3K-2 R/B RCA Components Protected From Internal Flooding  
(Sheet 6 of 20)**

Item No.	Equipment Tag	Description	Location					Flood Elevation above Floor [ft]	Notes
			Building	Side	Floor Elevation	Fire Zone No.	Location Elevation above Floor		
83	SGS-AOV-031A	Air Operated Valve	R/B RCA	E	25'-3"	FA2-151-06	above flood elevation	0.54	
84	SGS-AOV-031B	Air Operated Valve	R/B RCA	E	25'-3"	FA2-151-06	above flood elevation	0.54	
85	SGS-AOV-031C	Air Operated Valve	R/B RCA	E	25'-3"	FA2-151-06	above flood elevation	0.54	
86	SGS-AOV-031D	Air Operated Valve	R/B RCA	E	25'-3"	FA2-151-06	above flood elevation	0.54	
87	RWS-MOV-004	Motor Operated Valve	R/B RCA	E	3'-7"	FA2-117-09	above flood elevation	0.67	
88	RWS-AOV-022	Air Operated Valve	R/B RCA	E	3'-7"	FA2-117-09	above flood elevation	0.67	
89	CAS-MOV-002	Motor Operated Valve	R/B RCA	W	25'-3"	FA2-152-06	above flood elevation	0.69	
90	RMS-MOV-002	Motor Operated Valve	R/B RCA	W	25'-3"	FA2-153-05	above flood elevation	0.69	
91	RMS-MOV-003	Motor Operated Valve	R/B RCA	W	25'-3"	FA2-153-05	above flood elevation	0.69	
92	VRS-RFU-001A	A-Annulus Emergency Exhaust Filtration Unit	R/B RCA	E	50'-2"	FA2-117-32	above flood elevation	0.54	
93	VRS-RFU-001B	B-Annulus Emergency Exhaust Filtration Unit	R/B RCA	W	50'-2"	FA2-117-29	above flood elevation	0.76	
94	VRS-RFN-001A	A-Annulus Emergency Exhaust Filtration Unit Fan	R/B RCA	E	50'-2"	FA2-117-32	above flood elevation	0.54	
95	VRS-RFN-001B	B-Annulus Emergency Exhaust Filtration Unit Fan	R/B RCA	W	50'-2"	FA2-117-29	above flood elevation	0.76	
96	VRS-MOD-001A	Motor Operated Damper	R/B RCA	E	50'-2"	FA2-117-32	above flood elevation	0.54	
97	VRS-MOD-001B	Motor Operated Damper	R/B RCA	W	50'-2"	FA2-117-29	above flood elevation	0.76	
98	VRS-MOD-002A	Motor Operated Damper	R/B RCA	E	50'-2"	FA2-117-32	above flood elevation	0.54	

**Table 3K-2 R/B RCA Components Protected From Internal Flooding  
(Sheet 7 of 20)**

Item No.	Equipment Tag	Description	Location					Flood Elevation above Floor [ft]	Notes
			Building	Side	Floor Elevation	Fire Zone No.	Location Elevation above Floor		
99	VRS-MOD-002B	Motor Operated Damper	R/B RCA	W	50'-2"	FA2-117-29	above flood elevation	0.76	
100	VRS-MOD-003A	Motor Operated Damper	R/B RCA	E	50'-2"	FA2-117-32	above flood elevation	0.54	
101	VRS-MOD-003B	Motor Operated Damper	R/B RCA	W	50'-2"	FA2-117-29	above flood elevation	0.76	
102	VRS-RAH-301A	A-Safeguard Component Area Air Handling Unit	R/B RCA	E	3'-7"	FA2-120-05	N/A	-	1
103	VRS-RAH-301B	B-Safeguard Component Area Air Handling Unit	R/B RCA	E	3'-7"	FA2-151-02	N/A	-	1
104	VRS-RAH-301C	C-Safeguard Component Area Air Handling Unit	R/B RCA	W	3'-7"	FA2-152-02	N/A	-	1
105	VRS-RAH-301D	D-Safeguard Component Area Air Handling Unit	R/B RCA	W	3'-7"	FA2-153-04	N/A	-	1
106	VRS-RFN-301A	A-Safeguard Component Area Air Handling Unit Fan	R/B RCA	E	3'-7"	FA2-120-05	N/A	-	1
107	VRS-RFN-301B	B-Safeguard Component Area Air Handling Unit Fan	R/B RCA	E	3'-7"	FA2-151-02	N/A	-	1
108	VRS-RFN-301C	C-Safeguard Component Area Air Handling Unit Fan	R/B RCA	W	3'-7"	FA2-152-02	N/A	-	1
109	VRS-RFN-301D	D-Safeguard Component Area Air Handling Unit Fan	R/B RCA	W	3'-7"	FA2-153-04	N/A	-	1
110	VRS-RCC-301A	A-Safeguard Component Area Air Handling Unit Cooling Coil	R/B RCA	E	3'-7"	FA2-120-05	N/A	-	1
111	VRS-RCC-301B	B-Safeguard Component Area Air Handling Unit Cooling Coil	R/B RCA	E	3'-7"	FA2-151-02	N/A	-	1

**Table 3K-2 R/B RCA Components Protected From Internal Flooding  
(Sheet 8 of 20)**

Item No.	Equipment Tag	Description	Location					Flood Elevation above Floor [ft]	Notes
			Building	Side	Floor Elevation	Fire Zone No.	Location Elevation above Floor		
112	VRS-RCC-301C	C-Safeguard Component Area Air Handling Unit Cooling Coil	R/B RCA	W	3'-7"	FA2-152-02	N/A	-	1
113	VRS-RCC-301D	D-Safeguard Component Area Air Handling Unit Cooling Coil	R/B RCA	W	3'-7"	FA2-153-04	N/A	-	1
114	VRS-REH-301A	A-Safeguard Component Area Air Handling Unit Electric Heating Coil	R/B RCA	E	3'-7"	FA2-120-05	N/A	-	1
115	VRS-REH-301B	B-Safeguard Component Area Air Handling Unit Electric Heating Coil	R/B RCA	E	3'-7"	FA2-151-02	N/A	-	1
116	VRS-REH-301C	C-Safeguard Component Area Air Handling Unit Electric Heating Coil	R/B RCA	W	3'-7"	FA2-152-02	N/A	-	1
117	VRS-REH-301D	D-Safeguard Component Area Air Handling Unit Electric Heating Coil	R/B RCA	W	3'-7"	FA2-153-04	N/A	-	1
118	VRS-MOD-301A	Motor Operated Damper	R/B RCA	E	3'-7"	FA2-120-05	N/A	-	1
119	VRS-MOD-301B	Motor Operated Damper	R/B RCA	E	3'-7"	FA2-151-02	N/A	-	1
120	VRS-MOD-301C	Motor Operated Damper	R/B RCA	W	3'-7"	FA2-152-02	N/A	-	1
121	VRS-MOD-301D	Motor Operated Damper	R/B RCA	W	3'-7"	FA2-153-04	N/A	-	1
122	VRS-MOD-302A	Motor Operated Damper	R/B RCA	E	3'-7"	FA2-120-05	N/A	-	1
123	VRS-MOD-302B	Motor Operated Damper	R/B RCA	E	3'-7"	FA2-151-02	N/A	-	1
124	VRS-MOD-302C	Motor Operated Damper	R/B RCA	W	3'-7"	FA2-152-02	N/A	-	1
125	VRS-MOD-302D	Motor Operated Damper	R/B RCA	W	3'-7"	FA2-153-04	N/A	-	1

**Table 3K-2 R/B RCA Components Protected From Internal Flooding  
(Sheet 9 of 20)**

Item No.	Equipment Tag	Description	Location				Flood Elevation above Floor [ft]	Notes	
			Building	Side	Floor Elevation	Fire Zone No.			
126	VRS-RAH-541A	A-Annulus Emergency Exhaust Filtration Unit Area Air Handling Unit	R/B RCA	E	50'-2"	FA2-117-32	above flood elevation	0.54	
127	VRS-RAH-541B	B-Annulus Emergency Exhaust Filtration Unit Area Air Handling Unit	R/B RCA	W	50'-2"	FA2-117-29	above flood elevation	0.76	
128	VRS-RFN-541A	A-Annulus Emergency Exhaust Filtration Unit Area Air Handling Unit Fan	R/B RCA	E	50'-2"	FA2-117-32	above flood elevation	0.54	
129	VRS-RFN-541B	B-Annulus Emergency Exhaust Filtration Unit Area Air Handling Unit Fan	R/B RCA	W	50'-2"	FA2-117-29	above flood elevation	0.76	
130	VRS-RCC-541A	A-Annulus Emergency Exhaust Filtration Unit Area Air Handling Unit Cooling Coil	R/B RCA	E	50'-2"	FA2-117-32	above flood elevation	0.54	
131	VRS-RCC-541B	A-Annulus Emergency Exhaust Filtration Unit Area Air Handling Unit Cooling Coil	R/B RCA	E	50'-2"	FA2-117-32	above flood elevation	0.54	
132	VRS-RCC-541C	B-Annulus Emergency Exhaust Filtration Unit Area Air Handling Unit Cooling Coil	R/B RCA	W	50'-2"	FA2-117-29	above flood elevation	0.76	
133	VRS-RCC-541D	B-Annulus Emergency Exhaust Filtration Unit Area Air Handling Unit Cooling Coil	R/B RCA	W	50'-2"	FA2-117-29	above flood elevation	0.76	



**Table 3K-2 R/B RCA Components Protected From Internal Flooding  
(Sheet 10 of 20)**

Item No.	Equipment Tag	Description	Location					Flood Elevation above Floor [ft]	Notes
			Building	Side	Floor Elevation	Fire Zone No.	Location Elevation above Floor		
134	VRS-REH-541A	A-Annulus Emergency Exhaust Filtration Unit Area Air Handling Unit Electric Heating Coil	R/B RCA	E	50'-2"	FA2-117-32	above flood elevation	0.54	
135	VRS-REH-541B	B-Annulus Emergency Exhaust Filtration Unit Area Air Handling Unit Electric Heating Coil	R/B RCA	W	50'-2"	FA2-117-29	above flood elevation	0.76	
136	VRS-RAH-551A	A-Penetration Area Air Handling Unit	R/B RCA	E	50'-2"	FA2-408-01	above flood elevation	0.54	
137	VRS-RAH-551B	B-Penetration Area Air Handling Unit	R/B RCA	E	50'-2"	FA2-409-01	above flood elevation	0.54	
138	VRS-RAH-551C	C-Penetration Area Air Handling Unit	R/B RCA	W	50'-2"	FA2-410-01	above flood elevation	0.76	
139	VRS-RAH-551D	D-Penetration Area Air Handling Unit	R/B RCA	W	50'-2"	FA2-411-01	above flood elevation	0.76	
140	VRS-RFN-551A	A-Penetration Area Air Handling Unit Fan	R/B RCA	E	50'-2"	FA2-408-01	above flood elevation	0.54	
141	VRS-RFN-551B	B-Penetration Area Air Handling Unit Fan	R/B RCA	E	50'-2"	FA2-409-01	above flood elevation	0.54	
142	VRS-RFN-551C	C-Penetration Area Air Handling Unit Fan	R/B RCA	W	50'-2"	FA2-410-01	above flood elevation	0.76	
143	VRS-RFN-551D	D-Penetration Area Air Handling Unit Fan	R/B RCA	W	50'-2"	FA2-411-01	above flood elevation	0.76	
144	VRS-RCC-551A	A-Penetration Area Air Handling Unit Cooling Coil	R/B RCA	E	50'-2"	FA2-408-01	above flood elevation	0.54	
145	VRS-RCC-551B	B-Penetration Area Air Handling Unit Cooling Coil	R/B RCA	E	50'-2"	FA2-409-01	above flood elevation	0.54	

**Table 3K-2 R/B RCA Components Protected From Internal Flooding  
(Sheet 11 of 20)**

Item No.	Equipment Tag	Description	Location					Flood Elevation above Floor [ft]	Notes
			Building	Side	Floor Elevation	Fire Zone No.	Location Elevation above Floor		
146	VRS-RCC-551C	C-Penetration Area Air Handling Unit Cooling Coil	R/B RCA	W	50'-2"	FA2-410-01	above flood elevation	0.76	
147	VRS-RCC-551D	D-Penetration Area Air Handling Unit Cooling Coil	R/B RCA	W	50'-2"	FA2-411-01	above flood elevation	0.76	
148	VRS-REH-551A	A-Penetration Area Air Handling Unit Electric Heating Coil	R/B RCA	E	50'-2"	FA2-408-01	above flood elevation	0.54	
149	VRS-REH-551B	B-Penetration Area Air Handling Unit Electric Heating Coil	R/B RCA	E	50'-2"	FA2-409-01	above flood elevation	0.54	
150	VRS-REH-551C	C-Penetration Area Air Handling Unit Electric Heating Coil	R/B RCA	W	50'-2"	FA2-410-01	above flood elevation	0.76	
151	VRS-REH-551D	D-Penetration Area Air Handling Unit Electric Heating Coil	R/B RCA	W	50'-2"	FA2-411-01	above flood elevation	0.76	
152	VCS-AOV-304	Air Operated Valve	R/B RCA	E	76'-5"	FA2-117-34	above flood elevation	0.87	
153	VCS-AOV-307	Air Operated Valve	R/B RCA	W	76'-5"	FA2-117-40	above flood elevation	0.99	
154	VCS-AOV-354	Air Operated Valve	R/B RCA	E	76'-5"	FA2-117-34	above flood elevation	0.87	
155	VCS-AOV-357	Air Operated Valve	R/B RCA	W	76'-5"	FA2-117-40	above flood elevation	0.99	
156	VAS-AOD-501A	Air Operated Damper	R/B RCA	E	25'-3"	FA2-117-19	above flood elevation	0.54	
157	VAS-AOD-501B	Air Operated Damper	R/B RCA	W	50'-2"	FA2-117-43	above flood elevation	0.76	
158	VAS-AOD-502A	Air Operated Damper	R/B RCA	E	25'-3"	FA2-120-06	above flood elevation	0.54	
159	VAS-AOD-502B	Air Operated Damper	R/B RCA	W	50'-2"	FA2-411-01	above flood elevation	0.76	
160	VAS-AOD-503A	Air Operated Damper	R/B RCA	E	25'-3"	FA2-120-06	above flood elevation	0.54	

**Table 3K-2 R/B RCA Components Protected From Internal Flooding  
(Sheet 12 of 20)**

Item No.	Equipment Tag	Description	Location					Flood Elevation above Floor [ft]	Notes
			Building	Side	Floor Elevation	Fire Zone No.	Location Elevation above Floor		
161	VAS-AOD-503B	Air Operated Damper	R/B RCA	W	50'-2"	FA2-411-01	above flood elevation	0.76	
162	VAS-AOD-504A	Air Operated Damper	R/B RCA	E	25'-3"	FA2-117-19	above flood elevation	0.54	
163	VAS-AOD-504B	Air Operated Damper	R/B RCA	W	50'-2"	FA2-117-43	above flood elevation	0.76	
164	VAS-AOD-505A	Air Operated Damper	R/B RCA	E	3'-7"	FA2-117-08	above flood elevation	0.67	
165	VAS-AOD-505B	Air Operated Damper	R/B RCA	E	3'-7"	FA2-151-04	above flood elevation	0.67	
166	VAS-AOD-505C	Air Operated Damper	R/B RCA	W	3'-7"	FA2-152-04	above flood elevation	0.87	
167	VAS-AOD-505D	Air Operated Damper	R/B RCA	W	3'-7"	FA2-117-07	above flood elevation	0.87	
168	VAS-AOD-506A	Air Operated Damper	R/B RCA	E	3'-7"	FA2-120-04	N/A	-	1
169	VAS-AOD-506B	Air Operated Damper	R/B RCA	E	3'-7"	FA2-151-03	N/A	-	1
170	VAS-AOD-506C	Air Operated Damper	R/B RCA	W	3'-7"	FA2-152-03	N/A	-	1
171	VAS-AOD-506D	Air Operated Damper	R/B RCA	W	3'-7"	FA2-153-03	N/A	-	1
172	VAS-AOD-507A	Air Operated Damper	R/B RCA	E	3'-7"	FA2-120-04	N/A	-	1
173	VAS-AOD-507B	Air Operated Damper	R/B RCA	E	3'-7"	FA2-151-03	N/A	-	1
174	VAS-AOD-507C	Air Operated Damper	R/B RCA	W	3'-7"	FA2-152-03	N/A	-	1
175	VAS-AOD-507D	Air Operated Damper	R/B RCA	W	3'-7"	FA2-153-03	N/A	-	1
176	VAS-AOD-508A	Air Operated Damper	R/B RCA	E	3'-7"	FA2-117-08	above flood elevation	0.67	
177	VAS-AOD-508B	Air Operated Damper	R/B RCA	E	3'-7"	FA2-151-04	above flood elevation	0.67	

**Table 3K-2 R/B RCA Components Protected From Internal Flooding  
(Sheet 13 of 20)**

Item No.	Equipment Tag	Description	Location					Flood Elevation above Floor [ft]	Notes
			Building	Side	Floor Elevation	Fire Zone No.	Location Elevation above Floor		
178	VAS-AOD-508C	Air Operated Damper	R/B RCA	W	3'-7"	FA2-152-04	above flood elevation	0.87	
179	VAS-AOD-508D	Air Operated Damper	R/B RCA	W	3'-7"	FA2-117-07	above flood elevation	0.87	
180	VAS-AOD-511	Air Operated Damper	R/B RCA	W	76'-5"	FA2-117-44	above flood elevation	0.99	
181	VAS-AOD-512	Air Operated Damper	R/B RCA	W	76'-5"	FA2-117-44	above flood elevation	0.99	
182	VWS-TCV-2574	Chilled Water Control Valve	R/B RCA	E	3'-7"	FA2-120-05	N/A	-	1
183	VWS-TCV-2584	Chilled Water Control Valve	R/B RCA	E	3'-7"	FA2-151-02	N/A	-	1
184	VWS-TCV-2594	Chilled Water Control Valve	R/B RCA	W	3'-7"	FA2-152-02	N/A	-	1
185	VWS-TCV-2604	Chilled Water Control Valve	R/B RCA	W	3'-7"	FA2-153-04	N/A	-	1
186	VWS-TCV-2741A	Chilled Water Control Valve	R/B RCA	E	50'-2"	FA2-117-32	above flood elevation	0.54	
187	VWS-TCV-2741B	Chilled Water Control Valve	R/B RCA	E	50'-2"	FA2-117-32	above flood elevation	0.54	
188	VWS-TCV-2746A	Chilled Water Control Valve	R/B RCA	W	50'-2"	FA2-117-29	above flood elevation	0.76	
189	VWS-TCV-2746B	Chilled Water Control Valve	R/B RCA	W	50'-2"	FA2-117-29	above flood elevation	0.76	
190	VWS-TCV-2331	Chilled Water Control Valve	R/B RCA	E	50'-2"	FA2-408-01	above flood elevation	0.54	
191	VWS-TCV-2336	Chilled Water Control Valve	R/B RCA	E	50'-2"	FA2-409-01	above flood elevation	0.54	
192	VWS-TCV-2341	Chilled Water Control Valve	R/B RCA	W	50'-2"	FA2-410-01	above flood elevation	0.76	
193	VWS-TCV-2346	Chilled Water Control Valve	R/B RCA	W	50'-2"	FA2-411-01	above flood elevation	0.76	
194	VWS-MOV-403	Motor Operated Valve	R/B RCA	W	76'-5"	FA2-117-40	above flood elevation	0.99	

**Table 3K-2 R/B RCA Components Protected From Internal Flooding  
(Sheet 14 of 20)**

Item No.	Equipment Tag	Description	Location					Flood Elevation above Floor [ft]	Notes
			Building	Side	Floor Elevation	Fire Zone No.	Location Elevation above Floor		
195	VWS-MOV-407	Motor Operated Valve	R/B RCA	W	76'-5"	FA2-117-40	above flood elevation	0.99	
196	SRPP-A	Source Range Neutron Flux Preamplifier Panel (Train A)	R/B RCA	E	50'-2"	FA2-408-01	above flood elevation	0.54	
197	SRPP-D	Source Range Neutron Flux Preamplifier Panel (Train D)	R/B RCA	W	50'-2"	FA2-411-01	above flood elevation	0.76	
198	WRPP-A	Wide Range Neutron Flux Preamplifier Panel (Train A)	R/B RCA	E	50'-2"	FA2-408-01	above flood elevation	0.54	
199	WRPP-D	Wide Range Neutron Flux Preamplifier Panel (Train D)	R/B RCA	W	50'-2"	FA2-411-01	above flood elevation	0.76	
200	CVS-FT-218	Primary Makeup Water Supply Flow	R/B RCA	W	25'-3"	FA2-117-42	above flood elevation	0.69	
201	CVS-FT-219	Primary Makeup Water Supply Flow	R/B RCA	W	25'-3"	FA2-117-42	above flood elevation	0.69	
202	SIS-FT-962	A - Safety Injection Pump Discharge Flow	R/B RCA	E	-26'-4"	FA2-113-03	above flood elevation	1.49	
203	SIS-FT-963	B - Safety Injection Pump Discharge Flow	R/B RCA	E	-26'-4"	FA2-114-03	above flood elevation	1.49	
204	SIS-FT-964	C - Safety Injection Pump Discharge Flow	R/B RCA	W	-26'-4"	FA2-115-03	above flood elevation	2.79	
205	SIS-FT-965	D - Safety Injection Pump Discharge Flow	R/B RCA	W	-26'-4"	FA2-116-03	above flood elevation	2.79	
206	SIS-PT-960	A - Safety Injection Pump Suction Pressure	R/B RCA	E	-26'-4"	FA2-113-03	above flood elevation	1.49	
207	SIS-PT-961	B - Safety Injection Pump Suction Pressure	R/B RCA	E	-26'-4"	FA2-114-03	above flood elevation	1.49	

**Table 3K-2 R/B RCA Components Protected From Internal Flooding  
(Sheet 15 of 20)**

Item No.	Equipment Tag	Description	Location				Flood Elevation above Floor [ft]	Notes	
			Building	Side	Floor Elevation	Fire Zone No.			Location Elevation above Floor
208	SIS-PT-962	C - Safety Injection Pump Suction Pressure	R/B RCA	W	-26'-4"	FA2-115-03	above flood elevation	2.79	
209	SIS-PT-963	D - Safety Injection Pump Suction Pressure	R/B RCA	W	-26'-4"	FA2-116-03	above flood elevation	2.79	
210	SIS-PT-964	A - Safety Injection Pump Discharge Pressure	R/B RCA	E	-26'-4"	FA2-113-03	above flood elevation	1.49	
211	SIS-PT-965	B - Safety Injection Pump Discharge Pressure	R/B RCA	E	-26'-4"	FA2-114-03	above flood elevation	1.49	
212	SIS-PT-966	C - Safety Injection Pump Discharge Pressure	R/B RCA	W	-26'-4"	FA2-115-03	above flood elevation	2.79	
213	SIS-PT-967	D - Safety Injection Pump Discharge Pressure	R/B RCA	W	-26'-4"	FA2-116-03	above flood elevation	2.79	
214	RHS-FT-601	A - Containment Spray / Residual Heat Removal Pump Discharge Flow	R/B RCA	E	-26'-4"	FA2-113-03	above flood elevation	1.49	
215	RHS-FT-604	A - Containment Spray / Residual Heat Removal Pump Minimum Flow	R/B RCA	E	3'-7"	FA2-117-08	above flood elevation	0.67	
216	RHS-FT-611	B - Containment Spray / Residual Heat Removal Pump Discharge Flow	R/B RCA	E	-26'-4"	FA2-114-03	above flood elevation	1.49	
217	RHS-FT-614	B - Containment Spray / Residual Heat Removal Pump Minimum Flow	R/B RCA	E	3'-7"	FA2-151-04	above flood elevation	0.67	
218	RHS-FT-621	C - Containment Spray / Residual Heat Removal Pump Discharge Flow	R/B RCA	W	-26'-4"	FA2-115-03	above flood elevation	2.79	

**Table 3K-2 R/B RCA Components Protected From Internal Flooding  
(Sheet 16 of 20)**

Item No.	Equipment Tag	Description	Location				Flood Elevation above Floor [ft]	Notes	
			Building	Side	Floor Elevation	Fire Zone No.			
219	RHS-FT-624	C - Containment Spray / Residual Heat Removal Pump Minimum Flow	R/B RCA	W	3'-7"	FA2-152-04	above flood elevation	0.87	
220	RHS-FT-631	D - Containment Spray / Residual Heat Removal Pump Discharge Flow	R/B RCA	W	-26'-4"	FA2-116-03	above flood elevation	2.79	
221	RHS-FT-634	D - Containment Spray / Residual Heat Removal Pump Minimum Flow	R/B RCA	W	3'-7"	FA2-117-07	above flood elevation	0.87	
222	RHS-PT-600	A - Containment Spray / Residual Heat Removal Pump Suction Pressure	R/B RCA	E	-26'-4"	FA2-113-03	above flood elevation	1.49	
223	RHS-PT-601	A - Containment Spray / Residual Heat Removal Pump Discharge Pressure	R/B RCA	E	-26'-4"	FA2-113-03	above flood elevation	1.49	
224	RHS-PT-610	B - Containment Spray / Residual Heat Removal Pump Suction Pressure	R/B RCA	E	-26'-4"	FA2-114-03	above flood elevation	1.49	
225	RHS-PT-611	B - Containment Spray / Residual Heat Removal Pump Discharge Pressure	R/B RCA	E	-26'-4"	FA2-114-03	above flood elevation	1.49	
226	RHS-PT-620	C - Containment Spray / Residual Heat Removal Pump Suction Pressure	R/B RCA	W	-26'-4"	FA2-115-03	above flood elevation	2.79	
227	RHS-PT-621	C - Containment Spray / Residual Heat Removal Pump Discharge Pressure	R/B RCA	W	-26'-4"	FA2-115-03	above flood elevation	2.79	

**Table 3K-2 R/B RCA Components Protected From Internal Flooding  
(Sheet 17 of 20)**

Item No.	Equipment Tag	Description	Location					Flood Elevation above Floor [ft]	Notes
			Building	Side	Floor Elevation	Fire Zone No.	Location Elevation above Floor		
228	RHS-PT-630	D - Containment Spray / Residual Heat Removal Pump Suction Pressure	R/B RCA	W	-26'-4"	FA2-116-03	above flood elevation	2.79	
229	RHS-PT-631	D - Containment Spray / Residual Heat Removal Pump Discharge Pressure	R/B RCA	W	-26'-4"	FA2-116-03	above flood elevation	2.79	
230	CSS-PT-950	Containment Pressure	R/B RCA	E	25'-3"	FA2-151-05	above flood elevation	0.54	
231	CSS-PT-951	Containment Pressure	R/B RCA	E	25'-3"	FA2-151-05	above flood elevation	0.54	
232	CSS-PT-952	Containment Pressure	R/B RCA	W	76'-5"	FA2-117-35	above flood elevation	0.87	
233	CSS-PT-953	Containment Pressure	R/B RCA	W	76'-5"	FA2-117-35	above flood elevation	0.87	
234	RHS-TE-604	A - Containment Spray / Residual Heat Removal Heat Exchanger Outlet Temperature	R/B RCA	E	3'-7"	FA2-120-02	N/A	-	1
235	RHS-TE-614	B - Containment Spray / Residual Heat Removal Heat Exchanger Outlet Temperature	R/B RCA	E	3'-7"	FA2-151-01	N/A	-	1
236	RHS-TE-624	C - Containment Spray / Residual Heat Removal Heat Exchanger Outlet Temperature	R/B RCA	W	3'-7"	FA2-152-01	N/A	-	1
237	RHS-TE-634	D - Containment Spray / Residual Heat Removal Heat Exchanger Outlet Temperature	R/B RCA	W	3'-7"	FA2-153-01	N/A	-	1
238	VRS-TS-2330	A - Penetration Area Temperature	R/B RCA	E	25'-3"	FA2-120-06	above flood elevation	0.54	



**Table 3K-2 R/B RCA Components Protected From Internal Flooding  
(Sheet 18 of 20)**

Item No.	Equipment Tag	Description	Location					Flood Elevation above Floor [ft]	Notes
			Building	Side	Floor Elevation	Fire Zone No.	Location Elevation above Floor		
239	VRS-TS-2333	A - Penetration Area Temperature	R/B RCA	E	25'-3"	FA2-120-06	above flood elevation	0.54	
240	VRS-TS-2334	A - Penetration Area Temperature	R/B RCA	E	25'-3"	FA2-120-06	above flood elevation	0.54	
241	VRS-TS-2335	B - Penetration Area Temperature	R/B RCA	E	25'-3"	FA2-151-05	above flood elevation	0.54	
242	VRS-TS-2338	B - Penetration Area Temperature	R/B RCA	E	25'-3"	FA2-151-05	above flood elevation	0.54	
243	VRS-TS-2339	B - Penetration Area Temperature	R/B RCA	E	25'-3"	FA2-151-05	above flood elevation	0.54	
244	VRS-TS-2340	C - Penetration Area Temperature	R/B RCA	W	25'-3"	FA2-152-05	above flood elevation	0.69	
245	VRS-TS-2343	C - Penetration Area Temperature	R/B RCA	W	25'-3"	FA2-152-05	above flood elevation	0.69	
246	VRS-TS-2344	C - Penetration Area Temperature	R/B RCA	W	25'-3"	FA2-152-05	above flood elevation	0.69	
247	VRS-TS-2345	D - Penetration Area Temperature	R/B RCA	W	25'-3"	FA2-153-05	above flood elevation	0.69	
248	VRS-TS-2348	D - Penetration Area Temperature	R/B RCA	W	25'-3"	FA2-153-05	above flood elevation	0.69	
249	VRS-TS-2349	D - Penetration Area Temperature	R/B RCA	W	25'-3"	FA2-153-05	above flood elevation	0.69	
250	VRS-TS-2572	A - Safeguard Component Area Temperature	R/B RCA	E	3'-7"	FA2-120-04	N/A	-	1
251	VRS-TS-2573	A - Safeguard Component Area Temperature	R/B RCA	E	3'-7"	FA2-120-04	N/A	-	1
252	VRS-TS-2575	A - Safeguard Component Area Temperature	R/B RCA	E	3'-7"	FA2-120-04	N/A	-	1
253	VRS-TS-2582	B - Safeguard Component Area Temperature	R/B RCA	E	3'-7"	FA2-151-03	N/A	-	1

**Table 3K-2 R/B RCA Components Protected From Internal Flooding  
(Sheet 19 of 20)**

Item No.	Equipment Tag	Description	Location				Flood Elevation above Floor [ft]	Notes	
			Building	Side	Floor Elevation	Fire Zone No.			Location Elevation above Floor
254	VRS-TS-2583	B - Safeguard Component Area Temperature	R/B RCA	E	3'-7"	FA2-151-03	N/A	-	1
255	VRS-TS-2585	B - Safeguard Component Area Temperature	R/B RCA	E	3'-7"	FA2-151-03	N/A	-	1
256	VRS-TS-2592	C - Safeguard Component Area Temperature	R/B RCA	W	3'-7"	FA2-152-03	N/A	-	1
257	VRS-TS-2593	C - Safeguard Component Area Temperature	R/B RCA	W	3'-7"	FA2-152-03	N/A	-	1
258	VRS-TS-2595	C - Safeguard Component Area Temperature	R/B RCA	W	3'-7"	FA2-152-03	N/A	-	1
259	VRS-TS-2602	D - Safeguard Component Area Temperature	R/B RCA	W	3'-7"	FA2-153-03	N/A	-	1
260	VRS-TS-2603	D - Safeguard Component Area Temperature	R/B RCA	W	3'-7"	FA2-153-03	N/A	-	1
261	VRS-TS-2605	D - Safeguard Component Area Temperature	R/B RCA	W	3'-7"	FA2-153-03	N/A	-	1
262	VRS-TS-2740	A - Annulus Emergency Exhaust Filtration Unit Area Temperature	R/B RCA	E	50'-2"	FA2-117-32	above flood elevation	0.54	
263	VRS-TS-2743	A - Annulus Emergency Exhaust Filtration Unit Area Temperature	R/B RCA	E	50'-2"	FA2-117-32	above flood elevation	0.54	
264	VRS-TS-2744	A - Annulus Emergency Exhaust Filtration Unit Area Temperature	R/B RCA	E	50'-2"	FA2-117-32	above flood elevation	0.54	
265	VRS-TS-2745	B - Annulus Emergency Exhaust Filtration Unit Area Temperature	R/B RCA	W	50'-2"	FA2-117-29	above flood elevation	0.76	
266	VRS-TS-2748	B - Annulus Emergency Exhaust Filtration Unit Area Temperature	R/B RCA	W	50'-2"	FA2-117-29	above flood elevation	0.76	

**Table 3K-2 R/B RCA Components Protected From Internal Flooding  
(Sheet 20 of 20)**

Item No.	Equipment Tag	Description	Location				Flood Elevation above Floor [ft]	Notes	
			Building	Side	Floor Elevation	Fire Zone No.			Location Elevation above Floor
267	VRS-TS-2749	B - Annulus Emergency Exhaust Filtration Unit Area Temperature	R/B RCA	W	50'-2"	FA2-117-29	above flood elevation	0.76	

**Note:**

1. These components are protected by water-tight door and floor drain isolation valve against in-flow of flooding occurring outside of compartment. In addition, these components are not required to be protected against flooding occurring inside the compartment due to redundancy of other trains/components.

**Impact on COLA**

There is no impact on the COLA.

**Impact on PRA**

There is no impact on the PRA.

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**RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION**

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5/21/2009

**US-APWR Design Certification**

**Mitsubishi Heavy Industries**

**Docket No. 52-021**

**RAI NO.:** NO. 220-2058 REVISION 1  
**SRP SECTION:** 03.04.01 – Internal Flood Protection for Onsite Equipment  
Failures  
**APPLICATION SECTION:** 03.04.01  
**DATE OF RAI ISSUE:** 02/26/09

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**QUESTION NO. RAI 3.4.1-05:**

DCD Tier 1, Table 2.2-3, "Main Components Protected against External Floods, Internal Floods and Internal Fires," and DCD Tier 2, Sections 3.4.1.3 and 3.4.1.5.2.2 identify SSCs that require protection from internal flood according to specific buildings or building areas, including SSCs located inside the Non-Radiological Controlled Area (NRCA) of the Reactor Building (R/B). It is not clear that the DCD has identified a complete set of SSCs located inside the NRCA portion of the R/B that must be protected from flood. For example, the DCD does not appear to identify all circuitry between the process and input terminals of actuator systems involved in protective actions.

GDC 2 requires in part that "structures, systems, and components important to safety shall be designed to withstand the effects of natural phenomena such as ... floods ... without loss of capability to perform their safety functions." SRP Section 3.4.1, Acceptance Criteria 1 states that acceptable guidance for meeting the seismic design and classification requirements of GDC 2 can be based on meeting Regulatory Guide (RG) 1.29, "Seismic Design Classification," Revision 4, March 2007, Position C.1 for safety-related SSCs and Position C.2 for nonsafety-related SSCs. For example, all circuitry between the process and input terminals of actuator systems involved in protective actions should be protected as indicated in Position C.1 of RG 1.29, Item (j). Also, per SRP 3.4.1, Item I.1, the set of SSCs that must be protected from flooding should be reviewed, and therefore, should be identified in the DCD.

Provide a complete list of SSCs located within the NRCA portion of the R/B that require protection from internal flood. Include this information in the DCD and provide a markup in your response.

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**ANSWER:**

A complete list of SSCs located within the NRCA portion of the R/B that require protection from internal flooding, and the component's capability to perform their intended safety function in the

event of flooding, will be provided in Table 3K-3 of new Appendix 3K to be incorporated in the DCD.

**Impact on DCD**

See Attachment 1 for the mark-up of new Appendix 3K to be incorporated at the end of US-APWR DCD.

- Insert the following Table 3K-3 as the third table in new Appendix 3K:

**Table 3K-3 R/B NRCA Components Protected From Internal Flooding  
(Sheet 1 of 30)**

Item No.	Equipment Tag	Description	Location				Flood Elevation above Floor [ft]	Notes	
			Building	Side	Floor Elevation	Fire Zone No.			Location Elevation above Floor
1	EFS-RPP-001A	A-Emergency Feedwater Pump	R/B NRCA	E	-26'-4"	FA2-102-01	N/A	-	1
2	EFS-RPP-001B	B-Emergency Feedwater Pump	R/B NRCA	E	-26'-4"	FA2-103-01	above flood elevation	0.47	
3	EFS-RPP-001C	C-Emergency Feedwater Pump	R/B NRCA	W	-26'-4"	FA2-109-01	above flood elevation	0.63	
4	EFS-RPP-001D	D-Emergency Feedwater Pump	R/B NRCA	W	-26'-4"	FA2-108-01	N/A	-	1
5	EFS-RPT-001A	A-Emergency Feedwater Pit	R/B NRCA	E	76'-5"	FA2-501-02	0	1.35	2
6	EFS-RPK-001B	B-Emergency Feedwater Pit	R/B NRCA	W	76'-5"	FA2-501-08	0	1.15	2
7	EFS-MOV-014A	Motor Operated Valve	R/B NRCA	E	-26'-4"	FA2-102-01	N/A	-	1
8	EFS-MOV-014B	Motor Operated Valve	R/B NRCA	E	-26'-4"	FA2-103-01	above flood elevation	0.47	
9	EFS-MOV-014C	Motor Operated Valve	R/B NRCA	W	-26'-4"	FA2-109-01	above flood elevation	0.63	
10	EFS-MOV-014D	Motor Operated Valve	R/B NRCA	W	-26'-4"	FA2-108-01	N/A	-	1
11	EFS-MOV-017A	A-Emergency Feedwater Control Valve	R/B NRCA	E	65'-0"	FA2-414-01	above flood elevation	4.6	
12	EFS-MOV-017B	B-Emergency Feedwater Control Valve	R/B NRCA	E	65'-0"	FA2-414-01	above flood elevation	4.6	
13	EFS-MOV-017C	C-Emergency Feedwater Control Valve	R/B NRCA	W	65'-0"	FA2-415-01	above flood elevation	4.6	
14	EFS-MOV-017D	D-Emergency Feedwater Control Valve	R/B NRCA	W	65'-0"	FA2-415-01	above flood elevation	4.6	
15	EFS-MOV-019A	A-Emergency Feedwater Isolation Valve	R/B NRCA	E	65'-0"	FA2-414-01	above flood elevation	4.6	

**Table 3K-3 R/B NRCA Components Protected From Internal Flooding  
(Sheet 2 of 30)**

Item No.	Equipment Tag	Description	Location				Flood Elevation above Floor [ft]	Notes	
			Building	Side	Floor Elevation	Fire Zone No.			Location Elevation above Floor
16	EFS-MOV-019B	B-Emergency Feedwater Isolation Valve	R/B NRCA	E	65'-0"	FA2-414-01	above flood elevation	4.6	
17	EFS-MOV-019C	C-Emergency Feedwater Isolation Valve	R/B NRCA	W	65'-0"	FA2-415-01	above flood elevation	4.6	
18	EFS-MOV-019D	D-Emergency Feedwater Isolation Valve	R/B NRCA	W	65'-0"	FA2-415-01	above flood elevation	4.6	
19	EFS-MOV-101A	A-Emergency Feedwater Pump A- Main Steam Line Steam Isolation Valve	R/B NRCA	E	65'-0"	FA2-414-01	above flood elevation	4.6	
20	EFS-MOV-101B	A-Emergency Feedwater Pump B- Main Steam Line Steam Isolation Valve	R/B NRCA	E	65'-0"	FA2-414-01	above flood elevation	4.6	
21	EFS-MOV-101C	D-Emergency Feedwater Pump C- Main Steam Line Steam Isolation Valve	R/B NRCA	W	65'-0"	FA2-415-01	above flood elevation	4.6	
22	EFS-MOV-101D	D-Emergency Feedwater Pump D- Main Steam Line Steam Isolation Valve	R/B NRCA	W	65'-0"	FA2-415-01	above flood elevation	4.6	
23	EFS-MOV-103A	A-Emergency Feedwater Pump Actuation Valve	R/B NRCA	E	65'-0"	FA2-414-01	above flood elevation	4.6	
24	EFS-MOV-103D	B-Emergency Feedwater Pump Actuation Valve	R/B NRCA	W	65'-0"	FA2-415-01	above flood elevation	4.6	
25	NFS-VLV-512A	A-Main Feedwater Isolation Valve	R/B NRCA	E	65'-0"	FA2-414-01	below flood elevation	4.6	3
26	NFS-VLV-512B	B-Main Feedwater Isolation Valve	R/B NRCA	E	65'-0"	FA2-414-01	below flood elevation	4.6	3



**Table 3K-3 R/B NRCA Components Protected From Internal Flooding  
(Sheet 3 of 30)**

Item No.	Equipment Tag	Description	Location					Flood Elevation above Floor [ft]	Notes
			Building	Side	Floor Elevation	Fire Zone No.	Location Elevation above Floor		
27	NFS-VLV-512C	C-Main Feedwater Isolation Valve	R/B NRCA	W	65'-0"	FA2-415-01	below flood elevation	4.6	3
28	NFS-VLV-512D	D-Main Feedwater Isolation Valve	R/B NRCA	W	65'-0"	FA2-415-01	below flood elevation	4.6	3
29	NMS-VLV-509A	A1-Main Steam Safety Valve	R/B NRCA	E	65'-0"	FA2-414-01	above flood elevation	4.6	
30	NMS-VLV-510A	A2-Main Steam Safety Valve	R/B NRCA	E	65'-0"	FA2-414-01	above flood elevation	4.6	
31	NMS-VLV-511A	A3-Main Steam Safety Valve	R/B NRCA	E	65'-0"	FA2-414-01	above flood elevation	4.6	
32	NMS-VLV-512A	A4-Main Steam Safety Valve	R/B NRCA	E	65'-0"	FA2-414-01	above flood elevation	4.6	
33	NMS-VLV-513A	A5-Main Steam Safety Valve	R/B NRCA	E	65'-0"	FA2-414-01	above flood elevation	4.6	
34	NMS-VLV-514A	A6-Main Steam Safety Valve	R/B NRCA	E	65'-0"	FA2-414-01	above flood elevation	4.6	
35	NMS-VLV-509B	B1-Main Steam Safety Valve	R/B NRCA	E	65'-0"	FA2-414-01	above flood elevation	4.6	
36	NMS-VLV-510B	B2-Main Steam Safety Valve	R/B NRCA	E	65'-0"	FA2-414-01	above flood elevation	4.6	
37	NMS-VLV-511B	B3-Main Steam Safety Valve	R/B NRCA	E	65'-0"	FA2-414-01	above flood elevation	4.6	
38	NMS-VLV-512B	B4-Main Steam Safety Valve	R/B NRCA	E	65'-0"	FA2-414-01	above flood elevation	4.6	
39	NMS-VLV-513B	B5-Main Steam Safety Valve	R/B NRCA	E	65'-0"	FA2-414-01	above flood elevation	4.6	
40	NMS-VLV-514B	B6-Main Steam Safety Valve	R/B NRCA	E	65'-0"	FA2-414-01	above flood elevation	4.6	
41	NMS-VLV-509C	C1-Main Steam Safety Valve	R/B NRCA	W	65'-0"	FA2-415-01	above flood elevation	4.6	
42	NMS-VLV-510C	C2-Main Steam Safety Valve	R/B NRCA	W	65'-0"	FA2-415-01	above flood elevation	4.6	
43	NMS-VLV-511C	C3-Main Steam Safety Valve	R/B NRCA	W	65'-0"	FA2-415-01	above flood elevation	4.6	

**Table 3K-3 R/B NRCA Components Protected From Internal Flooding  
(Sheet 4 of 30)**

Item No.	Equipment Tag	Description	Location					Flood Elevation above Floor [ft]	Notes
			Building	Side	Floor Elevation	Fire Zone No.	Location Elevation above Floor		
44	NMS-VLV-512C	C4-Main Steam Safety Valve	R/B NRCA	W	65'-0"	FA2-415-01	above flood elevation	4.6	
45	NMS-VLV-513C	C5-Main Steam Safety Valve	R/B NRCA	W	65'-0"	FA2-415-01	above flood elevation	4.6	
46	NMS-VLV-514C	C6-Main Steam Safety Valve	R/B NRCA	W	65'-0"	FA2-415-01	above flood elevation	4.6	
47	NMS-VLV-509D	D1-Main Steam Safety Valve	R/B NRCA	W	65'-0"	FA2-415-01	above flood elevation	4.6	
48	NMS-VLV-510D	D2-Main Steam Safety Valve	R/B NRCA	W	65'-0"	FA2-415-01	above flood elevation	4.6	
49	NMS-VLV-511D	D3-Main Steam Safety Valve	R/B NRCA	W	65'-0"	FA2-415-01	above flood elevation	4.6	
50	NMS-VLV-512D	D4-Main Steam Safety Valve	R/B NRCA	W	65'-0"	FA2-415-01	above flood elevation	4.6	
51	NMS-VLV-513D	D5-Main Steam Safety Valve	R/B NRCA	W	65'-0"	FA2-415-01	above flood elevation	4.6	
52	NMS-VLV-514D	D6-Main Steam Safety Valve	R/B NRCA	W	65'-0"	FA2-415-01	above flood elevation	4.6	
53	NMS-MOV-507A	A-Main Steam Relief Valve Block Valve	R/B NRCA	E	65'-0"	FA2-414-01	above flood elevation	4.6	
54	NMS-MOV-507B	B-Main Steam Relief Valve Block Valve	R/B NRCA	E	65'-0"	FA2-414-01	above flood elevation	4.6	
55	NMS-MOV-507C	C-Main Steam Relief Valve Block Valve	R/B NRCA	W	65'-0"	FA2-415-01	above flood elevation	4.6	
56	NMS-MOV-507D	D-Main Steam Relief Valve Block Valve	R/B NRCA	W	65'-0"	FA2-415-01	above flood elevation	4.6	
57	NMS-MOV-508A	A-Main Steam Depressurization Valve	R/B NRCA	E	65'-0"	FA2-414-01	above flood elevation	4.6	
58	NMS-MOV-508B	B-Main Steam Depressurization Valve	R/B NRCA	E	65'-0"	FA2-414-01	above flood elevation	4.6	

**Table 3K-3 R/B NRCA Components Protected From Internal Flooding  
(Sheet 5 of 30)**

Item No.	Equipment Tag	Description	Location					Flood Elevation above Floor [ft]	Notes
			Building	Side	Floor Elevation	Fire Zone No.	Location Elevation above Floor		
59	NMS-MOV-508C	C-Main Steam Depressurization Valve	R/B NRCA	W	65'-0"	FA2-415-01	above flood elevation	4.6	
60	NMS-MOV-508D	D-Main Steam Depressurization Valve	R/B NRCA	W	65'-0"	FA2-415-01	above flood elevation	4.6	
61	NMS-AOV-515A	A-Main Steam Isolation Valve	R/B NRCA	E	65'-0"	FA2-414-01	above flood elevation	4.6	
62	NMS-AOV-515B	B-Main Steam Isolation Valve	R/B NRCA	E	65'-0"	FA2-414-01	above flood elevation	4.6	
63	NMS-AOV-515C	C-Main Steam Isolation Valve	R/B NRCA	W	65'-0"	FA2-415-01	above flood elevation	4.6	
64	NMS-AOV-515D	D-Main Steam Isolation Valve	R/B NRCA	W	65'-0"	FA2-415-01	above flood elevation	4.6	
65	NMS-HCV-3615	A-Main Steam Bypass Isolation Valve	R/B NRCA	E	65'-0"	FA2-414-01	above flood elevation	4.6	
66	NMS-HCV-3625	B-Main Steam Bypass Isolation Valve	R/B NRCA	E	65'-0"	FA2-414-01	above flood elevation	4.6	
67	NMS-HCV-3635	C-Main Steam Bypass Isolation Valve Hand Control Valve	R/B NRCA	W	65'-0"	FA2-415-01	above flood elevation	4.6	
68	NMS-HCV-3645	D-Main Steam Bypass Isolation Valve Hand Control Valve	R/B NRCA	W	65'-0"	FA2-415-01	above flood elevation	4.6	
69	NMS-PCV-465	A-Main Steam Relief Valve	R/B NRCA	E	65'-0"	FA2-414-01	above flood elevation	4.6	
70	NMS-PCV-475	B-Main Steam Relief Valve	R/B NRCA	E	65'-0"	FA2-414-01	above flood elevation	4.6	
71	NMS-PCV-485	C-Main Steam Relief Valve	R/B NRCA	W	65'-0"	FA2-415-01	above flood elevation	4.6	
72	NMS-PCV-495	D-Main Steam Relief Valve	R/B NRCA	W	65'-0"	FA2-415-01	above flood elevation	4.6	
73	NMS-MOV-701A	A-Main Steam Drain Isolation Valve	R/B NRCA	E	65'-0"	FA2-414-01	above flood elevation	4.6	

**Table 3K-3 R/B NRCA Components Protected From Internal Flooding  
(Sheet 6 of 30)**

Item No.	Equipment Tag	Description	Location					Flood Elevation above Floor [ft]	Notes
			Building	Side	Floor Elevation	Fire Zone No.	Location Elevation above Floor		
74	NMS-MOV-701B	B-Main Steam Drain Isolation Valve	R/B NRCA	E	65'-0"	FA2-414-01	above flood elevation	4.6	
75	NMS-MOV-701C	C-Main Steam Drain Isolation Valve	R/B NRCA	W	65'-0"	FA2-415-01	above flood elevation	4.6	
76	NMS-MOV-701D	D-Main Steam Drain Isolation Valve	R/B NRCA	W	65'-0"	FA2-415-01	above flood elevation	4.6	
77	NCS-RPP-001A	A-Component Cooling Water Pump	R/B NRCA	E	-26'-4"	FA2-104-01	above flood elevation	0.47	
78	NCS-RPP-001B	B-Component Cooling Water Pump	R/B NRCA	E	-26'-4"	FA2-105-01	above flood elevation	0.47	
79	NCS-RPP-001C	C-Component Cooling Water Pump	R/B NRCA	W	-26'-4"	FA2-106-01	above flood elevation	0.63	
80	NCS-RPP-001D	D-Component Cooling Water Pump	R/B NRCA	W	-26'-4"	FA2-107-01	above flood elevation	0.63	
81	NCS-RTK-001A	A-Component Cooling Water Surge tank	R/B NRCA	E	101'-0"	FA2-601-01	below flood elevation	1.7	4
82	NCS-RTK-001B	B-Component Cooling Water Surge Tank	R/B NRCA	W	101'-0"	FA2-602-01	below flood elevation	4.7	5
83	NCS-RHX-001A	A-Component Cooling Water Heat Exchanger	R/B NRCA	E	-26'-4"	FA2-104-01	above flood elevation	0.47	
84	NCS-RHX-001B	B-Component Cooling Water Heat Exchanger	R/B NRCA	E	-26'-4"	FA2-105-01	above flood elevation	0.47	
85	NCS-RHX-001C	C-Component Cooling Water Heat Exchanger	R/B NRCA	W	-26'-4"	FA2-106-01	above flood elevation	0.63	
86	NCS-RHX-001D	D-Component Cooling Water Heat Exchanger	R/B NRCA	W	-26'-4"	FA2-107-01	above flood elevation	0.63	
87	NCS-VLV-003A	Safety Valve	R/B NRCA	E	101'-0"	FA2-601-01	above flood elevation	1.7	
88	NCS-VLV-003B	Safety Valve	R/B NRCA	W	101'-0"	FA2-602-01	above flood elevation	4.7	

**Table 3K-3 R/B NRCA Components Protected From Internal Flooding  
(Sheet 7 of 30)**

Item No.	Equipment Tag	Description	Location					Flood Elevation above Floor [ft]	Notes
			Building	Side	Floor Elevation	Fire Zone No.	Location Elevation above Floor		
89	NCS-MOV-007A	Motor Operated Valve	R/B NRCA	E	-26'-4"	FA2-104-01	above flood elevation	0.47	
90	NCS-MOV-007B	Motor Operated Valve	R/B NRCA	E	-26'-4"	FA2-105-01	above flood elevation	0.47	
91	NCS-MOV-020A	Motor Operated Valve	R/B NRCA	E	-26'-4"	FA2-104-01	above flood elevation	0.47	
92	NCS-MOV-020B	Motor Operated Valve	R/B NRCA	E	-26'-4"	FA2-105-01	above flood elevation	0.47	
93	NCS-VLV-035A	Safety Valve	R/B NRCA	E	-26'-4"	FA2-105-01	above flood elevation	0.47	
94	NCS-VLV-035B	Safety Valve	R/B NRCA	E	-26'-4"	FA2-106-01	above flood elevation	0.63	
95	NCS-RCV-056A	Radiation Control Valve	R/B NRCA	E	101'-0"	FA2-601-01	above flood elevation	1.7	
96	NCS-LCV-1200	Level Control Valve	R/B NRCA	E	101'-0"	FA2-601-01	above flood elevation	1.7	
97	NCS-MOV-007C	Motor Operated Valve	R/B NRCA	W	-26'-4"	FA2-106-01	above flood elevation	0.63	
98	NCS-MOV-007D	Motor Operated Valve	R/B NRCA	W	-26'-4"	FA2-107-01	above flood elevation	0.63	
99	NCS-MOV-020C	Motor Operated Valve	R/B NRCA	W	-26'-4"	FA2-106-01	above flood elevation	0.63	
100	NCS-MOV-020D	Motor Operated Valve	R/B NRCA	W	-26'-4"	FA2-107-01	above flood elevation	0.63	
101	NCS-RCV-056B	Radiation Control Valve	R/B NRCA	W	101'-0"	FA2-602-01	above flood elevation	4.7	
102	NCS-LCV-1210	Level Control Valve	R/B NRCA	W	101'-0"	FA2-602-01	below flood elevation	4.7	7
103	NCS-PCV-1202	Pressure Control Valve	R/B NRCA	E	101'-0"	FA2-601-01	above flood elevation	1.7	
104	NCS-PCV-1212	Pressure Control Valve	R/B NRCA	W	101'-0"	FA2-602-01	above flood elevation	4.7	

**Table 3K-3 R/B NRCA Components Protected From Internal Flooding  
(Sheet 8 of 30)**

Item No.	Equipment Tag	Description	Location					Flood Elevation above Floor [ft]	Notes
			Building	Side	Floor Elevation	Fire Zone No.	Location Elevation above Floor		
105	EWS-RSR-003A	A-Component Cooling Water Heat Exchanger Inlet Strainer	R/B NRCA	E	-26'-4"	FA2-104-01	above flood elevation	0.47	
106	EWS-RSR-003B	B-Component Cooling Water Heat Exchanger Inlet Strainer	R/B NRCA	E	-26'-4"	FA2-105-01	above flood elevation	0.47	
107	EWS-RSR-003C	C-Component Cooling Water Heat Exchanger Inlet Strainer	R/B NRCA	W	-26'-4"	FA2-106-01	above flood elevation	0.63	
108	EWS-RSR-003D	D-Component Cooling Water Heat Exchanger Inlet Strainer	R/B NRCA	W	-26'-4"	FA2-107-01	above flood elevation	0.63	
109	SGS-AOV-001A	Air Operated Valve	R/B NRCA	E	65'-0"	FA2-414-01	above flood elevation	4.6	
110	SGS-AOV-001B	Air Operated Valve	R/B NRCA	E	65'-0"	FA2-414-01	above flood elevation	4.6	
111	SGS-AOV-001C	Air Operated Valve	R/B NRCA	W	65'-0"	FA2-415-01	above flood elevation	4.6	
112	SGS-AOV-001D	Air Operated Valve	R/B NRCA	W	65'-0"	FA2-415-01	above flood elevation	4.6	
113	SGS-AOV-002A	Air Operated Valve	R/B NRCA	E	65'-0"	FA2-414-01	above flood elevation	4.6	
114	SGS-AOV-002B	Air Operated Valve	R/B NRCA	E	65'-0"	FA2-414-01	above flood elevation	4.6	
115	SGS-AOV-002C	Air Operated Valve	R/B NRCA	W	65'-0"	FA2-415-01	above flood elevation	4.6	
116	SGS-AOV-002D	Air Operated Valve	R/B NRCA	W	65'-0"	FA2-415-01	above flood elevation	4.6	
117	VRS-RAH-101A	A-Main Control Room Air Handling Unit	R/B NRCA	E	50'-2"	FA2-402-01	above flood elevation	0.81	
118	VRS-RAH-101B	B-Main Control Room Air Handling Unit	R/B NRCA	E	50'-2"	FA2-401-01	above flood elevation	0.81	
119	VRS-RAH-101C	C-Main Control Room Air Handling Unit	R/B NRCA	W	50'-2"	FA2-403-01	above flood elevation	0.84	

**Table 3K-3 R/B NRCA Components Protected From Internal Flooding  
(Sheet 9 of 30)**

Item No.	Equipment Tag	Description	Location				Flood Elevation above Floor [ft]	Notes	
			Building	Side	Floor Elevation	Fire Zone No.			Location Elevation above Floor
120	VRS-RAH-101D	D-Main Control Room Air Handling Unit	R/B NRCA	W	50'-2"	FA2-404-01	above flood elevation	0.84	
121	VRS-RFN-101A	A-Main Control Room Air Handling Unit Fan	R/B NRCA	E	50'-2"	FA2-402-01	above flood elevation	0.81	
122	VRS-RFN-101B	B-Main Control Room Air Handling Unit Fan	R/B NRCA	E	50'-2"	FA2-401-01	above flood elevation	0.81	
123	VRS-RFN-101C	C-Main Control Room Air Handling Unit Fan	R/B NRCA	W	50'-2"	FA2-403-01	above flood elevation	0.84	
124	VRS-RFN-101D	D-Main Control Room Air Handling Unit Fan	R/B NRCA	W	50'-2"	FA2-404-01	above flood elevation	0.84	
125	VRS-RCC-101A	A-Main Control Room Air Handling Unit Cooling Coil	R/B NRCA	E	50'-2"	FA2-402-01	above flood elevation	0.81	
126	VRS-RCC-101B	B-Main Control Room Air Handling Unit Cooling Coil	R/B NRCA	E	50'-2"	FA2-401-01	above flood elevation	0.81	
127	VRS-RCC-101C	C-Main Control Room Air Handling Unit Cooling Coil	R/B NRCA	W	50'-2"	FA2-403-01	above flood elevation	0.84	
128	VRS-RCC-101D	D-Main Control Room Air Handling Unit Cooling Coil	R/B NRCA	W	50'-2"	FA2-404-01	above flood elevation	0.84	
129	VRS-REH-101A	A-Main Control Room Air Handling Unit Electric Heating Coil	R/B NRCA	E	50'-2"	FA2-402-01	above flood elevation	0.81	
130	VRS-REH-101B	B-Main Control Room Air Handling Unit Electric Heating Coil	R/B NRCA	E	50'-2"	FA2-401-01	above flood elevation	0.81	
131	VRS-REH-101C	C-Main Control Room Air Handling Unit Electric Heating Coil	R/B NRCA	W	50'-2"	FA2-403-01	above flood elevation	0.84	
132	VRS-REH-101D	D-Main Control Room Air Handling Unit Electric Heating Coil	R/B NRCA	W	50'-2"	FA2-404-01	above flood elevation	0.84	

**Table 3K-3 R/B NRCA Components Protected From Internal Flooding  
(Sheet 10 of 30)**

Item No.	Equipment Tag	Description	Location					Flood Elevation above Floor [ft]	Notes
			Building	Side	Floor Elevation	Fire Zone No.	Location Elevation above Floor		
133	VRS-RFU-111A	A-Main Control Room Emergency Filtration Unit	R/B NRCA	E	50'-2"	FA2-405-01	above flood elevation	0.81	
134	VRS-RFU-111B	B-Main Control Room Emergency Filtration Unit	R/B NRCA	W	50'-2"	FA2-406-01	above flood elevation	0.84	
135	VRS-RFN-111A	A-Main Control Room Emergency Filtration Unit Fan	R/B NRCA	E	50'-2"	FA2-405-01	above flood elevation	0.81	
136	VRS-RFN-111B	B-Main Control Room Emergency Filtration Unit Fan	R/B NRCA	W	50'-2"	FA2-406-01	above flood elevation	0.84	
137	VRS-REH-111A	A-Main Control Room Emergency Filtration Unit Electric Heating Coil	R/B NRCA	E	50'-2"	FA2-405-01	above flood elevation	0.81	
138	VRS-REH-111B	B-Main Control Room Emergency Filtration Unit Electric Heating Coil	R/B NRCA	W	50'-2"	FA2-406-01	above flood elevation	0.84	
139	VRS-MOD-101A	Motor Operated Damper	R/B NRCA	E	50'-2"	FA2-407-04	above flood elevation	0.81	
140	VRS-MOD-101B	Motor Operated Damper	R/B NRCA	W	50'-2"	FA2-407-01	above flood elevation	0.84	
141	VRS-MOD-102A	Motor Operated Damper	R/B NRCA	E	50'-2"	FA2-407-04	above flood elevation	0.81	
142	VRS-MOD-102B	Motor Operated Damper	R/B NRCA	W	50'-2"	FA2-407-01	above flood elevation	0.84	
143	VRS-AOD-103A	Air Operated Damper	R/B NRCA	E	50'-2"	FA2-412-01	above flood elevation	0.81	
144	VRS-AOD-103B	Air Operated Damper	R/B NRCA	W	50'-2"	FA2-413-01	above flood elevation	0.84	
145	VRS-MOD-104A	Motor Operated Damper	R/B NRCA	E	50'-2"	FA2-412-01	above flood elevation	0.81	
146	VRS-MOD-104B	Motor Operated Damper	R/B NRCA	W	50'-2"	FA2-413-01	above flood elevation	0.84	
147	VRS-MOD-105A	Motor Operated Damper	R/B NRCA	E	50'-2"	FA2-412-01	above flood elevation	0.81	



**Table 3K-3 R/B NRCA Components Protected From Internal Flooding  
(Sheet 11 of 30)**

Item No.	Equipment Tag	Description	Location					Flood Elevation above Floor [ft]	Notes
			Building	Side	Floor Elevation	Fire Zone No.	Location Elevation above Floor		
148	VRS-MOD-105B	Motor Operated Damper	R/B NRCA	E	50'-2"	FA2-412-01	above flood elevation	0.81	
149	VRS-MOD-105C	Motor Operated Damper	R/B NRCA	W	50'-2"	FA2-413-01	above flood elevation	0.84	
150	VRS-MOD-105D	Motor Operated Damper	R/B NRCA	W	50'-2"	FA2-413-01	above flood elevation	0.84	
151	VRS-MOD-106A	Motor Operated Damper	R/B NRCA	E	50'-2"	FA2-412-01	above flood elevation	0.81	
152	VRS-MOD-106B	Motor Operated Damper	R/B NRCA	E	50'-2"	FA2-412-01	above flood elevation	0.81	
153	VRS-MOD-106C	Motor Operated Damper	R/B NRCA	W	50'-2"	FA2-413-01	above flood elevation	0.84	
154	VRS-MOD-106D	Motor Operated Damper	R/B NRCA	W	50'-2"	FA2-413-01	above flood elevation	0.84	
155	VRS-MOD-107A	Motor Operated Damper	R/B NRCA	E	50'-2"	FA2-412-01	above flood elevation	0.81	
156	VRS-MOD-107B	Motor Operated Damper	R/B NRCA	W	50'-2"	FA2-413-01	above flood elevation	0.84	
157	VRS-MOD-111A	Motor Operated Damper	R/B NRCA	E	50'-2"	FA2-412-01	above flood elevation	0.81	
158	VRS-MOD-111B	Motor Operated Damper	R/B NRCA	W	50'-2"	FA2-413-01	above flood elevation	0.84	
159	VRS-MOD-112A	Motor Operated Damper	R/B NRCA	E	50'-2"	FA2-412-01	above flood elevation	0.81	
160	VRS-MOD-112B	Motor Operated Damper	R/B NRCA	W	50'-2"	FA2-413-01	above flood elevation	0.84	
161	VRS-MOD-113A	Motor Operated Damper	R/B NRCA	E	50'-2"	FA2-405-01	above flood elevation	0.81	
162	VRS-MOD-113B	Motor Operated Damper	R/B NRCA	W	50'-2"	FA2-406-01	above flood elevation	0.84	
163	VRS-AOD-121	Air Operated Damper	R/B NRCA	E	26'-11"	FA2-308-02	N/A	-	6
164	VRS-AOD-122	Air Operated Damper	R/B NRCA	E	50'-2"	FA2-412-01	above flood elevation	0.81	

**Table 3K-3 R/B NRCA Components Protected From Internal Flooding  
(Sheet 12 of 30)**

Item No.	Equipment Tag	Description	Location				Flood Elevation above Floor [ft]	Notes	
			Building	Side	Floor Elevation	Fire Zone No.			Location Elevation above Floor
165	VRS-AOD-131	Air Operated Damper	R/B NRCA	W	26'-11"	FA2-308-01	N/A	-	6
166	VRS-AOD-132	Air Operated Damper	R/B NRCA	W	50'-2"	FA2-413-01	above flood elevation	0.84	
167	VRS-RAH-201A	A-Class 1E Electrical Room Air Handling Unit	R/B NRCA	E	50'-2"	FA2-402-01	above flood elevation	0.81	
168	VRS-RAH-201B	B-Class 1E Electrical Room Air Handling Unit	R/B NRCA	E	50'-2"	FA2-401-01	above flood elevation	0.81	
169	VRS-RAH-201C	C-Class 1E Electrical Room Air Handling Unit	R/B NRCA	W	50'-2"	FA2-403-01	above flood elevation	0.84	
170	VRS-RAH-201D	D-Class 1E Electrical Room Air Handling Unit	R/B NRCA	W	50'-2"	FA2-404-01	above flood elevation	0.84	
171	VRS-RFN-201A	A-Class 1E Electrical Room Air Handling Unit Fan	R/B NRCA	E	50'-2"	FA2-402-01	above flood elevation	0.81	
172	VRS-RFN-201B	B-Class 1E Electrical Room Air Handling Unit Fan	R/B NRCA	E	50'-2"	FA2-401-01	above flood elevation	0.81	
173	VRS-RFN-201C	C-Class 1E Electrical Room Air Handling Unit Fan	R/B NRCA	W	50'-2"	FA2-403-01	above flood elevation	0.84	
174	VRS-RFN-201D	D-Class 1E Electrical Room Air Handling Unit Fan	R/B NRCA	W	50'-2"	FA2-404-01	above flood elevation	0.84	
175	VRS-RFN-202A	A-Class 1E Electrical Room Return Air Fan	R/B NRCA	E	50'-2"	FA2-402-01	above flood elevation	0.81	
176	VRS-RFN-202B	B-Class 1E Electrical Room Return Air Fan	R/B NRCA	E	50'-2"	FA2-401-01	above flood elevation	0.81	
177	VRS-RFN-202C	C-Class 1E Electrical Room Return Air Fan	R/B NRCA	W	50'-2"	FA2-403-01	above flood elevation	0.84	

**Table 3K-3 R/B NRCA Components Protected From Internal Flooding  
(Sheet 13 of 30)**

Item No.	Equipment Tag	Description	Location					Flood Elevation above Floor [ft]	Notes
			Building	Side	Floor Elevation	Fire Zone No.	Location Elevation above Floor		
182	VRS-RCC-201D	D-Class 1E Electrical Room Air Handling Unit Cooling Coil	R/B NRCA	W	50'-2"	FA2-404-01	above flood elevation	0.84	
183	VRS-REH-201A	A-Class 1E Electrical Room Air Handling Unit Electric Heating Coil	R/B NRCA	E	50'-2"	FA2-402-01	above flood elevation	0.81	
184	VRS-REH-201B	B-Class 1E Electrical Room Air Handling Unit Electric Heating Coil	R/B NRCA	E	50'-2"	FA2-401-01	above flood elevation	0.81	
185	VRS-REH-201C	C-Class 1E Electrical Room Air Handling Unit Electric Heating Coil	R/B NRCA	W	50'-2"	FA2-403-01	above flood elevation	0.84	
186	VRS-REH-201D	D-Class 1E Electrical Room Air Handling Unit Electric Heating Coil	R/B NRCA	W	50'-2"	FA2-404-01	above flood elevation	0.84	
187	VRS-MOD-201A	Motor Operated Damper	R/B NRCA	E	50'-2"	FA2-402-01	above flood elevation	0.81	
188	VRS-MOD-201B	Motor Operated Damper	R/B NRCA	E	50'-2"	FA2-401-01	above flood elevation	0.81	
189	VRS-MOD-201C	Motor Operated Damper	R/B NRCA	W	50'-2"	FA2-403-01	above flood elevation	0.84	
190	VRS-MOD-201D	Motor Operated Damper	R/B NRCA	W	50'-2"	FA2-404-01	above flood elevation	0.84	
191	VRS-MOD-202A	Motor Operated Damper	R/B NRCA	E	50'-2"	FA2-402-01	above flood elevation	0.81	
192	VRS-MOD-202B	Motor Operated Damper	R/B NRCA	E	50'-2"	FA2-401-01	above flood elevation	0.81	
193	VRS-MOD-202C	Motor Operated Damper	R/B NRCA	W	50'-2"	FA2-403-01	above flood elevation	0.84	
194	VRS-MOD-202D	Motor Operated Damper	R/B NRCA	W	50'-2"	FA2-404-01	above flood elevation	0.84	
195	VRS-MOD-203A	Motor Operated Damper	R/B NRCA	E	50'-2"	FA2-402-01	above flood elevation	0.81	
196	VRS-MOD-203B	Motor Operated Damper	R/B NRCA	E	50'-2"	FA2-401-01	above flood elevation	0.81	

**Table 3K-3 R/B NRCA Components Protected From Internal Flooding  
(Sheet 14 of 30)**

Item No.	Equipment Tag	Description	Location				Flood Elevation above Floor [ft]	Notes	
			Building	Side	Floor Elevation	Fire Zone No.			Location Elevation above Floor
197	VRS-MOD-203C	Motor Operated Damper	R/B NRCA	W	50'-2"	FA2-403-01	above flood elevation	0.84	
198	VRS-MOD-203D	Motor Operated Damper	R/B NRCA	W	50'-2"	FA2-404-01	above flood elevation	0.84	
199	VRS-MOD-204A	Motor Operated Damper	R/B NRCA	E	50'-2"	FA2-402-01	above flood elevation	0.81	
200	VRS-MOD-204B	Motor Operated Damper	R/B NRCA	E	50'-2"	FA2-401-01	above flood elevation	0.81	
201	VRS-MOD-204C	Motor Operated Damper	R/B NRCA	W	50'-2"	FA2-403-01	above flood elevation	0.84	
202	VRS-MOD-204D	Motor Operated Damper	R/B NRCA	W	50'-2"	FA2-404-01	above flood elevation	0.84	
203	VRS-AOD-205A	Air Operated Damper	R/B NRCA	E	50'-2"	FA2-402-01	above flood elevation	0.81	
204	VRS-AOD-205B	Air Operated Damper	R/B NRCA	E	50'-2"	FA2-401-01	above flood elevation	0.81	
205	VRS-AOD-205C	Air Operated Damper	R/B NRCA	W	50'-2"	FA2-403-01	above flood elevation	0.84	
206	VRS-AOD-205D	Air Operated Damper	R/B NRCA	W	50'-2"	FA2-404-01	above flood elevation	0.84	
207	VRS-RAH-401A	A-Emergency Feedwater Pump Area Air Handling Unit	R/B NRCA	E	-26'-4"	FA2-102-01	N/A	-	1
208	VRS-RAH-401B	B-Emergency Feedwater Pump Area Air Handling Unit	R/B NRCA	E	-26'-4"	FA2-103-01	above flood elevation	0.47	
209	VRS-RAH-401C	C-Emergency Feedwater Pump Area Air Handling Unit	R/B NRCA	W	-26'-4"	FA2-109-01	above flood elevation	0.63	
210	VRS-RAH-401D	D-Emergency Feedwater Pump Area Air Handling Unit	R/B NRCA	W	-26'-4"	FA2-108-01	N/A	-	1
211	VRS-RFN-401A	A-Emergency Feedwater Pump Area Air Handling Unit Fan	R/B NRCA	E	-26'-4"	FA2-102-01	N/A	-	1

**Table 3K-3 R/B NRCA Components Protected From Internal Flooding  
(Sheet 15 of 30)**

Item No.	Equipment Tag	Description	Location				Flood Elevation above Floor [ft]	Notes	
			Building	Side	Floor Elevation	Fire Zone No.			
212	VRS-RFN-401B	B-Emergency Feedwater Pump Area Air Handling Unit Fan	R/B NRCA	E	-26'-4"	FA2-103-01	above flood elevation	0.47	
213	VRS-RFN-401C	C-Emergency Feedwater Pump Area Air Handling Unit Fan	R/B NRCA	W	-26'-4"	FA2-109-01	above flood elevation	0.63	
214	VRS-RFN-401D	D-Emergency Feedwater Pump Area Air Handling Unit Fan	R/B NRCA	W	-26'-4"	FA2-108-01	N/A	-	1
215	VRS-RCC-401A	A-Emergency Feedwater Pump Area Air Handling Unit Cooling Coil	R/B NRCA	E	-26'-4"	FA2-102-01	N/A	-	1
216	VRS-RCC-401B	B-Emergency Feedwater Pump Area Air Handling Unit Cooling Coil	R/B NRCA	E	-26'-4"	FA2-103-01	above flood elevation	0.47	
217	VRS-RCC-401C	C-Emergency Feedwater Pump Area Air Handling Unit Cooling Coil	R/B NRCA	W	-26'-4"	FA2-109-01	above flood elevation	0.63	
218	VRS-RCC-401D	D-Emergency Feedwater Pump Area Air Handling Unit Cooling Coil	R/B NRCA	W	-26'-4"	FA2-108-01	N/A	-	1
219	VRS-REH-401A	A-Emergency Feedwater Pump Area Air Handling Unit Electric Heating Coil	R/B NRCA	E	-26'-4"	FA2-102-01	N/A	-	1
220	VRS-REH-401B	B-Emergency Feedwater Pump Area Air Handling Unit Electric Heating Coil	R/B NRCA	E	-26'-4"	FA2-103-01	above flood elevation	0.47	
221	VRS-REH-401C	C-Emergency Feedwater Pump Area Air Handling Unit Electric Heating Coil	R/B NRCA	W	-26'-4"	FA2-109-01	above flood elevation	0.63	
222	VRS-REH-401D	D-Emergency Feedwater Pump Area Air Handling Unit Electric Heating Coil	R/B NRCA	W	-26'-4"	FA2-108-01	N/A	-	1

**Table 3K-3 R/B NRCA Components Protected From Internal Flooding  
(Sheet 16 of 30)**

Item No.	Equipment Tag	Description	Location				Flood Elevation above Floor [ft]	Notes	
			Building	Side	Floor Elevation	Fire Zone No.			Location Elevation above Floor
223	VRS-RAH-501A	A-Component Cooling Water Pump Area Air Handling Unit	R/B NRCA	E	-26'-4"	FA2-104-01	above flood elevation	0.47	
224	VRS-RAH-501B	B-Component Cooling Water Pump Area Air Handling Unit	R/B NRCA	E	-26'-4"	FA2-105-01	above flood elevation	0.47	
225	VRS-RAH-501C	C-Component Cooling Water Pump Area Air Handling Unit	R/B NRCA	W	-26'-4"	FA2-106-01	above flood elevation	0.63	
226	VRS-RAH-501D	D-Component Cooling Water Pump Area Air Handling Unit	R/B NRCA	W	-26'-4"	FA2-107-01	above flood elevation	0.63	
227	VRS-RFN-501A	A-Component Cooling Water Pump Area Air Handling Unit Fan	R/B NRCA	E	-26'-4"	FA2-104-01	above flood elevation	0.47	
228	VRS-RFN-501B	B-Component Cooling Water Pump Area Air Handling Unit Fan	R/B NRCA	E	-26'-4"	FA2-105-01	above flood elevation	0.47	
229	VRS-RFN-501C	C-Component Cooling Water Pump Area Air Handling Unit Fan	R/B NRCA	W	-26'-4"	FA2-106-01	above flood elevation	0.63	
230	VRS-RFN-501D	D-Component Cooling Water Pump Area Air Handling Unit Fan	R/B NRCA	W	-26'-4"	FA2-107-01	above flood elevation	0.63	
231	VRS-RCC-501A	A-Component Cooling Water Pump Area Air Handling Unit Cooling Coil	R/B NRCA	E	-26'-4"	FA2-104-01	above flood elevation	0.47	
232	VRS-RCC-501B	B-Component Cooling Water Pump Area Air Handling Unit Cooling Coil	R/B NRCA	E	-26'-4"	FA2-105-01	above flood elevation	0.47	
233	VRS-RCC-501C	C-Component Cooling Water Pump Area Air Handling Unit Cooling Coil	R/B NRCA	W	-26'-4"	FA2-106-01	above flood elevation	0.63	
234	VRS-RCC-501D	D-Component Cooling Water Pump Area Air Handling Unit Cooling Coil	R/B NRCA	W	-26'-4"	FA2-107-01	above flood elevation	0.63	

**Table 3K-3 R/B NRCA Components Protected From Internal Flooding  
(Sheet 17 of 30)**

Item No.	Equipment Tag	Description	Location					Flood Elevation above Floor [ft]	Notes
			Building	Side	Floor Elevation	Fire Zone No.	Location Elevation above Floor		
235	VRS-REH-501A	A-Component Cooling Water Pump Area Air Handling Unit Electric Heating Coil	R/B NRCA	E	-26'-4"	FA2-104-01	above flood elevation	0.47	
236	VRS-REH-501B	B-Component Cooling Water Pump Area Air Handling Unit Electric Heating Coil	R/B NRCA	E	-26'-4"	FA2-105-01	above flood elevation	0.47	
237	VRS-REH-501C	C-Component Cooling Water Pump Area Air Handling Unit Electric Heating Coil	R/B NRCA	W	-26'-4"	FA2-106-01	above flood elevation	0.63	
238	VRS-REH-501D	D-Component Cooling Water Pump Area Air Handling Unit Electric Heating Coil	R/B NRCA	W	-26'-4"	FA2-107-01	above flood elevation	0.63	
239	VWS-TCV-2845	Chilled Water Control Valve	R/B NRCA	E	50'-2"	FA2-402-01	above flood elevation	0.81	
240	VWS-TCV-2855	Chilled Water Control Valve	R/B NRCA	E	50'-2"	FA2-401-01	above flood elevation	0.81	
241	VWS-TCV-2865	Chilled Water Control Valve	R/B NRCA	W	50'-2"	FA2-403-01	above flood elevation	0.84	
242	VWS-TCV-2875	Chilled Water Control Valve	R/B NRCA	W	50'-2"	FA2-404-01	above flood elevation	0.84	
243	VWS-TCV-2784	Chilled Water Control Valve	R/B NRCA	E	50'-2"	FA2-402-01	above flood elevation	0.81	
244	VWS-TCV-2794	Chilled Water Control Valve	R/B NRCA	E	50'-2"	FA2-401-01	above flood elevation	0.81	
245	VWS-TCV-2804	Chilled Water Control Valve	R/B NRCA	W	50'-2"	FA2-403-01	above flood elevation	0.84	
246	VWS-TCV-2814	Chilled Water Control Valve	R/B NRCA	W	50'-2"	FA2-404-01	above flood elevation	0.84	
247	VWS-TCV-2671	Chilled Water Control Valve	R/B NRCA	E	-26'-4"	FA2-102-01	N/A	-	1

**Table 3K-3 R/B NRCA Components Protected From Internal Flooding  
(Sheet 18 of 30)**

Item No.	Equipment Tag	Description	Location					Flood Elevation above Floor [ft]	Notes
			Building	Side	Floor Elevation	Fire Zone No.	Location Elevation above Floor		
248	VWS-TCV-2676	Chilled Water Control Valve	R/B NRCA	E	-26'-4"	FA2-103-01	above flood elevation	0.47	
249	VWS-TCV-2681	Chilled Water Control Valve	R/B NRCA	W	-26'-4"	FA2-109-01	above flood elevation	0.63	
250	VWS-TCV-2686	Chilled Water Control Valve	R/B NRCA	W	-26'-4"	FA2-108-01	N/A	-	1
251	VWS-TCV-2721A	Chilled Water Control Valve	R/B NRCA	E	-26'-4"	FA2-104-01	above flood elevation	0.47	
252	VWS-TCV-2721B	Chilled Water Control Valve	R/B NRCA	E	-26'-4"	FA2-105-01	above flood elevation	0.47	
253	VWS-TCV-2721C	Chilled Water Control Valve	R/B NRCA	W	-26'-4"	FA2-106-01	above flood elevation	0.63	
254	VWS-TCV-2721D	Chilled Water Control Valve	R/B NRCA	W	-26'-4"	FA2-107-01	above flood elevation	0.63	
255	OC	Operator Console	R/B NRCA	W	26'-11"	FA2-308-01	N/A	-	6
256	RPS-A	A-Reactor Protection System Cabinet	R/B NRCA	E	26'-11"	FA2-304-01	N/A	-	6
257	EFS-A	A-ESF Actuation System Cabinet	R/B NRCA	E	26'-11"	FA2-304-01	N/A	-	6
258	SVP-A	A-Safety VDU Processor Cabinet	R/B NRCA	E	26'-11"	FA2-304-01	N/A	-	6
259	SLS-A	A-Safety Logic System Cabinet	R/B NRCA	E	26'-11"	FA2-304-01	N/A	-	6
260	RPS-B	B-Reactor Protection System Cabinet	R/B NRCA	E	26'-11"	FA2-307-01	N/A	-	6
261	EFS-B	B-ESF Actuation System Cabinet	R/B NRCA	E	26'-11"	FA2-307-01	N/A	-	6
262	SVP-B	B-Safety VDU Processor Cabinet	R/B NRCA	E	26'-11"	FA2-307-01	N/A	-	6
263	SLS-B	B-Safety Logic System Cabinet	R/B NRCA	E	26'-11"	FA2-307-01	N/A	-	6



**Table 3K-3 R/B NRCA Components Protected From Internal Flooding  
(Sheet 19 of 30)**

Item No.	Equipment Tag	Description	Location					Flood Elevation above Floor [ft]	Notes
			Building	Side	Floor Elevation	Fire Zone No.	Location Elevation above Floor		
264	RPS-C	C-Reactor Protection System Cabinet	R/B NRCA	W	26'-11"	FA2-312-01	N/A	-	6
265	EFS-C	C-ESF Actuation System Cabinet	R/B NRCA	W	26'-11"	FA2-312-01	N/A	-	6
266	SVP-C	C-Safety VDU Processor Cabinet	R/B NRCA	W	26'-11"	FA2-312-01	N/A	-	6
267	SLS-C	C-Safety Logic System Cabinet	R/B NRCA	W	26'-11"	FA2-312-01	N/A	-	6
268	RPS-D	D-Reactor Protection System Cabinet	R/B NRCA	W	26'-11"	FA2-309-01	N/A	-	6
269	EFS-D	D-ESF Actuation System Cabinet	R/B NRCA	W	26'-11"	FA2-309-01	N/A	-	6
270	SVP-D	D-Safety VDU Processor Cabinet	R/B NRCA	W	26'-11"	FA2-309-01	N/A	-	6
271	SLS-D	D-Safety Logic System Cabinet	R/B NRCA	W	26'-11"	FA2-309-01	N/A	-	6
272	MC-A	A-Class 1E 6.9kV Switchgear	R/B NRCA	E	3'-7"	FA2-202-01	N/A	-	6
273	LC-A	A-Class 1E 480V Load Center	R/B NRCA	E	3'-7"	FA2-202-01	N/A	-	6
274	MCC-A	A-Class 1E Motor Control Center	R/B NRCA	E	3'-7"	FA2-202-01	N/A	-	6
275	MCC-A1	A1-Class 1E Motor Control Center	R/B NRCA	E	3'-7"	FA2-202-01	N/A	-	6
276	RIO-A	A-Safety Remote I/O Cabinet	R/B NRCA	E	3'-7"	FA2-202-01	N/A	-	6
277	PBH-A	A-Pressurizer Heater Distribution Panel	R/B NRCA	E	3'-7"	FA2-202-01	N/A	-	6
278	RPTS-A	A-RCP Trip Switchgear	R/B NRCA	E	3'-7"	FA2-203-01	N/A	-	6
279	MC-B	B-Class 1E 6.9kV Switchgear	R/B NRCA	E	3'-7"	FA2-203-01	N/A	-	6

**Table 3K-3 R/B NRCA Components Protected From Internal Flooding  
(Sheet 20 of 30)**

Item No.	Equipment Tag	Description	Location				Flood Elevation above Floor [ft]	Notes	
			Building	Side	Floor Elevation	Fire Zone No.			Location Elevation above Floor
280	LC-B	B-Class 1E 480V Load Center	R/B NRCA	E	3'-7"	FA2-203-01	N/A	-	6
281	MCC-B	B-Class 1E Motor Control Center	R/B NRCA	E	3'-7"	FA2-203-01	N/A	-	6
282	RIO-B	B-Safety Remote I/O Cabinet	R/B NRCA	E	26'-11"	FA2-307-01	N/A	-	6
283	PBH-B	B-Pressurizer Heater Distribution Panel	R/B NRCA	E	3'-7"	FA2-203-01	N/A	-	6
284	RPTS-B	B-RCP Trip Switchgear	R/B NRCA	E	3'-7"	FA2-203-01	N/A	-	6
285	MC-C	C-Class 1E 6.9kV Switchgear	R/B NRCA	W	3'-7"	FA2-204-01	N/A	-	6
286	LC-C	C-Class 1E 480V Load Center	R/B NRCA	W	3'-7"	FA2-204-01	N/A	-	6
287	MCC-C	C-Class 1E Motor Control Center	R/B NRCA	W	3'-7"	FA2-204-01	N/A	-	6
288	RIO-C	C-Safety Remote I/O Cabinet	R/B NRCA	W	26'-11"	FA2-312-01	N/A	-	6
289	PBH-C	C-Pressurizer Heater Distribution Panel	R/B NRCA	W	3'-7"	FA2-204-01	N/A	-	6
290	RPTS-C	C-RCP Trip Switchgear	R/B NRCA	W	3'-7"	FA2-204-01	N/A	-	6
291	MC-D	D-Class 1E 6.9kV Switchgear	R/B NRCA	W	3'-7"	FA2-205-01	N/A	-	6
292	LC-D	D-Class 1E 480V Load Center	R/B NRCA	W	3'-7"	FA2-205-01	N/A	-	6
293	MCC-D	D-Class 1E Motor Control Center	R/B NRCA	W	3'-7"	FA2-205-01	N/A	-	6
294	MCC-D1	D1-Class 1E Motor Control Center	R/B NRCA	W	3'-7"	FA2-205-01	N/A	-	6
295	RIO-D	D-Safety Remote I/O Cabinet	R/B NRCA	W	3'-7"	FA2-205-01	N/A	-	6

**Table 3K-3 R/B NRCA Components Protected From Internal Flooding  
(Sheet 21 of 30)**

Item No.	Equipment Tag	Description	Location					Flood Elevation above Floor [ft]	Notes
			Building	Side	Floor Elevation	Fire Zone No.	Location Elevation above Floor		
296	PBH-D	D-Pressurizer Heater Distribution Panel	R/B NRCA	W	3'-7"	FA2-205-01	N/A	-	6
297	RPTS-D	D-RCP Trip Switchgear	R/B NRCA	W	3'-7"	FA2-204-01	N/A	-	6
298	RSC	Remote Shutdown Console	R/B NRCA	E	76'-5"	FA2-504-01	N/A	-	6
299	MRTP-1	MCR/RSR Transfer Panel (1)	R/B NRCA	W	76'-5"	FA2-501-11	above flood elevation	1.15	
300	MRTP-2	MCR/RSR Transfer Panel (2)	R/B NRCA	E	76'-5"	FA2-504-01	N/A	-	6
301	RTBC-1	Reactor Trip Breaker Cabinet (1)	R/B NRCA	W	76'-5"	FA2-502-01	N/A	-	6
302	RTBC-2	Reactor Trip Breaker Cabinet (2)	R/B NRCA	W	76'-5"	FA2-503-01	N/A	-	6
303	DDP-A	A-Reactor Building DC Distribution Panel	R/B NRCA	E	26'-11"	FA2-302-01	N/A	-	6
304	SDC-A	A-Solenoid Distribution Panel	R/B NRCA	E	26'-11"	FA2-302-01	N/A	-	6
305	IBC-A	A-Class 1E UPS Unit	R/B NRCA	E	26'-11"	FA2-302-01	N/A	-	6
306	IBB-A	A-Class 1EI&C Power Transformer	R/B NRCA	E	26'-11"	FA2-302-01	N/A	-	6
307	IBD-A	A-Class 1E AC120V Panelboard	R/B NRCA	E	26'-11"	FA2-302-01	N/A	-	6
308	MVIA1	A-MOV Inverter1	R/B NRCA	E	26'-11"	FA2-302-01	N/A	-	6
309	MVIA2	A-MOV Inverter2	R/B NRCA	E	26'-11"	FA2-302-01	N/A	-	6
310	MVCA1	A-MOV Motor Control Center1	R/B NRCA	E	3'-7"	FA2-202-01	N/A	-	6
311	MVCA2	A-MOV Motor Control Center2	R/B NRCA	E	3'-7"	FA2-202-01	N/A	-	6

**Table 3K-3 R/B NRCA Components Protected From Internal Flooding  
(Sheet 22 of 30)**

Item No.	Equipment Tag	Description	Location				Flood Elevation above Floor [ft]	Notes	
			Building	Side	Floor Elevation	Fire Zone No.			Location Elevation above Floor
312	DDP-B	B-Reactor Building DC Distribution Panel	R/B NRCA	E	26'-11"	FA2-303-01	N/A	-	6
313	SDC-B	B-Solenoid Distribution Panel	R/B NRCA	E	26'-11"	FA2-303-01	N/A	-	6
314	IBC-B	B-Class 1E UPS Unit	R/B NRCA	E	26'-11"	FA2-303-01	N/A	-	6
315	IBB-B	B-Class 1E I&C Power Transformer	R/B NRCA	E	26'-11"	FA2-303-01	N/A	-	6
316	IBD-B	B-Class 1E AC120V Panelboard	R/B NRCA	E	26'-11"	FA2-303-01	N/A	-	6
317	MVIB	B-MOV Inverter	R/B NRCA	E	26'-11"	FA2-303-01	N/A	-	6
318	MVCB	B-MOV Motor Control Center	R/B NRCA	E	3'-7"	FA2-203-01	N/A	-	6
319	DDP-C	C-Reactor Building DC Distribution Panel	R/B NRCA	W	26'-11"	FA2-314-01	N/A	-	6
320	SDC-C	C-Solenoid Distribution Panel	R/B NRCA	W	26'-11"	FA2-314-01	N/A	-	6
321	IBC-C	C-Class 1E UPS Unit	R/B NRCA	W	26'-11"	FA2-314-01	N/A	-	6
322	IBB-C	C-I&C Power Transformer	R/B NRCA	W	26'-11"	FA2-314-01	N/A	-	6
323	IBD-C	C-Class 1E AC120V Panelboard	R/B NRCA	W	26'-11"	FA2-314-01	N/A	-	6
324	MVIC	C-MOV Inverter	R/B NRCA	W	26'-11"	FA2-314-01	N/A	-	6
325	MVCC	C-MOV Motor Control Center	R/B NRCA	W	3'-7"	FA2-204-01	N/A	-	6
326	DDP-D	D-Reactor Building DC Distribution Panel	R/B NRCA	W	26'-11"	FA2-313-01	N/A	-	6
327	SDC-D	D-Solenoid Distribution Panel	R/B NRCA	W	26'-11"	FA2-313-01	N/A	-	6

**Table 3K-3 R/B NRCA Components Protected From Internal Flooding  
(Sheet 23 of 30)**

Item No.	Equipment Tag	Description	Location					Flood Elevation above Floor [ft]	Notes
			Building	Side	Floor Elevation	Fire Zone No.	Location Elevation above Floor		
328	IBC-D	D-Class 1E UPS Unit	R/B NRCA	W	26'-11"	FA2-313-01	N/A	-	6
329	IBB-D	D-Class 1E I&C Power Transformer	R/B NRCA	W	26'-11"	FA2-313-01	N/A	-	6
330	IBD-D	D-Class 1E AC120V Panelboard	R/B NRCA	W	26'-11"	FA2-313-01	N/A	-	6
331	MVID1	D-MOV Inverter1	R/B NRCA	W	26'-11"	FA2-313-01	N/A	-	6
332	MVID2	D-MOV Inverter2	R/B NRCA	W	26'-11"	FA2-313-01	N/A	-	6
333	MVCD1	D-MOV Motor Control Center1	R/B NRCA	W	3'-7"	FA2-205-01	N/A	-	6
334	MVCD2	D-MOV Motor Control Center2	R/B NRCA	W	3'-7"	FA2-205-01	N/A	-	6
335	EFS-FT-3716	A - Emergency Feedwater Flow	R/B NRCA	E	-26'-4"	FA2-102-01	N/A	-	6
336	EFS-FT-3726	B - Emergency Feedwater Flow	R/B NRCA	E	-26'-4"	FA2-103-01	above flood elevation	0.47	
337	EFS-FT-3736	C - Emergency Feedwater Flow	R/B NRCA	W	-26'-4"	FA2-109-01	above flood elevation	0.63	
338	EFS-FT-3746	D - Emergency Feedwater Flow	R/B NRCA	W	-26'-4"	FA2-108-01	N/A	-	1
339	EFS-LT-3760	A - Emergency Feedwater Pit Water Level	R/B NRCA	E	76'-5"	FA2-501-01	above flood elevation	1.35	
340	EFS-LT-3761	A - Emergency Feedwater Pit Water Level	R/B NRCA	E	76'-5"	FA2-501-01	above flood elevation	1.35	
341	EFS-LT-3770	B - Emergency Feedwater Pit Water Level	R/B NRCA	W	76'-5"	FA2-501-11	above flood elevation	1.15	
342	EFS-LT-3771	B - Emergency Feedwater Pit Water Level	R/B NRCA	W	76'-5"	FA2-501-11	above flood elevation	1.15	

**Table 3K-3 R/B NRCA Components Protected From Internal Flooding  
(Sheet 24 of 30)**

Item No.	Equipment Tag	Description	Location				Flood Elevation above Floor [ft]	Notes	
			Building	Side	Floor Elevation	Fire Zone No.			Location Elevation above Floor
343	EFS-PT-3752	A - Emergency Feedwater Pump Discharge Pressure	R/B NRCA	E	-26'-4"	FA2-102-01	N/A	-	1
344	EFS-PT-3750	B - Emergency Feedwater Pump Discharge Pressure	R/B NRCA	E	-26'-4"	FA2-103-01	above flood elevation	0.47	
345	EFS-PT-3751	C - Emergency Feedwater Pump Discharge Pressure	R/B NRCA	W	-26'-4"	FA2-109-01	above flood elevation	0.63	
346	EFS-PT-3753	D - Emergency Feedwater Pump Discharge Pressure	R/B NRCA	W	-26'-4"	FA2-108-01	N/A	-	1
347	NMS-PT-465	A - Main Steam Line Pressure	R/B NRCA	E	76'-5"	FA2-501-01	above flood elevation	1.35	
348	NMS-PT-466	A - Main Steam Line Pressure	R/B NRCA	E	76'-5"	FA2-501-01	above flood elevation	1.35	
349	NMS-PT-467	A - Main Steam Line Pressure	R/B NRCA	E	76'-5"	FA2-501-01	above flood elevation	1.35	
350	NMS-PT-468	A - Main Steam Line Pressure	R/B NRCA	E	76'-5"	FA2-501-01	above flood elevation	1.35	
351	NMS-PT-475	B - Main Steam Line Pressure	R/B NRCA	E	65'-0"	FA2-414-01	above flood elevation	4.6	
352	NMS-PT-476	B - Main Steam Line Pressure	R/B NRCA	E	65'-0"	FA2-414-01	above flood elevation	4.6	
353	NMS-PT-477	B - Main Steam Line Pressure	R/B NRCA	E	65'-0"	FA2-414-01	above flood elevation	4.6	
354	NMS-PT-478	B - Main Steam Line Pressure	R/B NRCA	E	65'-0"	FA2-414-01	above flood elevation	4.6	
355	NMS-PT-485	C - Main Steam Line Pressure	R/B NRCA	W	76'-5"	FA2-501-11	above flood elevation	4.6	
356	NMS-PT-486	C - Main Steam Line Pressure	R/B NRCA	W	76'-5"	FA2-501-11	above flood elevation	4.6	
357	NMS-PT-487	C - Main Steam Line Pressure	R/B NRCA	W	76'-5"	FA2-501-11	above flood elevation	4.6	
358	NMS-PT-488	C - Main Steam Line Pressure	R/B NRCA	W	76'-5"	FA2-501-11	above flood elevation	4.6	

**Table 3K-3 R/B NRCA Components Protected From Internal Flooding  
(Sheet 25 of 30)**

Item No.	Equipment Tag	Description	Location				Flood Elevation above Floor [ft]	Notes	
			Building	Side	Floor Elevation	Fire Zone No.			Location Elevation above Floor
359	NMS-PT-495	D - Main Steam Line Pressure	R/B NRCA	W	65'-0"	FA2-415-01	above flood elevation	4.6	
360	NMS-PT-496	D - Main Steam Line Pressure	R/B NRCA	W	65'-0"	FA2-415-01	above flood elevation	4.6	
361	NMS-PT-497	D - Main Steam Line Pressure	R/B NRCA	W	65'-0"	FA2-415-01	above flood elevation	4.6	
362	NMS-PT-498	D - Main Steam Line Pressure	R/B NRCA	W	65'-0"	FA2-415-01	above flood elevation	4.6	
363	NCS-FT-1224	A - Component Cooling Water Header Flow	R/B NRCA	E	-26'-4"	FA2-104-01	above flood elevation	0.47	
364	NCS-FT-1225	B - Component Cooling Water Header Flow	R/B NRCA	E	-26'-4"	FA2-105-01	above flood elevation	0.47	
365	NCS-FT-1227	C - Component Cooling Water Header Flow	R/B NRCA	W	-26'-4"	FA2-106-01	above flood elevation	0.63	
366	NCS-FT-1228	D - Component Cooling Water Header Flow	R/B NRCA	W	-26'-4"	FA2-107-01	above flood elevation	0.63	
367	NCS-LT-1200	A - Component Cooling Water Surge Tank Water Level	R/B NRCA	E	101'-0"	FA2-601-01	above flood elevation	1.7	
368	NCS-LT-1201	A - Component Cooling Water Surge Tank Water Level	R/B NRCA	E	101'-0"	FA2-601-01	above flood elevation	1.7	
369	NCS-LT-1210	B - Component Cooling Water Surge Tank Water Level	R/B NRCA	W	101'-0"	FA2-602-01	above flood elevation	4.7	
370	NCS-LT-1211	B - Component Cooling Water Surge Tank Water Level	R/B NRCA	W	101'-0"	FA2-602-01	above flood elevation	4.7	
371	NCS-PT-1220	A - Component Cooling Water Header Pressure	R/B NRCA	E	-26'-4"	FA2-104-01	above flood elevation	0.47	
372	NCS-PT-1221	B - Component Cooling Water Header Pressure	R/B NRCA	E	-26'-4"	FA2-105-01	above flood elevation	0.47	

**Table 3K-3 R/B NRCA Components Protected From Internal Flooding  
(Sheet 26 of 30)**

Item No.	Equipment Tag	Description	Location					Flood Elevation above Floor [ft]	Notes
			Building	Side	Floor Elevation	Fire Zone No.	Location Elevation above Floor		
373	NCS-PT-1222	C - Component Cooling Water Header Pressure	R/B NRCA	W	-26'-4"	FA2-106-01	above flood elevation	0.63	
374	NCS-PT-1223	D - Component Cooling Water Header Pressure	R/B NRCA	W	-26'-4"	FA2-107-01	above flood elevation	0.63	
375	EWS-FT-2024	A - Component Cooling Water Heat Exchanger Essential Service Water Flow	R/B NRCA	E	-26'-4"	FA2-104-01	above flood elevation	0.47	
376	EWS-FT-2025	B - Component Cooling Water Heat Exchanger Essential Service Water Flow	R/B NRCA	E	-26'-4"	FA2-105-01	above flood elevation	0.47	
377	EWS-FT-2026	C - Component Cooling Water Heat Exchanger Essential Service Water Flow	R/B NRCA	W	-26'-4"	FA2-106-01	above flood elevation	0.63	
378	EWS-FT-2027	D - Component Cooling Water Heat Exchanger Essential Service Water Flow	R/B NRCA	W	-26'-4"	FA2-107-01	above flood elevation	0.63	
379	NCS-TE-1215	A - Component Cooling Water Supply Temperature	R/B NRCA	E	-26'-4"	FA2-104-01	above flood elevation	0.47	
380	NCS-TE-1216	B - Component Cooling Water Supply Temperature	R/B NRCA	E	-26'-4"	FA2-105-01	above flood elevation	0.47	
381	NCS-TE-1217	C - Component Cooling Water Supply Temperature	R/B NRCA	W	-26'-4"	FA2-106-01	above flood elevation	0.63	
382	NCS-TE-1218	D - Component Cooling Water Supply Temperature	R/B NRCA	W	-26'-4"	FA2-107-01	above flood elevation	0.63	
383	RMS-RE-83A	Main Control Room Outside Air Intake Particulate Radiation	R/B NRCA	E	50'-2"	FA2-407-02	above flood elevation	0.81	



**Table 3K-3 R/B NRCA Components Protected From Internal Flooding  
(Sheet 27 of 30)**

Item No.	Equipment Tag	Description	Location				Flood Elevation above Floor [ft]	Notes	
			Building	Side	Floor Elevation	Fire Zone No.			Location Elevation above Floor
384	RMS-RE-83B	Main Control Room Outside Air Intake Particulate Radiation	R/B NRCA	W	50'-2"	FA2-407-03	above flood elevation	0.84	
385	RMS-RE-84A	Main Control Room Outside Air Intake Gas Radiation	R/B NRCA	E	50'-2"	FA2-407-02	above flood elevation	0.81	
386	RMS-RE-84B	Main Control Room Outside Air Intake Gas Radiation	R/B NRCA	W	50'-2"	FA2-407-03	above flood elevation	0.84	
387	RMS-RE-85A	Main Control Room Outside Air Intake Iodine Radiation	R/B NRCA	E	50'-2"	FA2-407-02	above flood elevation	0.81	
388	RMS-RE-85B	Main Control Room Outside Air Intake Iodine Radiation	R/B NRCA	W	50'-2"	FA2-407-03	above flood elevation	0.84	
389	VRS-TS-2670	A - Emergency Feedwater Pump Area Temperature	R/B NRCA	E	-26'-4"	FA2-102-01	N/A	-	1
390	VRS-TS-2673	A - Emergency Feedwater Pump Area Temperature	R/B NRCA	E	-26'-4"	FA2-102-01	N/A	-	1
391	VRS-TS-2674	A - Emergency Feedwater Pump Area Temperature	R/B NRCA	E	-26'-4"	FA2-102-01	N/A	-	1
392	VRS-TS-2675	B - Emergency Feedwater Pump Area Temperature	R/B NRCA	E	-26'-4"	FA2-103-01	above flood elevation	0.47	
393	VRS-TS-2678	B - Emergency Feedwater Pump Area Temperature	R/B NRCA	E	-26'-4"	FA2-103-01	above flood elevation	0.47	
394	VRS-TS-2679	B - Emergency Feedwater Pump Area Temperature	R/B NRCA	E	-26'-4"	FA2-103-01	above flood elevation	0.47	
395	VRS-TS-2680	C - Emergency Feedwater Pump Area Temperature	R/B NRCA	W	-26'-4"	FA2-109-01	above flood elevation	0.63	
396	VRS-TS-2683	C - Emergency Feedwater Pump Area Temperature	R/B NRCA	W	-26'-4"	FA2-109-01	above flood elevation	0.63	

**Table 3K-3 R/B NRCA Components Protected From Internal Flooding  
(Sheet 28 of 30)**

Item No.	Equipment Tag	Description	Location				Flood Elevation above Floor [ft]	Notes	
			Building	Side	Floor Elevation	Fire Zone No.			Location Elevation above Floor
397	VRS-TS-2684	C - Emergency Feedwater Pump Area Temperature	R/B NRCA	W	-26'-4"	FA2-109-01	above flood elevation	0.63	
398	VRS-TS-2685	D - Emergency Feedwater Pump Area Temperature	R/B NRCA	W	-26'-4"	FA2-108-01	N/A	-	1
399	VRS-TS-2688	D - Emergency Feedwater Pump Area Temperature	R/B NRCA	W	-26'-4"	FA2-108-01	N/A	-	1
400	VRS-TS-2689	D - Emergency Feedwater Pump Area Temperature	R/B NRCA	W	-26'-4"	FA2-108-01	N/A	-	1
401	VRS-TS-2720A	A - Component Cooling Water Pump Area Temperature	R/B NRCA	E	-26'-4"	FA2-104-01	above flood elevation	0.47	
402	VRS-TS-2723A	A - Component Cooling Water Pump Area Temperature	R/B NRCA	E	-26'-4"	FA2-104-01	above flood elevation	0.47	
403	VRS-TS-2724A	A - Component Cooling Water Pump Area Temperature	R/B NRCA	E	-26'-4"	FA2-104-01	above flood elevation	0.47	
404	VRS-TS-2720B	B - Component Cooling Water Pump Area Temperature	R/B NRCA	E	-26'-4"	FA2-105-01	above flood elevation	0.47	
405	VRS-TS-2723B	B - Component Cooling Water Pump Area Temperature	R/B NRCA	E	-26'-4"	FA2-105-01	above flood elevation	0.47	
406	VRS-TS-2724B	B - Component Cooling Water Pump Area Temperature	R/B NRCA	E	-26'-4"	FA2-105-01	above flood elevation	0.47	
407	VRS-TS-2720C	C - Component Cooling Water Pump Area Temperature	R/B NRCA	W	-26'-4"	FA2-106-01	above flood elevation	0.63	
408	VRS-TS-2723C	C - Component Cooling Water Pump Area Temperature	R/B NRCA	W	-26'-4"	FA2-106-01	above flood elevation	0.63	
409	VRS-TS-2724C	C - Component Cooling Water Pump Area Temperature	R/B NRCA	W	-26'-4"	FA2-106-01	above flood elevation	0.63	

**Table 3K-3 R/B NRCA Components Protected From Internal Flooding  
(Sheet 29 of 30)**

Item No.	Equipment Tag	Description	Location				Flood Elevation above Floor [ft]	Notes	
			Building	Side	Floor Elevation	Fire Zone No.			Location Elevation above Floor
410	VRS-TS-2720D	D - Component Cooling Water Pump Area Temperature	R/B NRCA	W	-26'-4"	FA2-107-01	above flood elevation	0.63	
411	VRS-TS-2723D	D - Component Cooling Water Pump Area Temperature	R/B NRCA	W	-26'-4"	FA2-107-01	above flood elevation	0.63	
412	VRS-TS-2724D	D - Component Cooling Water Pump Area Temperature	R/B NRCA	W	-26'-4"	FA2-107-01	above flood elevation	0.63	
413	VRS-TS-2725C	C - Essential Chiller Unit Area Temperature	R/B NRCA	W	-26'-4"	FA3-108-01	above flood elevation	0.63	
414	VRS-TS-2728C	C - Essential Chiller Unit Area Temperature	R/B NRCA	W	-26'-4"	FA3-108-01	above flood elevation	0.63	
415	VRS-TS-2729C	C - Essential Chiller Unit Area Temperature	R/B NRCA	W	-26'-4"	FA3-108-01	above flood elevation	0.63	
416	VRS-TS-2725D	D - Essential Chiller Unit Area Temperature	R/B NRCA	W	-26'-4"	FA3-110-01	above flood elevation	0.63	
417	VRS-TS-2728D	D - Essential Chiller Unit Area Temperature	R/B NRCA	W	-26'-4"	FA3-110-01	above flood elevation	0.63	
418	VRS-TS-2729D	D - Essential Chiller Unit Area Temperature	R/B NRCA	W	-26'-4"	FA3-110-01	above flood elevation	0.63	
419	VRS-TS-2787	A - Class 1E Electrical Room Temperature	R/B NRCA	E	3'-7"	FA2-202-01	N/A	-	6
420	VRS-TS-2797	B - Class 1E Electrical Room Temperature	R/B NRCA	E	3'-7"	FA2-203-01	N/A	-	6
421	VRS-TS-2807	C - Class 1E Electrical Room Temperature	R/B NRCA	W	3'-7"	FA2-204-01	N/A	-	6
422	VRS-TS-2817	D - Class 1E Electrical Room Temperature	R/B NRCA	W	3'-7"	FA2-205-01	N/A	-	6

**Table 3K-3 R/B NRCA Components Protected From Internal Flooding  
(Sheet 30 of 30)**

Item No.	Equipment Tag	Description	Location					Flood Elevation above Floor [ft]	Notes
			Building	Side	Floor Elevation	Fire Zone No.	Location Elevation above Floor		
423	VRS-TS-2849	Main Control Room Temperature	R/B NRCA	W	26'-11"	FA2-308-01	N/A	-	6
424	VRS-TS-2859	Main Control Room Temperature	R/B NRCA	W	26'-11"	FA2-308-01	N/A	-	6
425	VRS-TS-2869	Main Control Room Temperature	R/B NRCA	W	26'-11"	FA2-308-01	N/A	-	6
426	VRS-TS-2879	Main Control Room Temperature	R/B NRCA	W	26'-11"	FA2-308-01	N/A	-	6

**Notes:**

1. These components are protected by water-tight door and floor drain isolation valve against in-flow of flooding occurring outside of compartment. In addition, these components are not required to be protected against flooding occurring inside the compartment due to redundancy of other trains/components.
2. There is no impact to this component, even if outside of pit is flooded.
3. These components are not required for safe shutdown. In addition, the function of containment isolation is maintained due to installation areas of these components are not flooded during LOCA.
4. Support leg of A-CCW surge tank is flooded, but there is no impact to function of this component.
5. Lower portion of B-CCW surge tank is flooded, but there is no impact to function of this component.
6. These components are protected by water-tight door against in-flow of flooding occurring outside of compartment.
7. This valve is required to maintain function of CCW surge tank. However, function of CCW surge tank can be maintained by other non-flooded valves, even if this valve is flooded.

**Impact on COLA**

There is no impact on the COLA.

**Impact on PRA**

There is no impact on the PRA.

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**RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION**

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5/21/2009

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

**RAI NO.:** NO. 220-2058 REVISION 1  
**SRP SECTION:** 03.04.01 – Internal Flood Protection for Onsite Equipment  
Failures  
**APPLICATION SECTION:** 03.04.01  
**DATE OF RAI ISSUE:** 02/26/09

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**QUESTION NO. RAI 3.4.1-06:**

The DCD does not explicitly identify systems and components located within the power source buildings (PS/B) that require protection from internal flood. Per DCD Tier 2 Table 3.2-2, the PS/B contains some seismic Category I SSCs, including essential service water (ESW) valves, essential chiller pumps, and miscellaneous equipment related to the emergency gas turbines. The PS/B is included as part of the standard plant design.

GDC 2 requires in part that “structures, systems, and components important to safety shall be designed to withstand the effects of natural phenomena such as ... floods ... without loss of capability to perform their safety functions.” SRP Section 3.4.1, Acceptance Criteria 1 states that acceptable guidance for meeting the seismic design and classification requirements of GDC 2 can be based on meeting Regulatory Guide (RG) 1.29, “Seismic Design Classification,” Revision 4, March 2007, Position C.1 for safety-related SSCs and Position C.2 for nonsafety-related SSCs. Also, per SRP 3.4.1, Item I.1, the set of SSCs that must be protected from flooding should be reviewed, and therefore, should be identified in the DCD.

Provide a complete list of SSCs located within the PS/B that require protection from internal flood. Include this information in the DCD and provide a markup in your response.

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**ANSWER:**

A complete list of SSCs located within PS/Bs that require protection from internal flooding, and the component’s capability to perform their intended safety function in the event of flooding, will be provided in Table 3K-4 of new Appendix 3K to be incorporated in the DCD.

**Impact on DCD**

See Attachment 1 for the mark-up of new Appendix 3K to be incorporated at the end of US-APWR DCD.

- Insert the following Table 3K-4 as the last table in new Appendix 3K:

**Table 3K-4 PS/B Components Protected From Internal Flooding  
(Sheet 1 of 6)**

Item No.	Equipment Tag	Description	Location				Flood Elevation above Floor [ft]	Notes	
			Building	Side	Floor Elevation	Fire Zone No.			Location Elevation above Floor
1	VRS-PFN-251A	A-Class 1E Battery Room Exhaust Fan	PS/B	E	3'-7"	FA3-104-04	N/A	-	1
2	VRS-PFN-251B	B-Class 1E Battery Room Exhaust Fan	PS/B	E	3'-7"	FA3-103-03	N/A	-	1
3	VRS-PFN-251C	C-Class 1E Battery Room Exhaust Fan	PS/B	W	3'-7"	FA3-109-03	N/A	-	1
4	VRS-PFN-251D	D-Class 1E Battery Room Exhaust Fan	PS/B	W	3'-7"	FA3-111-04	N/A	-	1
5	VRS-MOD-251A	Motor Operated Damper	PS/B	E	3'-7"	FA3-104-04	N/A	-	1
6	VRS-MOD-251B	Motor Operated Damper	PS/B	E	3'-7"	FA3-103-03	N/A	-	1
7	VRS-MOD-251C	Motor Operated Damper	PS/B	W	3'-7"	FA3-109-03	N/A	-	1
8	VRS-MOD-251D	Motor Operated Damper	PS/B	W	3'-7"	FA3-111-04	N/A	-	1
9	VRS-MOD-252A	Motor Operated Damper	PS/B	E	3'-7"	FA3-104-04	N/A	-	1
10	VRS-MOD-252B	Motor Operated Damper	PS/B	E	3'-7"	FA3-103-03	N/A	-	1
11	VRS-MOD-252C	Motor Operated Damper	PS/B	W	3'-7"	FA3-109-03	N/A	-	1
12	VRS-MOD-252D	Motor Operated Damper	PS/B	W	3'-7"	FA3-111-04	N/A	-	1
13	VRS-PAH-511A	A-Essential Chiller Unit Area Air Handling Unit	PS/B	E	-26'-4"	FA3-101-01	above flood elevation	0.47	
14	VRS-PAH-511B	B-Essential Chiller Unit Area Air Handling Unit	PS/B	E	-26'-4"	FA3-102-01	above flood elevation	0.47	

**Table 3K-4 PS/B Components Protected From Internal Flooding  
(Sheet 2 of 6)**

Item No.	Equipment Tag	Description	Location				Flood Elevation above Floor [ft]	Notes	
			Building	Side	Floor Elevation	Fire Zone No.			Location Elevation above Floor
15	VRS-PAH-511C	C-Essential Chiller Unit Area Air Handling Unit	PS/B	W	-26'-4"	FA3-108-01	above flood elevation	0.63	
16	VRS-PAH-511D	D-Essential Chiller Unit Area Air Handling Unit	PS/B	W	-26'-4"	FA3-110-01	above flood elevation	0.63	
17	VRS-PFN-511A	A-Essential Chiller Unit Area Air Handling Unit Fan	PS/B	E	-26'-4"	FA3-101-01	above flood elevation	0.47	
18	VRS-PFN-511B	B-Essential Chiller Unit Area Air Handling Unit Fan	PS/B	E	-26'-4"	FA3-102-01	above flood elevation	0.47	
19	VRS-PFN-511C	C-Essential Chiller Unit Area Air Handling Unit Fan	PS/B	W	-26'-4"	FA3-108-01	above flood elevation	0.63	
20	VRS-PFN-511D	D-Essential Chiller Unit Area Air Handling Unit Fan	PS/B	W	-26'-4"	FA3-110-01	above flood elevation	0.63	
21	VRS-PCC-511A	A-Essential Chiller Unit Area Air Handling Unit Cooling Coil	PS/B	E	-26'-4"	FA3-101-01	above flood elevation	0.47	
22	VRS-PCC-511B	B-Essential Chiller Unit Area Air Handling Unit Cooling Coil	PS/B	E	-26'-4"	FA3-102-01	above flood elevation	0.47	
23	VRS-PCC-511C	C-Essential Chiller Unit Area Air Handling Unit Cooling Coil	PS/B	W	-26'-4"	FA3-108-01	above flood elevation	0.63	
24	VRS-PCC-511D	D-Essential Chiller Unit Area Air Handling Unit Cooling Coil	PS/B	W	-26'-4"	FA3-110-01	above flood elevation	0.63	
25	VRS-PEH-511A	A-Essential Chiller Unit Area Air Handling Unit Electric Heating Coil	PS/B	E	-26'-4"	FA3-101-01	above flood elevation	0.47	
26	VRS-PEH-511B	B-Essential Chiller Unit Area Air Handling Unit Electric Heating Coil	PS/B	E	-26'-4"	FA3-102-01	above flood elevation	0.47	
27	VRS-PEH-511C	C-Essential Chiller Unit Area Air Handling Unit Electric Heating Coil	PS/B	W	-26'-4"	FA3-108-01	above flood elevation	0.63	



**Table 3K-4 PS/B Components Protected From Internal Flooding  
(Sheet 3 of 6)**

Item No.	Equipment Tag	Description	Location					Flood Elevation above Floor [ft]	Notes
			Building	Side	Floor Elevation	Fire Zone No.	Location Elevation above Floor		
28	VRS-PEH-511D	D-Essential Chiller Unit Area Air Handling Unit Electric Heating Coil	PS/B	W	-26'-4"	FA3-110-01	above flood elevation	0.63	
29	VWS-PEQ-001A	A-Essential Chiller Unit	PS/B	E	-26'-4"	FA3-101-01	above flood elevation	0.47	
30	VWS-PEQ-001B	B-Essential Chiller Unit	PS/B	E	-26'-4"	FA3-102-01	above flood elevation	0.47	
31	VWS-PEQ-001C	C-Essential Chiller Unit	PS/B	W	-26'-4"	FA3-108-01	above flood elevation	0.63	
32	VWS-PEQ-001D	D-Essential Chiller Unit	PS/B	W	-26'-4"	FA3-110-01	above flood elevation	0.63	
33	VWS-PPP-001A	A-Essential Chilled Water Pump	PS/B	E	-26'-4"	FA3-101-01	above flood elevation	0.47	
34	VWS-PPP-001B	B-Essential Chilled Water Pump	PS/B	E	-26'-4"	FA3-102-01	above flood elevation	0.47	
35	VWS-PPP-001C	C-Essential Chilled Water Pump	PS/B	W	-26'-4"	FA3-108-01	above flood elevation	0.63	
36	VWS-PPP-001D	D-Essential Chilled Water Pump	PS/B	W	-26'-4"	FA3-110-01	above flood elevation	0.63	
37	VWS-PTK-001A	A-Essential Chilled Water Compression Tank	PS/B	E	-26'-4"	FA3-101-01	above flood elevation	0.47	
38	VWS-PTK-001B	B-Essential Chilled Water Compression Tank	PS/B	E	-26'-4"	FA3-102-01	above flood elevation	0.47	
39	VWS-PTK-001C	C-Essential Chilled Water Compression Tank	PS/B	W	-26'-4"	FA3-108-01	above flood elevation	0.63	
40	VWS-PTK-001D	D-Essential Chilled Water Compression Tank	PS/B	W	-26'-4"	FA3-110-01	above flood elevation	0.63	
41	VWS-TCV-2726A	Chilled Water Control Valve	PS/B	E	-26'-4"	FA3-101-01	above flood elevation	0.47	
42	VWS-TCV-2726B	Chilled Water Control Valve	PS/B	E	-26'-4"	FA3-102-01	above flood elevation	0.47	

**Table 3K-4 PS/B Components Protected From Internal Flooding  
(Sheet 4 of 6)**

Item No.	Equipment Tag	Description	Location					Flood Elevation above Floor [ft]	Notes
			Building	Side	Floor Elevation	Fire Zone No.	Location Elevation above Floor		
43	VWS-TCV-2726C	Chilled Water Control Valve	PS/B	W	-26'-4"	FA3-108-01	above flood elevation	0.63	
44	VWS-TCV-2726D	Chilled Water Control Valve	PS/B	W	-26'-4"	FA3-110-01	above flood elevation	0.63	
45	VWS-VLV-253A	Safety Valve	PS/B	E	-26'-4"	FA3-101-01	above flood elevation	0.47	
46	VWS-VLV-253B	Safety Valve	PS/B	E	-26'-4"	FA3-102-01	above flood elevation	0.47	
47	VWS-VLV-253C	Safety Valve	PS/B	W	-26'-4"	FA3-108-01	above flood elevation	0.63	
48	VWS-VLV-253D	Safety Valve	PS/B	W	-26'-4"	FA3-110-01	above flood elevation	0.63	
49	A-EGTG	A-Class 1E Gas Turbine Generator	PS/B	E	3'-7"	FA3-104-04	N/A	-	1
50	B-EGTG	B-Class 1E Gas Turbine Generator	PS/B	E	3'-7"	FA3-103-03	N/A	-	1
51	C-EGTG	C-Class 1E Gas Turbine Generator	PS/B	W	3'-7"	FA3-109-03	N/A	-	1
52	D-EGTG	D-Class 1E Gas Turbine Generator	PS/B	W	3'-7"	FA3-111-04	N/A	-	1
53	BCP-A	A-Class 1E Battery Charger	PS/B	E	-14'-2"	FA3-117-01	N/A	-	1
54	DCC-A	A-Class 1E DC Switchboard	PS/B	E	-14'-2"	FA3-117-01	N/A	-	1
55	DCC-A1	A1-Class 1E DC Switchboard	PS/B	E	-14'-2"	FA3-117-01	N/A	-	1
56	BCP-B	B-Class 1E Battery Charger	PS/B	E	-14'-2"	FA3-118-01	N/A	-	1
57	DCC-B	B-Class 1E DC Switchboard	PS/B	E	-14'-2"	FA3-118-01	N/A	-	1
58	BCP-C	C-Class 1E Battery Charger	PS/B	W	-14'-2"	FA3-122-01	N/A	-	1
59	DCC-C	C-Class 1E DC Switchboard	PS/B	W	-14'-2"	FA3-122-01	N/A	-	1

**Table 3K-4 PS/B Components Protected From Internal Flooding  
(Sheet 5 of 6)**

Item No.	Equipment Tag	Description	Location					Flood Elevation above Floor [ft]	Notes
			Building	Side	Floor Elevation	Fire Zone No.	Location Elevation above Floor		
60	BCP-D	D-Class 1E Battery Charger	PS/B	W	-14'-2"	FA3-123-01	N/A	-	1
61	DCC-D	D-Class 1E DC Switchboard	PS/B	W	-14'-2"	FA3-123-01	N/A	-	1
62	DCC-D1	D1-Class 1E DC Switchboard	PS/B	W	-14'-2"	FA3-123-01	N/A	-	1
63	VCC-A	A-Ventilation Chiller Control Cabinet	PS/B	E	-26'-4"	FA3-101-01	above flood elevation	0.47	
64	VCC-B	B-Ventilation Chiller Control Cabinet	PS/B	E	-26'-4"	FA3-102-01	above flood elevation	0.47	
65	VCC-C	C-Ventilation Chiller Control Cabinet	PS/B	W	-26'-4"	FA3-108-01	above flood elevation	0.63	
66	VCC-D	D-Ventilation Chiller Control Cabinet	PS/B	W	-26'-4"	FA3-110-01	above flood elevation	0.63	
67	BAT-A	A-Class 1E Battery	PS/B	E	-26'-4"	FA3-115-01	above flood elevation	0.47	
68	BAT-B	B-Class 1E Battery	PS/B	E	-26'-4"	FA3-116-01	above flood elevation	0.47	
69	BAT-C	C-Class 1E Battery	PS/B	W	-26'-4"	FA3-120-01	above flood elevation	0.63	
70	BAT-D	D-Class 1E Battery	PS/B	W	-26'-4"	FA3-121-01	above flood elevation	0.63	
71	EPBA	A-Class 1E Gas Turbine Generator Control Board	PS/B	E	3'-7"	FA3-104-04	N/A	-	1
72	EPBB	B-Class 1E Gas Turbine Generator Control Board	PS/B	E	3'-7"	FA3-103-03	N/A	-	1
73	EPBC	C-Class 1E Gas Turbine Generator Control Board	PS/B	W	3'-7"	FA3-109-03	N/A	-	1

**Table 3K-4 PS/B Components Protected From Internal Flooding  
(Sheet 6 of 6)**

Item No.	Equipment Tag	Description	Location					Flood Elevation above Floor [ft]	Notes
			Building	Side	Floor Elevation	Fire Zone No.	Location Elevation above Floor		
74	EPBD	D-Class 1E Gas Turbine Generator Control Board	PS/B	W	3'-7"	FA3-111-04	N/A	-	1
75	VRS-TS-2725A	A - Essential Chiller Unit Area Temperature	PS/B	E	-26'-4"	FA3-101-01	above flood elevation	0.47	
76	VRS-TS-2728A	A - Essential Chiller Unit Area Temperature	PS/B	E	-26'-4"	FA3-101-01	above flood elevation	0.47	
77	VRS-TS-2729A	A - Essential Chiller Unit Area Temperature	PS/B	E	-26'-4"	FA3-101-01	above flood elevation	0.47	
78	VRS-TS-2725B	B - Essential Chiller Unit Area Temperature	PS/B	E	-26'-4"	FA3-102-01	above flood elevation	0.47	
79	VRS-TS-2728B	B - Essential Chiller Unit Area Temperature	PS/B	E	-26'-4"	FA3-102-01	above flood elevation	0.47	
80	VRS-TS-2729B	B - Essential Chiller Unit Area Temperature	PS/B	E	-26'-4"	FA3-102-01	above flood elevation	0.47	

**Notes:**

1. These components are protected by water-tight door against in-flow of flooding occurring outside of compartment. In addition, these components are not required to be protected against flooding occurring inside the compartment due to redundancy of other trains/components.

**Impact on COLA**

There is no impact on the COLA.

**Impact on PRA**

There is no impact on the PRA.

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**RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION**

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Docket No. 52-021**

**RAI NO.:** NO. 220-2058 REVISION 1  
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**QUESTION NO. RAI 3.4.1-07:**

The DCD does not explicitly identify systems and components located within the containment annulus that require protection from internal flood. The containment annulus is an element of the standard plant design. The containment annulus houses penetrations, including penetrations for piping systems. Flooding might occur following a break in these piping systems.

GDC 2 requires in part that "structures, systems, and components important to safety shall be designed to withstand the effects of natural phenomena such as ... floods ... without loss of capability to perform their safety functions." SRP Section 3.4.1, Acceptance Criteria 1 states that acceptable guidance for meeting the seismic design and classification requirements of GDC 2 can be based on meeting Regulatory Guide (RG) 1.29, "Seismic Design Classification," Revision 4, March 2007, Position C.1 for safety-related SSCs and Position C.2 for nonsafety-related SSCs. Also, per SRP 3.4.1, Item I.1, the set of SSCs that must be protected from flooding should be reviewed, and therefore, should be identified in the DCD.

Provide a complete list of SSCs located within the containment annulus that require protection from internal flood. Include this information in the DCD and provide a markup in your response.

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**ANSWER:**

Piping and electrical penetration rooms are located in the containment annulus. These rooms are included in the RCA of the R/B. Therefore, the evaluation of SSCs located within the containment annulus, and which require protection from internal flooding, are included in the complete list of SSCs located within the RCA portion of the R/B, as discussed in RAI 3.4.1-04.

**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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**QUESTION NO. RAI 3.4.1-08:**

The DCD does not explicitly identify the SSCs associated with spent fuel pit cooling that require protection from internal flood.

GDC 2 requires in part that “structures, systems, and components important to safety shall be designed to withstand the effects of natural phenomena such as ... floods ... without loss of capability to perform their safety functions.” SRP Section 3.4.1, Acceptance Criteria 1 states that acceptable guidance for meeting the seismic design and classification requirements of GDC 2 can be based on meeting Regulatory Guide (RG) 1.29, “Seismic Design Classification,” Revision 4, March 2007, Position C.1 for safety-related SSCs and Position C.2 for nonsafety-related SSCs. Also, per SRP 3.4.1, Item I.1, the set of SSCs that must be protected from flooding should be reviewed, and therefore, should be identified in the DCD.

Provide a complete list of SSCs associated with spent fuel pit cooling that require protection from internal flood. Include this information in the DCD and provide a markup in your response

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**ANSWER:**

The A and B train spent fuel pit (SFP) pumps are components associated with spent fuel pit cooling that require protection from internal flooding.

The A and B train SFP pumps are located within the RCA of the R/B at elevation 3 ft, 7 in., therefore, these are included in a complete list of SSCs located within the RCA portion of the R/B that require protection from internal flood as discussed in RAI 3.4.1-04.

**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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**QUESTION NO. RAI 3.4.1-09:**

The PCCV flooding analysis evaluates the maximum flooding event, which is identified as a LOCA. However, the DCD does not explain how the worst case flooding source was determined. There appear to be other potential sources of flood water inside the PCCV, for example component cooling water (CCW) and fire water as indicated in DCD Tier 2 Table 6.2.4-3, "List of Containment Penetrations and System Isolation Positions."

In accordance with SRP 3.4.1, Section I, Item 6, and Section III, Item 3, potential flooding sources should be reviewed, and therefore, should be identified in the DCD.

Explain how the worst case flooding source for the PCCV was determined. Include this information in the DCD and provide a markup in your response

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**ANSWER:**

There are piping systems inside the PCCV such as the CCW system and fire protection water supply system (fire water) that are connected to large-volume water sources, however a significant accidental release of water into the PCCV from these sources are not plausible for the following reasons:

- All CCW piping inside the PCCV is classified as seismic category I.
- Containment isolation valves outside the PCCV for the fire protection water supply system are normally closed. Therefore, there is no water released by a pipe break of the fire protection water supply system inside PCCV.
- The RCP purge water head tank and C/V reactor coolant drain tank are non-seismic components which contain water inside the PCCV. The total amount of water contained within these tanks is 106 ft<sup>3</sup>, which is significantly less than the volume of water from a LOCA.

Based on the above, a LOCA is determined as the worst case flooding source for the PCCV. The DCD will be revised to document this conclusion.

#### **Impact on DCD**

See Attachment 2 for the mark-up of DCD Section 3.4, Revision 2, changes to be incorporated.

- Insert the following as the seventh paragraph in Subsection 3.4.1.5.1:

“There are piping systems inside the PCCV such as the CCW system and fire protection water supply system (fire water) that are connected to large-volume water sources, however a significant accidental release of water into the PCCV from these sources are not plausible for the following reasons:

- All CCW piping inside the PCCV is classified as seismic category I.
- Containment isolation valves outside the PCCV for the fire protection water supply system are normally closed. Therefore, there is no water released by a pipe break of the fire protection water supply system inside PCCV.
- The RCP purge water head tank and CV reactor coolant drain tank are non-seismic components which contain water inside the PCCV. The total amount of water contained within these tanks is 106 ft<sup>3</sup>, which is significantly less than the volume of water from a LOCA.”

#### **Impact on COLA**

There is no impact on the COLA.

#### **Impact on PRA**

There is no impact on the PRA.

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**QUESTION NO. RAI 3.4.1-10:**

With regard to the PCCV flooding analysis, the DCD states that components sensitive to flooding that are required to function are located above the flood elevation. However, the DCD does not identify the locations of safety-related SSCs relative to the internal flood level.

In accordance with SRP 3.4.1, Item I.2, the locations of safety-related SSCs relative to the internal flood level should be reviewed, and therefore, should be identified in the DCD.

Identify the locations of safety-related SSCs relative to the internal flood level. Include this information in the DCD and provide a markup in your response.

---

**ANSWER:**

The location of SSCs within the PCCV, relative to the internal flooding level, and the component's capability to perform their intended safety function in the event of flooding, will be provided in Table 3K-1 of new Appendix 3K to be incorporated in the DCD.

**Impact on DCD**

See Attachment 1 for the mark-up of new Appendix 3K to be incorporated at the end of US-APWR DCD.

- Refer to Question No. RAI 3.4.1-02 for DCD Impact related to providing the location of SSCs within the PCCV relative to the internal flooding level, and the component's capability to perform their intended safety function in the event of flooding.

**Impact on COLA**

There is no impact on the COLA.

**Impact on PRA**

There is no impact on the PRA.

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**QUESTION NO. RAI 3.4.1-11:**

The containment annulus houses containment electrical and mechanical penetration areas. Mechanical penetrations include piping systems containing water. Flooding might occur following a break in these piping systems. However, the DCD does not describe how internal flood protection is achieved for safety-related SSCs located in the containment annulus.

As discussed in SRP 3.4.1, Section II, "Acceptance Criteria," GDC 2 requires in part that "structures, systems, and components important to safety shall be designed to withstand the effects of natural phenomena such as ... floods ... without loss of capability to perform their safety functions." Meeting the requirements of GDC 2 includes evaluating the effects of flooding from full circumferential failures of non-seismic, moderate-energy piping. As also discussed in SRP 3.4.1, Section II, "Acceptance Criteria," the requirements of GDC 4 relate to SSCs important to safety being designed to accommodate the effects of environmental conditions associated with postulated accidents, including loss-of-coolant accidents. Meeting the requirements of GDC 4 includes ensuring that SSCs important to safety are protected from potential flooding from liquid-carrying components in the plant.

Demonstrate how safety-related SSCs located in the containment annulus are protected from internal flood, including a description of instrumentation for flood detection, in accordance with the acceptance criteria of SRP 3.4.1. Include this information in the DCD and provide a markup in your response.

---

**ANSWER:**

The location of SSCs within the R/B RCA, which includes the containment annulus, relative to the internal flooding level, and the component's capability to perform their intended safety function in the event of flooding, will be provided in Table 3K-2 of new Appendix 3K to be incorporated in the DCD.

**Impact on DCD**

See Attachment 1 for the mark-up of new Appendix 3K to be incorporated at the end of US-APWR DCD.

- Refer to Question No. RAI 3.4.1-04 for DCD Impact related to providing the location of SSCs within the R/B RCA, which includes the containment annulus, relative to the internal flooding level, and the component's capability to perform their intended safety function in the event of flooding.

**Impact on COLA**

There is no impact on the COLA.

**Impact on PRA**

There is no impact on the PRA.

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**QUESTION NO. RAI 3.4.1-12:**

DCD Tier 2 Sections 3.4.1.5.2.1 and 3.4.1.5.2.2 provide a series of flooding analyses were performed for both the RCA and NRCA portions of the R/B. In each case, the DCD states that equipment to be protected from flooding is "located at heights above the level of flood water." However, this statement could not be confirmed. While the DCD provides elevation data for selected safety-related components located in the RCA that are to be protected from flooding, the cited equipment elevations are nominally below the maximum RCA flood levels (see DCD Tier 2 Section 3.4.1.5.2.1). Similarly, cited equipment elevations for safety-related components located in the NRCA that are to be protected from flooding are nominally below the maximum NRCA flood levels (see DCD Tier 2 Section 3.4.1.5.2.2).

As discussed in SRP 3.4.1, Section II, "Acceptance Criteria," GDC 2 requires in part that "structures, systems, and components important to safety shall be designed to withstand the effects of natural phenomena such as ... floods ... without loss of capability to perform their safety functions." Meeting the requirements of GDC 2 includes evaluating the effects of flooding from full circumferential failures of non-seismic, moderate-energy piping. As also discussed in SRP 3.4.1, Section II, "Acceptance Criteria," the requirements of GDC 4 relate to SSCs important to safety being designed to accommodate the effects of environmental conditions associated with postulated accidents, including loss-of-coolant accidents. Meeting the requirements of GDC 4 includes ensuring that SSCs important to safety are protected from potential flooding from liquid-carrying components in the plant. Also, per SRP 3.4.1, Item I.2, the locations of safety-related SSCs relative to the internal flood level should be reviewed, and therefore, should be identified in the DCD.

Demonstrate that safety-related SSCs inside the RCA and NRCA portions of the R/B are located above internal flood levels. Include this information in the DCD and provide a markup in your response.

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**ANSWER:**

The location of SSCs within the RCA and NRCA portions of the R/B relative to the internal flooding level, and the component's capability to perform their intended safety function in the event of flooding, will be provided in Tables 3K-2 and 3K-3 of new Appendix 3K to be incorporated in the DCD.

**Impact on DCD**

See Attachment 1 for the mark-up of new Appendix 3K to be incorporated at the end of US-APWR DCD.

- Refer to Question Nos. RAI 3.4.1-04 and RAI 3.4.1-05 for DCD Impact related to providing the location of SSCs within the RCA and NRCA portions of the R/B, respectively, relative to the internal flooding level, and the component's capability to perform their intended safety function in the event of flooding.

**Impact on COLA**

There is no impact on the COLA.

**Impact on PRA**

There is no impact on the PRA.

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**QUESTION NO. RAI 3.4.1-13:**

As discussed in DCD Tier 2 Section 3.4.1.5.2.1, floor drains in the east and west areas of the RCA portion of the R/B are isolated by means of a normally closed valve or check valve in individual drainage pathways prior to connecting into a common sump tank system. This design is used to prevent flood waters from the east (or west) from passing into the west (or east) side of the building via the floor drain system. Per DCD Tier 2 Section 3.4.1.5.2.2, a similar arrangement is used within the NRCA portion of the R/B to preclude cross-flow of floor drain water. As discussed in DCD Tier 2 Section 9.3.3.1.1, normally closed manual isolation valves installed in individual drainage pathways of Engineered Safety Feature (ESF) equipment rooms preclude backflow of water into these rooms via the sump system. However, the DCD does not explain how it is ensured that manual valves used to prevent cross-divisional flooding are aligned and maintained in the closed position.

As discussed in SRP 3.4.1, Section II, "Acceptance Criteria," GDC 2 requires in part that "structures, systems, and components important to safety shall be designed to withstand the effects of natural phenomena such as ... floods ... without loss of capability to perform their safety functions." Meeting the requirements of GDC 2 includes evaluating the effects of flooding from full circumferential failures of non-seismic, moderate-energy piping. As also discussed in SRP 3.4.1, Section II, "Acceptance Criteria," the requirements of GDC 4 relate to SSCs important to safety being designed to accommodate the effects of environmental conditions associated with postulated accidents, including loss-of-coolant accidents. Meeting the requirements of GDC 4 includes ensuring that SSCs important to safety are protected from potential flooding from liquid-carrying components in the plant. Also, in accordance with SRP 3.4.1, Item I.4, the staff is to review the adequacy of isolating safety-related systems and equipment in redundant trains.

Where manual isolation valves are relied upon to preclude cross-divisional flooding via the R/B drain and sump systems, demonstrate how it is ensured that these valves are aligned and maintained in the closed position. Include this information in the DCD and provide a markup in your response.

---

**ANSWER:**

Refer to RAI 288-2274, Question 3.9.6-40 for the response related to this Question RAI 3.4.1-13.

**Impact on DCD**

Refer to the Impact on DCD for Question 3.9.6-40 of RAI 288-2274.

**Impact on COLA**

There is no impact on the COLA.

**Impact on PRA**

There is no impact on the PRA.

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**QUESTION NO. RAI 3.4.1-14:**

The Main Control Room (MCR) and Remote Shutdown Room (RSR) are located in the NRCA portion of the R/B. Per DCD Tier 2 Section 3.4.1.5.2.2, the MCR is isolated from the adjacent R/B corridor by concrete walls and a watertight door. However, the DCD does not discuss whether there are any internal sources of water inside the MCR, and if so, how the MCR is protected from these internal water sources. Furthermore, the DCD does not appear to address flood protection for the RSR.

As discussed in SRP 3.4.1, Section II, "Acceptance Criteria," GDC 2 requires in part that "structures, systems, and components important to safety shall be designed to withstand the effects of natural phenomena such as ... floods ... without loss of capability to perform their safety functions." Meeting the requirements of GDC 2 includes evaluating the effects of flooding from full circumferential failures of non-seismic, moderate-energy piping. As also discussed in SRP 3.4.1, Section II, "Acceptance Criteria," the requirements of GDC 4 relate to SSCs important to safety being designed to accommodate the effects of environmental conditions associated with postulated accidents, including loss-of-coolant accidents. Meeting the requirements of GDC 4 includes ensuring that SSCs important to safety are protected from potential flooding from liquid-carrying components in the plant.

Identify any internal sources of water inside the MCR, and if there are, demonstrate how the MCR is protected from these internal water sources. Also, demonstrate how the RSR is protected from internal flood, in accordance with SRP 3.4.1. Include this information in the DCD and provide a markup in your response.

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**ANSWER:**

The remote shutdown console is installed in the remote shutdown room. There is no piping and therefore no flooding sources inside the remote shutdown room. In addition, the remote shutdown room is protected from in-flow of water from flood sources by a water-tight door. The DCD will be changed to clarify this information.

Internal sources of water inside the MCR are limited to sanitary piping. These water lines are less than or equal to 1B, and therefore countermeasures for this water source are not required.

#### **Impact on DCD**

See Attachment 2 for the mark-up of DCD Section 3.4, Revision 2, changes to be incorporated.

- Change the third paragraph under “**Elevation 76 ft, 5 in.**” in Subsection 3.4.1.5.2.2 to the following:

“The equipment to be protected in the subject area, except the MS/FW piping area, is the instrumentation of the EFW pit, and the remote shutdown console within the remote shutdown room.”

- Add the following at the end of the last paragraph in Subsection 3.4.1.5.2.2:

“The remote shutdown console is installed in the remote shutdown room. There is no piping and therefore no flooding sources inside the remote shutdown room. In addition, the remote shutdown room is protected from in-flow of water from flood sources by a water-tight door.”

#### **Impact on COLA**

There is no impact on the COLA.

#### **Impact on PRA**

There is no impact on the PRA.

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**QUESTION NO. RAI 3.4.1-15:**

The DCD does not describe how internal flood protection is achieved for SSCs used to provide spent fuel pit cooling.

As discussed in SRP 3.4.1, Section II, "Acceptance Criteria," GDC 2 requires in part that "structures, systems, and components important to safety shall be designed to withstand the effects of natural phenomena such as ... floods ... without loss of capability to perform their safety functions." Meeting the requirements of GDC 2 includes evaluating the effects of flooding from full circumferential failures of non-seismic, moderate-energy piping. As also discussed in SRP 3.4.1, Section II, "Acceptance Criteria," the requirements of GDC 4 relate to SSCs important to safety being designed to accommodate the effects of environmental conditions associated with postulated accidents, including loss-of-coolant accidents. Meeting the requirements of GDC 4 includes ensuring that SSCs important to safety are protected from potential flooding from liquid-carrying components in the plant.

Demonstrate how SSCs used to provide spent fuel pit cooling are protected from internal flood, in accordance with SRP 3.4.1. Include this information in the DCD and provide a markup in your response.

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**ANSWER:**

The height (top of concrete) of A and B train SFP pump foundations are 1.0 ft above the floor elevation of 3 ft, 7 in. The water height at elevation 3 ft, 7 in., based on the flood events described in DCD Subsection 3.4.1.5.2.1, is 0.67 ft above elevation 3 ft, 7 in. and 0.87 ft above elevation 3 ft, 7 in. for the east side and west side, respectively. Therefore, the SFP pumps are not flooded.

### **Impact on DCD**

See Attachment 2 for the mark-up of DCD Section 3.4, Revision 2, changes to be incorporated.

- Change the second paragraph under “**Elevation 3 ft, 7 in.**” in Subsection 3.4.1.5.2.1 to the following:

“The equipment to be protected in the east area of RCA at elevation 3 ft, 7 in. are the A and B train CS/RHR heat exchanger (HX), the A and B train safeguard component area air handling unit, and the A train SFP pump. The equipment to be protected in the west area of RCA at elevation 3 ft, 7 in. are the C and D train CS/RHR HX, the C and D train safeguard component area air handling unit, and B train SFP pump.”

- Add the following as the last paragraph under “**Elevation 3 ft, 7 in.**” in Subsection 3.4.1.5.2.1:

“The height (top of concrete) of A and B train SFP pump foundations are 1.0 ft above the floor elevation 3 ft, 7 in. Therefore, the SFP pumps are not flooded.”

### **Impact on COLA**

There is no impact on the COLA.

### **Impact on PRA**

There is no impact on the PRA.

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**QUESTION NO. RAI 3.4.1-16:**

The DCD does not describe how internal flood protection is achieved for safety-related SSCs located inside the power source buildings (PS/B). However, as indicated in DCD Tier 2 Table 3.2-2, the PS/B contains some seismic Category I SSCs, including essential service water (ESW) valves, essential chiller pumps, and miscellaneous equipment related to the emergency gas turbines.

As discussed in SRP 3.4.1, Section II, "Acceptance Criteria," GDC 2 requires in part that "structures, systems, and components important to safety shall be designed to withstand the effects of natural phenomena such as ... floods ... without loss of capability to perform their safety functions." Meeting the requirements of GDC 2 includes evaluating the effects of flooding from full circumferential failures of non-seismic, moderate-energy piping. As also discussed in SRP 3.4.1, Section II, "Acceptance Criteria," the requirements of GDC 4 relate to SSCs important to safety being designed to accommodate the effects of environmental conditions associated with postulated accidents, including loss-of-coolant accidents. Meeting the requirements of GDC 4 includes ensuring that SSCs important to safety are protected from potential flooding from liquid-carrying components in the plant.

Demonstrate how safety-related SSCs located in the PS/B are protected from internal flood, including a description of instrumentation for flood detection, in accordance with SRP 3.4.1. Include this information in the DCD and provide a markup in your response.

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**ANSWER:**

The location of SSCs within the PS/Bs relative to the internal flooding level, and the component's capability to perform their intended safety function in the event of flooding, will be provided in Table 3K-4 of new Appendix 3K to be incorporated in the DCD.



**Impact on DCD**

See Attachment 1 for the mark-up of new Appendix 3K to be incorporated at the end of US-APWR DCD.

- Refer to Question No. RAI 3.4.1-06 for DCD Impact related to providing the location of SSCs within the PS/Bs relative to the internal flooding level, and the component's capability to perform their intended safety function in the event of flooding.

**Impact on COLA**

There is no impact on the COLA.

**Impact on PRA**

There is no impact on the PRA.

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**RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION**

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5/21/2009

**US-APWR Design Certification**

**Mitsubishi Heavy Industries**

**Docket No. 52-021**

**RAI NO.:** NO. 220-2058 REVISION 1

**SRP SECTION:** 03.04.01 – Internal Flood Protection for Onsite Equipment  
Failures

**APPLICATION SECTION:** 03.04.01

**DATE OF RAI ISSUE:** 02/26/09

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**QUESTION NO. RAI 3.4.1-17:**

As described in DCD Tier 2 Section 3.4.1, the US-APWR design utilizes watertight doors as an important element of the overall flood protection strategy. However, there is no mention of methods used for assuring the functionality of these watertight doors, for example position indicators, door seals, aging degradation, testing, and maintenance procedure requirements for the door seals.

In accordance with SRP 3.4.1, Item III.2, the staff is to review the adequacy of techniques used to prevent flooding, including the use of watertight doors.

Describe how the functionality of the watertight doors is assured. Specifically address the means used to determine and assure door position, integrity of door seals, aging degradation, testing, and maintenance procedure requirements for the door seals. Include this information in the DCD and provide a markup in your response.

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**ANSWER:**

The functionality of water-tight doors is assured through various elements of the design, operation and maintenance of the doors. The door seals are designed such that they will provide positive leak tightness in case of flooding conditions. Remote position indication is provided to the operators for verification that the doors are in the proper position for the plant condition. Inspections of the water-tight doors will be performed periodically to ensure that the integrity of the door seals is maintained and any aging-related degradation is identified and corrected. These inspections will entail a visual inspection and functional test of the door to validate sealing functionality. Procedures for performing the periodic maintenance will be provided that detail the specific door subcomponents and inspection attributes (such as loose or missing parts, excessive wear, damage, sealing surface imperfections, binding, looseness, deterioration, etc.).

**Impact on DCD**

See Attachment 2 for the mark-up of DCD Section 3.4, Revision 2, changes to be incorporated.

- Insert the following as the fourth paragraph in Subsection 3.4.1.3:

"Water-tight doors are used as protective barriers to prevent flood waters from spreading to adjacent divisions in various buildings and elevations. Water-tight doors have position indication for closure verification and are periodically inspected and tested to ensure proper functionality."

**Impact on COLA**

There is no impact on the COLA.

**Impact on PRA**

There is no impact on the PRA.

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This completes MHI's responses to the NRC's questions.

**ATTACHMENT 1  
to RAI 220-2058**

**APPENDIX 3K**

**COMPONENTS PROTECTED FROM INTERNAL  
FLOODING**

ATTACHMENT 1  
to RAI 220-2058

**CONTENTS**

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**ACRONYMS AND ABBREVIATIONS**

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NRCA	non-radiological controlled area
PCCV	prestressed concrete containment vessel
PS/B	power source building
R/B	reactor building
RCA	radiological controlled area

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**3K. Components Protected From Internal Flooding**

**3K.1 Introduction**

This appendix provides the location of components within safety-related buildings of the US-APWR, in comparison to the maximum internal flood elevation within the vicinity of the component.

Table 3K-1 provides a list of components, identified by Equipment Tag, that are located in the prestressed concrete containment vessel (PCCV). Each component is located by floor elevation, fire zone number, and the elevation above the floor. The applicable flood elevation is identified, and a note is provided for any components below the flood elevation to indicate the component's capability to perform their intended safety function in the event of flooding.

Table 3K-2 provides a list of components, identified by Equipment Tag, that are located in the radiological controlled area (RCA) of the reactor building (R/B). Each component is located by floor elevation, side of building, fire zone number, and the elevation above the floor. The applicable flood elevation is identified, and a note is provided for any components below the flood elevation to indicate the component's capability to perform their intended safety function in the event of flooding.

Table 3K-3 provides a list of components, identified by Equipment Tag, that are located in the non-radiological controlled area (NRCA) of the R/B. Each component is located by floor elevation, side of building, fire zone number, and the elevation above the floor. The applicable flood elevation is identified, and a note is provided for any components below the flood elevation to indicate the component's capability to perform their intended safety function in the event of flooding.

Table 3K-4 provides a list of components, identified by Equipment Tag, that are located in either power source building (PS/B). Each component is located by floor elevation, as either east (E) or west (W) PS/B, fire zone number, and the elevation above the floor. The applicable flood elevation is identified, and a note is provided for any components below the flood elevation to indicate the component's capability to perform their intended safety function in the event of flooding.



**Table 3K-1 PCCV Components Protected From Internal Flooding**  
(Sheet 1 of 23)

Item No.	Equipment Tag	Description	Location				Flood Elevation above Floor [ft]	Notes	
			Building	Side	Floor Elevation	Fire Zone No.			Location Elevation above Floor
1	RCS-CTK-001	Reactor Vessel	PCCV	N/A	-9'-2"	FA1-103-03	below flood elevation	max. El. 25'-3"	1
2	RCS-CHX-001A	A-Steam Generator	PCCV	N/A	25'-3"	FA1-101-11	above flood elevation	max. El. 25'-3"	
3	RCS-CHX-001B	B-Steam Generator	PCCV	N/A	25'-3"	FA1-101-08	above flood elevation	max. El. 25'-3"	
4	RCS-CHX-001C	C-Steam Generator	PCCV	N/A	25'-3"	FA1-101-09	above flood elevation	max. El. 25'-3"	
5	RCS-CHX-001D	D-Steam Generator	PCCV	N/A	25'-3"	FA1-101-10	above flood elevation	max. El. 25'-3"	
6	RCS-CTK-002	Pressurizer	PCCV	N/A	58'-5"	FA1-101-21	above flood elevation	max. El. 25'-3"	
7	RCS-CPP-001A	A-Reactor Coolant Pump	PCCV	N/A	25'-3"	FA1-101-11	above flood elevation	max. El. 25'-3"	
8	RCS-CPP-001B	B-Reactor Coolant Pump	PCCV	N/A	25'-3"	FA1-101-08	above flood elevation	max. El. 25'-3"	
9	RCS-CPP-001C	C-Reactor Coolant Pump	PCCV	N/A	25'-3"	FA1-101-09	above flood elevation	max. El. 25'-3"	
10	RCS-CPP-001D	D-Reactor Coolant Pump	PCCV	N/A	25'-3"	FA1-101-10	above flood elevation	max. El. 25'-3"	
11	RCS-VLV-120	A-Pressurizer Safety Valve	PCCV	N/A	58'-5"	FA1-101-21	above flood elevation	max. El. 25'-3"	
12	RCS-VLV-121	B-Pressurizer Safety Valve	PCCV	N/A	58'-5"	FA1-101-21	above flood elevation	max. El. 25'-3"	
13	RCS-VLV-122	C-Pressurizer Safety Valve	PCCV	N/A	58'-5"	FA1-101-21	above flood elevation	max. El. 25'-3"	
14	RCS-VLV-123	D-Pressurizer Safety Valve	PCCV	N/A	58'-5"	FA1-101-21	above flood elevation	max. El. 25'-3"	
15	RCS-MOV-002A	Motor Operated Valve	PCCV	N/A	76'-5"	FA1-101-24	above flood elevation	max. El. 25'-3"	
16	RCS-MOV-002B	Motor Operated Valve	PCCV	N/A	76'-5"	FA1-101-24	above flood elevation	max. El. 25'-3"	
17	RCS-MOV-003A	Motor Operated Valve	PCCV	N/A	76'-5"	FA1-101-24	above flood elevation	max. El. 25'-3"	

**Table 3K-1 PCCV Components Protected From Internal Flooding  
(Sheet 2 of 23)**

Item No.	Equipment Tag	Description	Location				Flood Elevation above Floor [ft]	Notes
			Building	Side	Floor Elevation	Fire Zone No.		
18	RCS-MOV-003B	Motor Operated Valve	PCCV	N/A	76'-5"	FA1-101-24	above flood elevation	max. El. 25'-3"
19	RCS-MOV-111A	Motor Operated Valve	PCCV	N/A	50'-2"	FA1-101-15	above flood elevation	max. El. 25'-3"
20	RCS-MOV-111B	Motor Operated Valve	PCCV	N/A	50'-2"	FA1-101-16	above flood elevation	max. El. 25'-3"
21	RCS-MOV-116A	Motor Operated Valve	PCCV	N/A	58'-5"	FA1-101-21	above flood elevation	max. El. 25'-3"
22	RCS-MOV-116B	Motor Operated Valve	PCCV	N/A	58'-5"	FA1-101-21	above flood elevation	max. El. 25'-3"
23	RCS-MOV-117A	A-Safety Depressurization Valve	PCCV	N/A	58'-5"	FA1-101-21	above flood elevation	max. El. 25'-3"
24	RCS-MOV-117B	B-Safety Depressurization Valve	PCCV	N/A	58'-5"	FA1-101-21	above flood elevation	max. El. 25'-3"
25	RCS-MOV-118	Motor Operated Valve	PCCV	N/A	58'-5"	FA1-101-21	above flood elevation	max. El. 25'-3"
26	RCS-MOV-119	Depressurization Valve	PCCV	N/A	58'-5"	FA1-101-21	above flood elevation	max. El. 25'-3"
27	RCS-PCV-451A	A-Pressurizer Spray Valve	PCCV	N/A	50'-2"	FA1-101-15	above flood elevation	max. El. 25'-3"
28	RCS-PCV-451B	B-Pressurizer Spray Valve	PCCV	N/A	50'-2"	FA1-101-16	above flood elevation	max. El. 25'-3"
29	RCS-AOV-147	Air Operated Valve	PCCV	N/A	25'-3"	FA1-101-06	above flood elevation	max. El. 25'-3"
30	CVS-MOV-203	Motor Operated Valve	PCCV	N/A	25'-3"	FA1-101-06	above flood elevation	max. El. 25'-3"
31	CVS-AOV-005	Air Operated Valve	PCCV	N/A	25'-3"	FA1-101-06	above flood elevation	max. El. 25'-3"
32	CVS-AOV-155	Air Operated Valve	PCCV	N/A	25'-3"	FA1-101-09	above flood elevation	max. El. 25'-3"
33	CVS-AOV-159	Air Operated Valve	PCCV	N/A	50'-2"	FA1-101-20	above flood elevation	max. El. 25'-3"
34	CVS-LCV-451	Level Control Valve	PCCV	N/A	25'-3"	FA1-101-10	above flood elevation	max. El. 25'-3"

**Table 3K-1 PCCV Components Protected From Internal Flooding**  
(Sheet 3 of 23)

Item No.	Equipment Tag	Description	Location				Flood Elevation above Floor [ft]	Notes
			Building	Side	Floor Elevation	Fire Zone No.		
35	CVS-LCV-452	Level Control Valve	PCCV	N/A	25'-3"	FA1-101-10	above flood elevation	max. El. 25'-3"
36	CVS-AOV-192A	Air Operated Valve	PCCV	N/A	25'-3"	FA1-101-11	above flood elevation	max. El. 25'-3"
37	CVS-AOV-192B	Air Operated Valve	PCCV	N/A	25'-3"	FA1-101-08	above flood elevation	max. El. 25'-3"
38	CVS-AOV-221	Air Operated Valve	PCCV	N/A	25'-3"	FA1-101-11	above flood elevation	max. El. 25'-3"
39	CVS-AOV-222	Air Operated Valve	PCCV	N/A	25'-3"	FA1-101-11	above flood elevation	max. El. 25'-3"
40	CVS-AOV-192C	Air Operated Valve	PCCV	N/A	25'-3"	FA1-101-09	above flood elevation	max. El. 25'-3"
41	CVS-AOV-192D	Air Operated Valve	PCCV	N/A	25'-3"	FA1-101-10	above flood elevation	max. El. 25'-3"
42	CVS-AOV-196A	Air Operated Valve	PCCV	N/A	25'-3"	FA1-101-11	above flood elevation	max. El. 25'-3"
43	CVS-AOV-196B	Air Operated Valve	PCCV	N/A	25'-3"	FA1-101-08	above flood elevation	max. El. 25'-3"
44	CVS-AOV-196C	Air Operated Valve	PCCV	N/A	25'-3"	FA1-101-09	above flood elevation	max. El. 25'-3"
45	CVS-AOV-196D	Air Operated Valve	PCCV	N/A	25'-3"	FA1-101-10	above flood elevation	max. El. 25'-3"
46	SIS-CTK-001A	A-Accumulator	PCCV	N/A	25'-3"	FA1-101-07	above flood elevation	max. El. 25'-3"
47	SIS-CTK-001B	B-Accumulator	PCCV	N/A	25'-3"	FA1-101-04	above flood elevation	max. El. 25'-3"
48	SIS-CTK-001C	C-Accumulator	PCCV	N/A	25'-3"	FA1-101-05	above flood elevation	max. El. 25'-3"
49	SIS-CTK-001D	D-Accumulator	PCCV	N/A	25'-3"	FA1-101-06	above flood elevation	max. El. 25'-3"
50	SIS-MOV-011A	Motor Operated Valve	PCCV	N/A	25'-3"	FA1-101-07	above flood elevation	max. El. 25'-3"
51	SIS-MOV-011B	Motor Operated Valve	PCCV	N/A	25'-3"	FA1-101-04	above flood elevation	max. El. 25'-3"

**Table 3K-1 PCCV Components Protected From Internal Flooding  
(Sheet 4 of 23)**

Item No.	Equipment Tag	Description	Location				Flood Elevation above Floor [ft]	Notes
			Building	Side	Floor Elevation	Fire Zone No.		
52	SIS-MOV-014A	Motor Operated Valve	PCCV	N/A	25'-3"	FA1-101-07	above flood elevation	max. El. 25'-3"
53	SIS-MOV-014B	Motor Operated Valve	PCCV	N/A	25'-3"	FA1-101-04	above flood elevation	max. El. 25'-3"
54	SIS-MOV-031B	Motor Operated Valve	PCCV	N/A	25'-3"	FA1-101-08	above flood elevation	max. El. 25'-3"
55	SIS-MOV-032B	Motor Operated Valve	PCCV	N/A	25'-3"	FA1-101-08	above flood elevation	max. El. 25'-3"
56	SIS-MOV-011C	Motor Operated Valve	PCCV	N/A	25'-3"	FA1-101-05	above flood elevation	max. El. 25'-3"
57	SIS-MOV-011D	Motor Operated Valve	PCCV	N/A	25'-3"	FA1-101-06	above flood elevation	max. El. 25'-3"
58	SIS-MOV-014C	Motor Operated Valve	PCCV	N/A	25'-3"	FA1-101-05	above flood elevation	max. El. 25'-3"
59	SIS-MOV-014D	Motor Operated Valve	PCCV	N/A	25'-3"	FA1-101-06	above flood elevation	max. El. 25'-3"
60	SIS-MOV-024A	Motor Operated Valve	PCCV	N/A	25'-3"	FA1-101-07	above flood elevation	max. El. 25'-3"
61	SIS-MOV-024B	Motor Operated Valve	PCCV	N/A	25'-3"	FA1-101-04	above flood elevation	max. El. 25'-3"
62	SIS-MOV-024C	Motor Operated Valve	PCCV	N/A	25'-3"	FA1-101-05	above flood elevation	max. El. 25'-3"
63	SIS-MOV-024D	Motor Operated Valve	PCCV	N/A	25'-3"	FA1-101-06	above flood elevation	max. El. 25'-3"
64	SIS-MOV-031D	Motor Operated Valve	PCCV	N/A	25'-3"	FA1-101-10	above flood elevation	max. El. 25'-3"
65	SIS-MOV-032D	Motor Operated Valve	PCCV	N/A	25'-3"	FA1-101-10	above flood elevation	max. El. 25'-3"
66	SIS-MOV-121A	Motor Operated Valve	PCCV	N/A	50'-2"	FA1-101-17	above flood elevation	max. El. 25'-3"
67	SIS-MOV-121B	Motor Operated Valve	PCCV	N/A	50'-2"	FA1-101-17	above flood elevation	max. El. 25'-3"
68	SIS-MOV-125A	Motor Operated Valve	PCCV	N/A	50'-2"	FA1-101-18	above flood elevation	max. El. 25'-3"

Tier 2

3K-5

Revision 2

**Table 3K-1 PCCV Components Protected From Internal Flooding**  
(Sheet 5 of 23)

Item No.	Equipment Tag	Description	Location				Flood Elevation above Floor [ft]	Notes
			Building	Side	Floor Elevation	Fire Zone No.		
69	SIS-MOV-125B	Motor Operated Valve	PCCV	N/A	50'-2"	FA1-101-15	above flood elevation	max. El. 25'-3"
70	SIS-MOV-125C	Motor Operated Valve	PCCV	N/A	50'-2"	FA1-101-16	above flood elevation	max. El. 25'-3"
71	SIS-MOV-125D	Motor Operated Valve	PCCV	N/A	50'-2"	FA1-101-17	above flood elevation	max. El. 25'-3"
72	SIS-MOV-101A	Motor Operated Valve	PCCV	N/A	25'-3"	FA1-101-07	above flood elevation	max. El. 25'-3"
73	SIS-MOV-101B	Motor Operated Valve	PCCV	N/A	25'-3"	FA1-101-04	above flood elevation	max. El. 25'-3"
74	SIS-MOV-101C	Motor Operated Valve	PCCV	N/A	25'-3"	FA1-101-05	above flood elevation	max. El. 25'-3"
75	SIS-MOV-101D	Motor Operated Valve	PCCV	N/A	25'-3"	FA1-101-06	above flood elevation	max. El. 25'-3"
76	SIS-VLV-116	Safety Valve	PCCV	N/A	25'-3"	FA1-101-04	above flood elevation	max. El. 25'-3"
77	SIS-VLV-126A	Safety Valve	PCCV	N/A	50'-2"	FA1-101-18	above flood elevation	max. El. 25'-3"
78	SIS-VLV-126B	Safety Valve	PCCV	N/A	50'-2"	FA1-101-15	above flood elevation	max. El. 25'-3"
79	SIS-VLV-126C	Safety Valve	PCCV	N/A	50'-2"	FA1-101-16	above flood elevation	max. El. 25'-3"
80	SIS-VLV-126D	Safety Valve	PCCV	N/A	50'-2"	FA1-101-17	above flood elevation	max. El. 25'-3"
81	SIS-HCV-917	Air Operated Valve	PCCV	N/A	50'-2"	FA1-101-17	above flood elevation	max. El. 25'-3"
82	SIS-AOV-215A	Air Operated Valve	PCCV	N/A	25'-3"	FA1-101-07	above flood elevation	max. El. 25'-3"
83	SIS-AOV-215B	Air Operated Valve	PCCV	N/A	25'-3"	FA1-101-04	above flood elevation	max. El. 25'-3"
84	SIS-AOV-215C	Air Operated Valve	PCCV	N/A	25'-3"	FA1-101-05	above flood elevation	max. El. 25'-3"
85	SIS-AOV-215D	Air Operated Valve	PCCV	N/A	25'-3"	FA1-101-06	above flood elevation	max. El. 25'-3"

to RAI 220-2058  
ATTACHMENT 1

**Table 3K-1 PCCV Components Protected From Internal Flooding  
(Sheet 6 of 23)**

Item No.	Equipment Tag	Description	Location				Flood Elevation above Floor [ft]	Notes
			Building	Side	Floor Elevation	Fire Zone No.		
86	SIS-AOV-201B	Air Operated Valve	PCCV	N/A	25'-3"	FA1-101-05	above flood elevation	max. El. 25'-3"
87	SIS-AOV-201C	Air Operated Valve	PCCV	N/A	25'-3"	FA1-101-05	above flood elevation	max. El. 25'-3"
88	RHS-MOV-001A	Motor Operated Valve	PCCV	N/A	25'-3"	FA1-101-11	above flood elevation	max. El. 25'-3"
89	RHS-MOV-001B	Motor Operated Valve	PCCV	N/A	25'-3"	FA1-101-08	above flood elevation	max. El. 25'-3"
90	RHS-MOV-002A	Motor Operated Valve	PCCV	N/A	25'-3"	FA1-101-07	above flood elevation	max. El. 25'-3"
91	RHS-MOV-002B	Motor Operated Valve	PCCV	N/A	25'-3"	FA1-101-04	above flood elevation	max. El. 25'-3"
92	RHS-MOV-025A	Motor Operated Valve	PCCV	N/A	25'-3"	FA1-101-07	above flood elevation	max. El. 25'-3"
93	RHS-MOV-025B	Motor Operated Valve	PCCV	N/A	25'-3"	FA1-101-04	above flood elevation	max. El. 25'-3"
94	RHS-MOV-026A	Motor Operated Valve	PCCV	N/A	25'-3"	FA1-101-07	above flood elevation	max. El. 25'-3"
95	RHS-MOV-026B	Motor Operated Valve	PCCV	N/A	25'-3"	FA1-101-04	above flood elevation	max. El. 25'-3"
96	RHS-AOV-024A	Air Operated Valve	PCCV	N/A	25'-3"	FA1-101-07	above flood elevation	max. El. 25'-3"
97	RHS-MOV-001C	Motor Operated Valve	PCCV	N/A	25'-3"	FA1-101-09	above flood elevation	max. El. 25'-3"
98	RHS-MOV-001D	Motor Operated Valve	PCCV	N/A	25'-3"	FA1-101-10	above flood elevation	max. El. 25'-3"
99	RHS-MOV-002C	Motor Operated Valve	PCCV	N/A	25'-3"	FA1-101-05	above flood elevation	max. El. 25'-3"
100	RHS-MOV-002D	Motor Operated Valve	PCCV	N/A	25'-3"	FA1-101-06	above flood elevation	max. El. 25'-3"
101	RHS-MOV-025C	Motor Operated Valve	PCCV	N/A	25'-3"	FA1-101-05	above flood elevation	max. El. 25'-3"
102	RHS-MOV-025D	Motor Operated Valve	PCCV	N/A	25'-3"	FA1-101-06	above flood elevation	max. El. 25'-3"

**Table 3K-1 PCCV Components Protected From Internal Flooding  
(Sheet 7 of 23)**

Item No.	Equipment Tag	Description	Location					Flood Elevation above Floor [ft]	Notes
			Building	Side	Floor Elevation	Fire Zone No.	Location Elevation above Floor		
103	RHS-MOV-026C	Motor Operated Valve	PCCV	N/A	25'-3"	FA1-101-05	above flood elevation	max. El. 25'-3"	
104	RHS-MOV-026D	Motor Operated Valve	PCCV	N/A	25'-3"	FA1-101-06	above flood elevation	max. El. 25'-3"	
105	RHS-AOV-024D	Air Operated Valve	PCCV	N/A	25'-3"	FA1-101-06	above flood elevation	max. El. 25'-3"	
106	RHS-VLV-003A	Safety Valve	PCCV	N/A	25'-3"	FA1-101-07	above flood elevation	max. El. 25'-3"	
107	RHS-VLV-003B	Safety Valve	PCCV	N/A	25'-3"	FA1-101-04	above flood elevation	max. El. 25'-3"	
108	RHS-VLV-003C	Safety Valve	PCCV	N/A	25'-3"	FA1-101-05	above flood elevation	max. El. 25'-3"	
109	RHS-VLV-003D	Safety Valve	PCCV	N/A	25'-3"	FA1-101-06	above flood elevation	max. El. 25'-3"	
110	RHS-VLV-023A	Safety Valve	PCCV	N/A	25'-3"	FA1-101-07	above flood elevation	max. El. 25'-3"	
111	RHS-VLV-023B	Safety Valve	PCCV	N/A	25'-3"	FA1-101-04	above flood elevation	max. El. 25'-3"	
112	RHS-VLV-023C	Safety Valve	PCCV	N/A	25'-3"	FA1-101-05	above flood elevation	max. El. 25'-3"	
113	RHS-VLV-023D	Safety Valve	PCCV	N/A	25'-3"	FA1-101-06	above flood elevation	max. El. 25'-3"	
114	CSS-COT-001	Spray Nozzle	PCCV	N/A	76'-5"	FA1-101-26	above flood elevation	max. El. 25'-3"	
115	CSS-COT-001	Spray Nozzle	PCCV	N/A	76'-5"	FA1-101-23	above flood elevation	max. El. 25'-3"	
116	CSS-COT-001	Spray Nozzle	PCCV	N/A	76'-5"	FA1-101-24	above flood elevation	max. El. 25'-3"	
117	CSS-COT-001	Spray Nozzle	PCCV	N/A	76'-5"	FA1-101-25	above flood elevation	max. El. 25'-3"	
118	NCS-MOV-436B	Motor Operated Valve	PCCV	N/A	25'-3"	FA1-101-05	above flood elevation	max. El. 25'-3"	
119	NCS-VLV-406A	Safety Valve	PCCV	N/A	25'-3"	FA1-101-07	above flood elevation	max. El. 25'-3"	

**Table 3K-1 PCCV Components Protected From Internal Flooding**  
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Item No.	Equipment Tag	Description	Location				Flood Elevation above Floor [ft]	Notes
			Building	Side	Floor Elevation	Fire Zone No.		
120	NCS-VLV-406B	Safety Valve	PCCV	N/A	25'-3"	FA1-101-04	above flood elevation	max. El. 25'-3"
121	NCS-VLV-406C	Safety Valve	PCCV	N/A	25'-3"	FA1-101-05	above flood elevation	max. El. 25'-3"
122	NCS-VLV-406D	Safety Valve	PCCV	N/A	25'-3"	FA1-101-06	above flood elevation	max. El. 25'-3"
123	NCS-VLV-435A	Safety Valve	PCCV	N/A	25'-3"	FA1-101-04	above flood elevation	max. El. 25'-3"
124	NCS-VLV-435B	Safety Valve	PCCV	N/A	25'-3"	FA1-101-05	above flood elevation	max. El. 25'-3"
125	NCS-MOV-436A	Motor Operated Valve	PCCV	N/A	25'-3"	FA1-101-04	above flood elevation	max. El. 25'-3"
126	NCS-FCV-1321A	Flow Control Valve	PCCV	N/A	25'-3"	FA1-101-05	above flood elevation	max. El. 25'-3"
127	NCS-FCV-1321B	Flow Control Valve	PCCV	N/A	25'-3"	FA1-101-05	above flood elevation	max. El. 25'-3"
128	NCS-TCV-103	Temperature Control Valve	PCCV	N/A	50'-2"	FA1-101-16	above flood elevation	max. El. 25'-3"
129	NCS-FCV-1319A	Flow Control Valve	PCCV	N/A	25'-3"	FA1-101-07	above flood elevation	max. El. 25'-3"
130	NCS-FCV-1319B	Flow Control Valve	PCCV	N/A	25'-3"	FA1-101-07	above flood elevation	max. El. 25'-3"
131	NCS-MOV-446A	Motor Operated Valve	PCCV	N/A	50'-2"	FA1-101-18	above flood elevation	max. El. 25'-3"
132	NCS-MOV-446B	Motor Operated Valve	PCCV	N/A	50'-2"	FA1-101-15	above flood elevation	max. El. 25'-3"
133	NCS-MOV-446C	Motor Operated Valve	PCCV	N/A	50'-2"	FA1-101-16	above flood elevation	max. El. 25'-3"
134	NCS-MOV-446D	Motor Operated Valve	PCCV	N/A	50'-2"	FA1-101-17	above flood elevation	max. El. 25'-3"
135	NCS-MOV-447A	Motor Operated Valve	PCCV	N/A	25'-3"	FA1-101-04	above flood elevation	max. El. 25'-3"
136	NCS-MOV-447B	Motor Operated Valve	PCCV	N/A	25'-3"	FA1-101-05	above flood elevation	max. El. 25'-3"



**Table 3K-1 PCCV Components Protected From Internal Flooding**  
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Item No.	Equipment Tag	Description	Location				Flood Elevation above Floor [ft]	Notes
			Building	Side	Floor Elevation	Fire Zone No.		
137	NCS-FCV-1320A	Flow Control Valve	PCCV	N/A	25'-3"	FA1-101-04	above flood elevation	max. El. 25'-3"
138	NCS-FCV-1320B	Flow Control Valve	PCCV	N/A	25'-3"	FA1-101-04	above flood elevation	max. El. 25'-3"
139	NCS-FCV-1322A	Flow Control Valve	PCCV	N/A	25'-3"	FA1-101-06	above flood elevation	max. El. 25'-3"
140	NCS-FCV-1322B	Flow Control Valve	PCCV	N/A	25'-3"	FA1-101-06	above flood elevation	max. El. 25'-3"
141	NCS-VLV-513	Safety Valve	PCCV	N/A	50'-2"	FA1-101-18	above flood elevation	max. El. 25'-3"
142	NCS-VLV-533	Safety Valve	PCCV	N/A	50'-2"	FA1-101-16	above flood elevation	max. El. 25'-3"
143	LMS-AOV-052	Air Operated Valve	PCCV	N/A	25'-3"	FA1-101-06	above flood elevation	max. El. 25'-3"
144	LMS-AOV-055	Air Operated Valve	PCCV	N/A	25'-3"	FA1-101-06	above flood elevation	max. El. 25'-3"
145	LMS-LCV-1000A	Level Control Valve	PCCV	N/A	25'-3"	FA1-101-07	above flood elevation	max. El. 25'-3"
146	LMS-AOV-104	Air Operated Valve	PCCV	N/A	25'-3"	FA1-101-07	above flood elevation	max. El. 25'-3"
147	PSS-AOV-003	Air Operated Valve	PCCV	N/A	25'-3"	FA1-101-05	above flood elevation	max. El. 25'-3"
148	PSS-MOV-006	Motor Operated Valve	PCCV	N/A	25'-3"	FA1-101-05	above flood elevation	max. El. 25'-3"
149	PSS-MOV-013	Motor Operated Valve	PCCV	N/A	25'-3"	FA1-101-06	above flood elevation	max. El. 25'-3"
150	PSS-MOV-023	Motor Operated Valve	PCCV	N/A	25'-3"	FA1-101-06	above flood elevation	max. El. 25'-3"
151	PSS-AOV-062A	Air Operated Valve	PCCV	N/A	25'-3"	FA1-101-05	above flood elevation	max. El. 25'-3"
152	PSS-AOV-062B	Air Operated Valve	PCCV	N/A	25'-3"	FA1-101-06	above flood elevation	max. El. 25'-3"
153	PSS-AOV-062C	Air Operated Valve	PCCV	N/A	25'-3"	FA1-101-06	above flood elevation	max. El. 25'-3"

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**Table 3K-1 PCCV Components Protected From Internal Flooding**  
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Item No.	Equipment Tag	Description	Location				Flood Elevation above Floor [ft]	Notes	
			Building	Side	Floor Elevation	Fire Zone No.			
154	PSS-AOV-062D	Air Operated Valve	PCCV	N/A	25'-3"	FA1-101-06	above flood elevation	max. El. 25'-3"	
155	RWS-CPT-001	Refueling Water Storage Pit	PCCV	N/A	3'-7"	-	0	max. El. 25'-3"	2
156	RWS-MOV-002	Motor Operated Valve	PCCV	N/A	9'-6"	FA1-101-01	above flood elevation	max. El. 25'-3"	
157	RMS-MOV-001	Motor Operated Valve	PCCV	N/A	25'-3"	FA1-101-06	above flood elevation	max. El. 25'-3"	
158	VCS-AOV-305	Air Operated Valve	PCCV	N/A	76'-5"	FA1-101-23	above flood elevation	max. El. 25'-3"	
159	VCS-AOV-306	Air Operated Valve	PCCV	N/A	76'-5"	FA1-101-25	above flood elevation	max. El. 25'-3"	
160	VCS-AOV-355	Air Operated Valve	PCCV	N/A	76'-5"	FA1-101-23	above flood elevation	max. El. 25'-3"	
161	VCS-AOV-356	Air Operated Valve	PCCV	N/A	76'-5"	FA1-101-25	above flood elevation	max. El. 25'-3"	
162	VWS-VLV-405	Safety Valve	PCCV	N/A	76'-5"	FA1-101-25	above flood elevation	max. El. 25'-3"	
163	VWS-MOV-411A	Motor Operated Valve	PCCV	N/A	76'-5"	FA1-101-26	above flood elevation	max. El. 25'-3"	
164	VWS-MOV-411B	Motor Operated Valve	PCCV	N/A	76'-5"	FA1-101-23	above flood elevation	max. El. 25'-3"	
165	VWS-MOV-411C	Motor Operated Valve	PCCV	N/A	76'-5"	FA1-101-24	above flood elevation	max. El. 25'-3"	
166	VWS-MOV-411D	Motor Operated Valve	PCCV	N/A	76'-5"	FA1-101-25	above flood elevation	max. El. 25'-3"	
167	VWS-TCV-412A	Chilled Water Control Valve	PCCV	N/A	76'-5"	FA1-101-26	above flood elevation	max. El. 25'-3"	
168	VWS-TCV-412B	Chilled Water Control Valve	PCCV	N/A	76'-5"	FA1-101-23	above flood elevation	max. El. 25'-3"	
169	VWS-TCV-412C	Chilled Water Control Valve	PCCV	N/A	76'-5"	FA1-101-24	above flood elevation	max. El. 25'-3"	
170	VWS-TCV-412D	Chilled Water Control Valve	PCCV	N/A	76'-5"	FA1-101-25	above flood elevation	max. El. 25'-3"	

**Table 3K-1 PCCV Components Protected From Internal Flooding  
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Item No.	Equipment Tag	Description	Location				Flood Elevation above Floor [ft]	Notes
			Building	Side	Floor Elevation	Fire Zone No.		
171	VWS-MOV-414	Motor Operated Valve	PCCV	N/A	76'-5"	FA1-101-24	above flood elevation	max. El. 25'-3"
172		Containment Electrical Penetration	PCCV	N/A	50'-2"	FA1-101-18	above flood elevation	max. El. 25'-3"
173		Containment Electrical Penetration	PCCV	N/A	50'-2"	FA1-101-15	above flood elevation	max. El. 25'-3"
174		Containment Electrical Penetration	PCCV	N/A	50'-2"	FA1-101-16	above flood elevation	max. El. 25'-3"
175		Containment Electrical Penetration	PCCV	N/A	50'-2"	FA1-101-17	above flood elevation	max. El. 25'-3"
176		Containment Electrical Penetration	PCCV	N/A	76'-5"	FA1-101-23	above flood elevation	max. El. 25'-3"
177		Containment Electrical Penetration	PCCV	N/A	76'-5"	FA1-101-24	above flood elevation	max. El. 25'-3"
178	RCS-FT-412	Loop A - Reactor Coolant Flow	PCCV	N/A	25'-3"	FA1-101-07	above flood elevation	max. El. 25'-3"
179	RCS-FT-413	Loop A - Reactor Coolant Flow	PCCV	N/A	25'-3"	FA1-101-07	above flood elevation	max. El. 25'-3"
180	RCS-FT-414	Loop A - Reactor Coolant Flow	PCCV	N/A	25'-3"	FA1-101-07	above flood elevation	max. El. 25'-3"
181	RCS-FT-415	Loop A - Reactor Coolant Flow	PCCV	N/A	25'-3"	FA1-101-07	above flood elevation	max. El. 25'-3"
182	RCS-FT-422	Loop B - Reactor Coolant Flow	PCCV	N/A	25'-3"	FA1-101-04	above flood elevation	max. El. 25'-3"
183	RCS-FT-423	Loop B - Reactor Coolant Flow	PCCV	N/A	25'-3"	FA1-101-04	above flood elevation	max. El. 25'-3"
184	RCS-FT-424	Loop B - Reactor Coolant Flow	PCCV	N/A	25'-3"	FA1-101-04	above flood elevation	max. El. 25'-3"
185	RCS-FT-425	Loop B - Reactor Coolant Flow	PCCV	N/A	25'-3"	FA1-101-04	above flood elevation	max. El. 25'-3"
186	RCS-FT-432	Loop C - Reactor Coolant Flow	PCCV	N/A	25'-3"	FA1-101-05	above flood elevation	max. El. 25'-3"
187	RCS-FT-433	Loop C - Reactor Coolant Flow	PCCV	N/A	25'-3"	FA1-101-05	above flood elevation	max. El. 25'-3"

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**Table 3K-1 PCCV Components Protected From Internal Flooding**  
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Item No.	Equipment Tag	Description	Location				Flood Elevation above Floor [ft]	Notes
			Building	Side	Floor Elevation	Fire Zone No.		
188	RCS-FT-434	Loop C - Reactor Coolant Flow	PCCV	N/A	25'-3"	FA1-101-05	above flood elevation	max. El. 25'-3"
189	RCS-FT-435	Loop C - Reactor Coolant Flow	PCCV	N/A	25'-3"	FA1-101-05	above flood elevation	max. El. 25'-3"
190	RCS-FT-442	Loop D - Reactor Coolant Flow	PCCV	N/A	25'-3"	FA1-101-06	above flood elevation	max. El. 25'-3"
191	RCS-FT-443	Loop D - Reactor Coolant Flow	PCCV	N/A	25'-3"	FA1-101-06	above flood elevation	max. El. 25'-3"
192	RCS-FT-444	Loop D - Reactor Coolant Flow	PCCV	N/A	25'-3"	FA1-101-06	above flood elevation	max. El. 25'-3"
193	RCS-FT-445	Loop D - Reactor Coolant Flow	PCCV	N/A	25'-3"	FA1-101-06	above flood elevation	max. El. 25'-3"
194	RCS-LT-451	Pressurizer Water Level	PCCV	N/A	50'-2"	FA1-101-16	above flood elevation	max. El. 25'-3"
195	RCS-LT-452	Pressurizer Water Level	PCCV	N/A	50'-2"	FA1-101-16	above flood elevation	max. El. 25'-3"
196	RCS-LT-453	Pressurizer Water Level	PCCV	N/A	50'-2"	FA1-101-15	above flood elevation	max. El. 25'-3"
197	RCS-LT-454	Pressurizer Water Level	PCCV	N/A	50'-2"	FA1-101-15	above flood elevation	max. El. 25'-3"
198	RCS-PT-410	Loop A - Reactor Coolant Pressure	PCCV	N/A	25'-3"	FA1-101-07	above flood elevation	max. El. 25'-3"
199	RCS-PT-420	Loop B - Reactor Coolant Pressure	PCCV	N/A	25'-3"	FA1-101-04	above flood elevation	max. El. 25'-3"
200	RCS-PT-430	Loop C - Reactor Coolant Pressure	PCCV	N/A	25'-3"	FA1-101-05	above flood elevation	max. El. 25'-3"
201	RCS-PT-440	Loop D - Reactor Coolant Pressure	PCCV	N/A	25'-3"	FA1-101-06	above flood elevation	max. El. 25'-3"
202	RCS-PT-451	Pressurizer Pressure	PCCV	N/A	76'-5"	FA1-101-24	above flood elevation	max. El. 25'-3"
203	RCS-PT-452	Pressurizer Pressure	PCCV	N/A	76'-5"	FA1-101-24	above flood elevation	max. El. 25'-3"
204	RCS-PT-453	Pressurizer Pressure	PCCV	N/A	76'-5"	FA1-101-24	above flood elevation	max. El. 25'-3"

**Table 3K-1 PCCV Components Protected From Internal Flooding  
(Sheet 13 of 23)**

Item No.	Equipment Tag	Description	Location					Flood Elevation above Floor [ft]	Notes
			Building	Side	Floor Elevation	Fire Zone No.	Location Elevation above Floor		
205	RCS-PT-454	Pressurizer Pressure	PCCV	N/A	76'-5"	FA1-101-24	above flood elevation	max. El. 25'-3"	
206	SIS-FT-972	A - Safety Injection Pump Minimum Flow	PCCV	N/A	25'-3"	FA1-101-07	above flood elevation	max. El. 25'-3"	
207	SIS-FT-973	B - Safety Injection Pump Minimum Flow	PCCV	N/A	25'-3"	FA1-101-04	above flood elevation	max. El. 25'-3"	
208	SIS-FT-974	C - Safety Injection Pump Minimum Flow	PCCV	N/A	25'-3"	FA1-101-05	above flood elevation	max. El. 25'-3"	
209	SIS-FT-975	D - Safety Injection Pump Minimum Flow	PCCV	N/A	25'-3"	FA1-101-06	above flood elevation	max. El. 25'-3"	
210	SIS-LT-910	A - Accumulator Water Level	PCCV	N/A	25'-3"	FA1-101-07	above flood elevation	max. El. 25'-3"	
211	SIS-LT-920	B - Accumulator Water Level	PCCV	N/A	25'-3"	FA1-101-04	above flood elevation	max. El. 25'-3"	
212	SIS-LT-930	C - Accumulator Water Level	PCCV	N/A	25'-3"	FA1-101-05	above flood elevation	max. El. 25'-3"	
213	SIS-LT-940	D - Accumulator Water Level	PCCV	N/A	25'-3"	FA1-101-06	above flood elevation	max. El. 25'-3"	
214	SIS-PT-910	A - Accumulator Pressure	PCCV	N/A	25'-3"	FA1-101-07	above flood elevation	max. El. 25'-3"	
215	SIS-PT-920	B - Accumulator Pressure	PCCV	N/A	25'-3"	FA1-101-04	above flood elevation	max. El. 25'-3"	
216	SIS-PT-930	C - Accumulator Pressure	PCCV	N/A	25'-3"	FA1-101-05	above flood elevation	max. El. 25'-3"	
217	SIS-PT-940	D - Accumulator Pressure	PCCV	N/A	25'-3"	FA1-101-06	above flood elevation	max. El. 25'-3"	
218	NFS-LT-460	A - Steam Generator Water Level (Narrow Range)	PCCV	N/A	76'-5"	FA1-101-26	above flood elevation	max. El. 25'-3"	
219	NFS-LT-461	A - Steam Generator Water Level (Narrow Range)	PCCV	N/A	76'-5"	FA1-101-26	above flood elevation	max. El. 25'-3"	

**Table 3K-1 PCCV Components Protected From Internal Flooding  
(Sheet 14 of 23)**

Item No.	Equipment Tag	Description	Location				Flood Elevation above Floor [ft]	Notes
			Building	Side	Floor Elevation	Fire Zone No.		
220	NFS-LT-462	A - Steam Generator Water Level (Narrow Range)	PCCV	N/A	76'-5"	FA1-101-26	above flood elevation	max. El. 25'-3"
221	NFS-LT-463	A - Steam Generator Water Level (Narrow Range)	PCCV	N/A	76'-5"	FA1-101-26	above flood elevation	max. El. 25'-3"
222	NFS-LT-464	A - Steam Generator Water Level (Wide Range)	PCCV	N/A	76'-5"	FA1-101-26	above flood elevation	max. El. 25'-3"
223	NFS-LT-470	B - Steam Generator Water Level (Narrow Range)	PCCV	N/A	76'-5"	FA1-101-23	above flood elevation	max. El. 25'-3"
224	NFS-LT-471	B - Steam Generator Water Level (Narrow Range)	PCCV	N/A	76'-5"	FA1-101-23	above flood elevation	max. El. 25'-3"
225	NFS-LT-472	B - Steam Generator Water Level (Narrow Range)	PCCV	N/A	76'-5"	FA1-101-23	above flood elevation	max. El. 25'-3"
226	NFS-LT-473	B - Steam Generator Water Level (Narrow Range)	PCCV	N/A	76'-5"	FA1-101-23	above flood elevation	max. El. 25'-3"
227	NFS-LT-474	B - Steam Generator Water Level (Wide Range)	PCCV	N/A	76'-5"	FA1-101-23	above flood elevation	max. El. 25'-3"
228	NFS-LT-480	C - Steam Generator Water Level (Narrow Range)	PCCV	N/A	76'-5"	FA1-101-24	above flood elevation	max. El. 25'-3"
229	NFS-LT-481	C - Steam Generator Water Level (Narrow Range)	PCCV	N/A	76'-5"	FA1-101-24	above flood elevation	max. El. 25'-3"
230	NFS-LT-482	C - Steam Generator Water Level (Narrow Range)	PCCV	N/A	76'-5"	FA1-101-24	above flood elevation	max. El. 25'-3"
231	NFS-LT-483	C - Steam Generator Water Level (Narrow Range)	PCCV	N/A	76'-5"	FA1-101-24	above flood elevation	max. El. 25'-3"
232	NFS-LT-484	C - Steam Generator Water Level (Wide Range)	PCCV	N/A	76'-5"	FA1-101-24	above flood elevation	max. El. 25'-3"

**Table 3K-1 PCCV Components Protected From Internal Flooding  
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Item No.	Equipment Tag	Description	Location				Flood Elevation above Floor [ft]	Notes
			Building	Side	Floor Elevation	Fire Zone No.		
233	NFS-LT-490	D - Steam Generator Water Level (Narrow Range)	PCCV	N/A	76'-5"	FA1-101-25	above flood elevation	max. El. 25'-3"
234	NFS-LT-491	D - Steam Generator Water Level (Narrow Range)	PCCV	N/A	76'-5"	FA1-101-25	above flood elevation	max. El. 25'-3"
235	NFS-LT-492	D - Steam Generator Water Level (Narrow Range)	PCCV	N/A	76'-5"	FA1-101-25	above flood elevation	max. El. 25'-3"
236	NFS-LT-493	D - Steam Generator Water Level (Narrow Range)	PCCV	N/A	76'-5"	FA1-101-25	above flood elevation	max. El. 25'-3"
237	NFS-LT-494	D - Steam Generator Water Level (Wide Range)	PCCV	N/A	76'-5"	FA1-101-25	above flood elevation	max. El. 25'-3"
238	RWS-LT-1400	Refueling Water Storage Pit Water Level (Narrow Range)	PCCV	N/A	25'-3"	FA1-101-07	above flood elevation	max. El. 25'-3"
239	RWS-LT-1401	Refueling Water Storage Pit Water Level (Wide Range)	PCCV	N/A	25'-3"	FA1-101-07	above flood elevation	max. El. 25'-3"
240	RWS-LT-1402	Refueling Water Storage Pit Water Level (Narrow Range)	PCCV	N/A	25'-3"	FA1-101-06	above flood elevation	max. El. 25'-3"
241	RWS-LT-1403	Refueling Water Storage Pit Water Level (Wide Range)	PCCV	N/A	25'-3"	FA1-101-06	above flood elevation	max. El. 25'-3"
242	RCS-TE-410	Loop A - Reactor Coolant Hot Leg Temperature (Wide Range)	PCCV	N/A	25'-3"	FA1-101-11	above flood elevation	max. El. 25'-3"
243	RCS-TE-411A	Loop A - Reactor Coolant Hot Leg Temperature (Narrow Range)	PCCV	N/A	25'-3"	FA1-101-11	above flood elevation	max. El. 25'-3"
244	RCS-TE-411B	Loop A - Reactor Coolant Hot Leg Temperature (Narrow Range)	PCCV	N/A	25'-3"	FA1-101-11	above flood elevation	max. El. 25'-3"
245	RCS-TE-411C	Loop A - Reactor Coolant Hot Leg Temperature (Narrow Range)	PCCV	N/A	25'-3"	FA1-101-11	above flood elevation	max. El. 25'-3"

**Table 3K-1 PCCV Components Protected From Internal Flooding  
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Item No.	Equipment Tag	Description	Location				Flood Elevation above Floor [ft]	Notes
			Building	Side	Floor Elevation	Fire Zone No.		
246	RCS-TE-411D	Loop A - Reactor Coolant Cold Leg Temperature (Narrow Range)	PCCV	N/A	25'-3"	FA1-101-11	above flood elevation	max. El. 25'-3"
247	RCS-TE-413A	Loop A - Reactor Coolant Hot Leg Temperature (Narrow Range) (spare)	PCCV	N/A	25'-3"	FA1-101-11	above flood elevation	max. El. 25'-3"
248	RCS-TE-413B	Loop A - Reactor Coolant Hot Leg Temperature (Narrow Range) (spare)	PCCV	N/A	25'-3"	FA1-101-11	above flood elevation	max. El. 25'-3"
249	RCS-TE-413C	Loop A - Reactor Coolant Hot Leg Temperature (Narrow Range) (spare)	PCCV	N/A	25'-3"	FA1-101-11	above flood elevation	max. El. 25'-3"
250	RCS-TE-413D	Loop A - Reactor Coolant Cold Leg Temperature (Narrow Range) (spare)	PCCV	N/A	25'-3"	FA1-101-11	above flood elevation	max. El. 25'-3"
251	RCS-TE-415	Loop A - Reactor Coolant Cold Leg Temperature (Wide Range)	PCCV	N/A	25'-3"	FA1-101-11	above flood elevation	max. El. 25'-3"
252	RCS-TE-420	Loop B - Reactor Coolant Hot Leg Temperature (Wide Range)	PCCV	N/A	25'-3"	FA1-101-08	above flood elevation	max. El. 25'-3"
253	RCS-TE-421A	Loop B - Reactor Coolant Hot Leg Temperature (Narrow Range)	PCCV	N/A	25'-3"	FA1-101-08	above flood elevation	max. El. 25'-3"
254	RCS-TE-421B	Loop B - Reactor Coolant Hot Leg Temperature (Narrow Range)	PCCV	N/A	25'-3"	FA1-101-08	above flood elevation	max. El. 25'-3"
255	RCS-TE-421C	Loop B - Reactor Coolant Hot Leg Temperature (Narrow Range)	PCCV	N/A	25'-3"	FA1-101-08	above flood elevation	max. El. 25'-3"
256	RCS-TE-421D	Loop B - Reactor Coolant Cold Leg Temperature (Narrow Range)	PCCV	N/A	25'-3"	FA1-101-08	above flood elevation	max. El. 25'-3"

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**Table 3K-1 PCCV Components Protected From Internal Flooding  
(Sheet 17 of 23)**

Item No.	Equipment Tag	Description	Location				Flood Elevation above Floor [ft]	Notes
			Building	Side	Floor Elevation	Fire Zone No.		
257	RCS-TE-423A	Loop B - Reactor Coolant Hot Leg Temperature (Narrow Range) (spare)	PCCV	N/A	25'-3"	FA1-101-08	above flood elevation	max. El. 25'-3"
258	RCS-TE-423B	Loop B - Reactor Coolant Hot Leg Temperature (Narrow Range) (spare)	PCCV	N/A	25'-3"	FA1-101-08	above flood elevation	max. El. 25'-3"
259	RCS-TE-423C	Loop B - Reactor Coolant Hot Leg Temperature (Narrow Range) (spare)	PCCV	N/A	25'-3"	FA1-101-08	above flood elevation	max. El. 25'-3"
260	RCS-TE-423D	Loop B - Reactor Coolant Cold Leg Temperature (Narrow Range) (spare)	PCCV	N/A	25'-3"	FA1-101-08	above flood elevation	max. El. 25'-3"
261	RCS-TE-425	Loop B - Reactor Coolant Cold Leg Temperature (Wide Range)	PCCV	N/A	25'-3"	FA1-101-08	above flood elevation	max. El. 25'-3"
262	RCS-TE-430	Loop C - Reactor Coolant Hot Leg Temperature (Wide Range)	PCCV	N/A	25'-3"	FA1-101-09	above flood elevation	max. El. 25'-3"
263	RCS-TE-431A	Loop C - Reactor Coolant Hot Leg Temperature (Narrow Range)	PCCV	N/A	25'-3"	FA1-101-09	above flood elevation	max. El. 25'-3"
264	RCS-TE-431B	Loop C - Reactor Coolant Hot Leg Temperature (Narrow Range)	PCCV	N/A	25'-3"	FA1-101-09	above flood elevation	max. El. 25'-3"
265	RCS-TE-431C	Loop C - Reactor Coolant Hot Leg Temperature (Narrow Range)	PCCV	N/A	25'-3"	FA1-101-09	above flood elevation	max. El. 25'-3"
266	RCS-TE-431D	Loop C - Reactor Coolant Cold Leg Temperature (Narrow Range)	PCCV	N/A	25'-3"	FA1-101-09	above flood elevation	max. El. 25'-3"

**Table 3K-1 PCCV Components Protected From Internal Flooding  
(Sheet 18 of 23)**

Item No.	Equipment Tag	Description	Location				Flood Elevation above Floor [ft]	Notes
			Building	Side	Floor Elevation	Fire Zone No.		
267	RCS-TE-433A	Loop C - Reactor Coolant Hot Leg Temperature (Narrow Range) (spare)	PCCV	N/A	25'-3"	FA1-101-09	above flood elevation	max. El. 25'-3"
268	RCS-TE-433B	Loop C - Reactor Coolant Hot Leg Temperature (Narrow Range) (spare)	PCCV	N/A	25'-3"	FA1-101-09	above flood elevation	max. El. 25'-3"
269	RCS-TE-433C	Loop C - Reactor Coolant Hot Leg Temperature (Narrow Range) (spare)	PCCV	N/A	25'-3"	FA1-101-09	above flood elevation	max. El. 25'-3"
270	RCS-TE-433D	Loop C - Reactor Coolant Cold Leg Temperature (Narrow Range) (spare)	PCCV	N/A	25'-3"	FA1-101-09	above flood elevation	max. El. 25'-3"
271	RCS-TE-435	Loop C - Reactor Coolant Cold Leg Temperature (Wide Range)	PCCV	N/A	25'-3"	FA1-101-09	above flood elevation	max. El. 25'-3"
272	RCS-TE-440	Loop D - Reactor Coolant Hot Leg Temperature (Wide Range)	PCCV	N/A	25'-3"	FA1-101-10	above flood elevation	max. El. 25'-3"
273	RCS-TE-441A	Loop D - Reactor Coolant Hot Leg Temperature (Narrow Range)	PCCV	N/A	25'-3"	FA1-101-10	above flood elevation	max. El. 25'-3"
274	RCS-TE-441B	Loop D - Reactor Coolant Hot Leg Temperature (Narrow Range)	PCCV	N/A	25'-3"	FA1-101-10	above flood elevation	max. El. 25'-3"
275	RCS-TE-441C	Loop D - Reactor Coolant Hot Leg Temperature (Narrow Range)	PCCV	N/A	25'-3"	FA1-101-10	above flood elevation	max. El. 25'-3"
276	RCS-TE-441D	Loop D - Reactor Coolant Cold Leg Temperature (Narrow Range)	PCCV	N/A	25'-3"	FA1-101-10	above flood elevation	max. El. 25'-3"

**Table 3K-1 PCCV Components Protected From Internal Flooding**  
(Sheet 19 of 23)

Item No.	Equipment Tag	Description	Location				Flood Elevation above Floor [ft]	Notes
			Building	Side	Floor Elevation	Fire Zone No.		
277	RCS-TE-443A	Loop D - Reactor Coolant Hot Leg Temperature (Narrow Range) (spare)	PCCV	N/A	25'-3"	FA1-101-10	above flood elevation	max. El. 25'-3"
278	RCS-TE-443B	Loop D - Reactor Coolant Hot Leg Temperature (Narrow Range) (spare)	PCCV	N/A	25'-3"	FA1-101-10	above flood elevation	max. El. 25'-3"
279	RCS-TE-443C	Loop D - Reactor Coolant Hot Leg Temperature (Narrow Range) (spare)	PCCV	N/A	25'-3"	FA1-101-10	above flood elevation	max. El. 25'-3"
280	RCS-TE-443D	Loop D - Reactor Coolant Cold Leg Temperature (Narrow Range) (spare)	PCCV	N/A	25'-3"	FA1-101-10	above flood elevation	max. El. 25'-3"
281	RCS-TE-445	Loop D - Reactor Coolant Cold Leg Temperature (Wide Range)	PCCV	N/A	25'-3"	FA1-101-10	above flood elevation	max. El. 25'-3"
282	CSS-TE-1990	Containment Temperature	PCCV	N/A	76'-5"	FA1-101-26	above flood elevation	max. El. 25'-3"
283	RCS-SE-418A	A - Reactor Coolant Pump Speed	PCCV	N/A	25'-3"	FA1-101-11	above flood elevation	max. El. 25'-3"
284	RCS-SE-418B	A - Reactor Coolant Pump Speed (spare)	PCCV	N/A	25'-3"	FA1-101-11	above flood elevation	max. El. 25'-3"
285	RCS-SE-428A	B - Reactor Coolant Pump Speed	PCCV	N/A	25'-3"	FA1-101-08	above flood elevation	max. El. 25'-3"
286	RCS-SE-428B	B - Reactor Coolant Pump Speed (spare)	PCCV	N/A	25'-3"	FA1-101-08	above flood elevation	max. El. 25'-3"
287	RCS-SE-438A	C - Reactor Coolant Pump Speed	PCCV	N/A	25'-3"	FA1-101-09	above flood elevation	max. El. 25'-3"
288	RCS-SE-438B	C - Reactor Coolant Pump Speed (spare)	PCCV	N/A	25'-3"	FA1-101-09	above flood elevation	max. El. 25'-3"

**Table 3K-1 PCCV Components Protected From Internal Flooding  
(Sheet 20 of 23)**

Item No.	Equipment Tag	Description	Location				Flood Elevation above Floor [ft]	Notes	
			Building	Side	Floor Elevation	Fire Zone No.			
289	RCS-SE-448A	D - Reactor Coolant Pump Speed	PCCV	N/A	25'-3"	FA1-101-10	above flood elevation	max. El. 25'-3"	
290	RCS-SE-448B	D - Reactor Coolant Pump Speed (spare)	PCCV	N/A	25'-3"	FA1-101-10	above flood elevation	max. El. 25'-3"	
291	CIS-NE-31	Source Range Neutron Flux	PCCV	N/A	20'-2"	FA1-101-03	below flood elevation	max. El. 25'-3"	3
292	CIS-NE-32	Source Range Neutron Flux	PCCV	N/A	20'-2"	FA1-101-03	below flood elevation	max. El. 25'-3"	3
293	CIS-NE-35	Intermediate Range Neutron Flux	PCCV	N/A	20'-2"	FA1-101-03	above flood elevation	max. El. 25'-3"	
294	CIS-NE-36	Intermediate Range Neutron Flux	PCCV	N/A	20'-2"	FA1-101-03	above flood elevation	max. El. 25'-3"	
295	CIS-NE-41A	Power Range Neutron Flux (Upper)	PCCV	N/A	20'-2"	FA1-101-03	above flood elevation	max. El. 25'-3"	
296	CIS-NE-41B	Power Range Neutron Flux (Lower)	PCCV	N/A	20'-2"	FA1-101-03	below flood elevation	max. El. 25'-3"	3
297	CIS-NE-42A	Power Range Neutron Flux (Upper)	PCCV	N/A	20'-2"	FA1-101-03	above flood elevation	max. El. 25'-3"	
298	CIS-NE-42B	Power Range Neutron Flux (Lower)	PCCV	N/A	20'-2"	FA1-101-03	below flood elevation	max. El. 25'-3"	3
299	CIS-NE-43A	Power Range Neutron Flux (Upper)	PCCV	N/A	20'-2"	FA1-101-03	above flood elevation	max. El. 25'-3"	
300	CIS-NE-43B	Power Range Neutron Flux (Lower)	PCCV	N/A	20'-2"	FA1-101-03	below flood elevation	max. El. 25'-3"	3
301	CIS-NE-44A	Power Range Neutron Flux (Upper)	PCCV	N/A	20'-2"	FA1-101-03	above flood elevation	max. El. 25'-3"	
302	CIS-NE-44B	Power Range Neutron Flux (Lower)	PCCV	N/A	20'-2"	FA1-101-03	below flood elevation	max. El. 25'-3"	3
303	CIS-NE-33	Wide Range Neutron Flux	PCCV	N/A	20'-2"	FA1-101-03	above flood elevation	max. El. 25'-3"	
304	CIS-NE-34	Wide Range Neutron Flux	PCCV	N/A	20'-2"	FA1-101-03	above flood elevation	max. El. 25'-3"	
305	RCS-LE-571	Reactor Vessel Water Level	PCCV	N/A	46'-11"	-	above flood elevation	max. El. 25'-3"	4

**Table 3K-1 PCCV Components Protected From Internal Flooding  
(Sheet 21 of 23)**

Item No.	Equipment Tag	Description	Location				Flood Elevation above Floor [ft]	Notes	
			Building	Side	Floor Elevation	Fire Zone No.			Location Elevation above Floor
306	RCS-LE-572	Reactor Vessel Water Level	PCCV	N/A	46'-11"	-	above flood elevation	max. El. 25'-3"	4
307	CIS-TE-01	Core Exit Temperature	PCCV	N/A	46'-11"	-	above flood elevation	max. El. 25'-3"	4
308	CIS-TE-02	Core Exit Temperature	PCCV	N/A	46'-11"	-	above flood elevation	max. El. 25'-3"	4
309	CIS-TE-03	Core Exit Temperature	PCCV	N/A	46'-11"	-	above flood elevation	max. El. 25'-3"	4
310	CIS-TE-04	Core Exit Temperature	PCCV	N/A	46'-11"	-	above flood elevation	max. El. 25'-3"	4
311	CIS-TE-05	Core Exit Temperature	PCCV	N/A	46'-11"	-	above flood elevation	max. El. 25'-3"	4
312	CIS-TE-06	Core Exit Temperature	PCCV	N/A	46'-11"	-	above flood elevation	max. El. 25'-3"	4
313	CIS-TE-07	Core Exit Temperature	PCCV	N/A	46'-11"	-	above flood elevation	max. El. 25'-3"	4
314	CIS-TE-08	Core Exit Temperature	PCCV	N/A	46'-11"	-	above flood elevation	max. El. 25'-3"	4
315	CIS-TE-09	Core Exit Temperature	PCCV	N/A	46'-11"	-	above flood elevation	max. El. 25'-3"	4
316	CIS-TE-10	Core Exit Temperature	PCCV	N/A	46'-11"	-	above flood elevation	max. El. 25'-3"	4
317	CIS-TE-11	Core Exit Temperature	PCCV	N/A	46'-11"	-	above flood elevation	max. El. 25'-3"	4
318	CIS-TE-12	Core Exit Temperature	PCCV	N/A	46'-11"	-	above flood elevation	max. El. 25'-3"	4
319	CIS-TE-13	Core Exit Temperature	PCCV	N/A	46'-11"	-	above flood elevation	max. El. 25'-3"	4
320	CIS-TE-14	Core Exit Temperature	PCCV	N/A	46'-11"	-	above flood elevation	max. El. 25'-3"	4
321	CIS-TE-15	Core Exit Temperature	PCCV	N/A	46'-11"	-	above flood elevation	max. El. 25'-3"	4
322	CIS-TE-16	Core Exit Temperature	PCCV	N/A	46'-11"	-	above flood elevation	max. El. 25'-3"	4

**Table 3K-1 PCCV Components Protected From Internal Flooding  
(Sheet 22 of 23)**

Item No.	Equipment Tag	Description	Location				Flood Elevation above Floor [ft]	Notes	
			Building	Side	Floor Elevation	Fire Zone No.			
323	CIS-TE-17	Core Exit Temperature	PCCV	N/A	46'-11"	-	above flood elevation	max. El. 25'-3"	4
324	CIS-TE-18	Core Exit Temperature	PCCV	N/A	46'-11"	-	above flood elevation	max. El. 25'-3"	4
325	CIS-TE-19	Core Exit Temperature	PCCV	N/A	46'-11"	-	above flood elevation	max. El. 25'-3"	4
326	CIS-TE-20	Core Exit Temperature	PCCV	N/A	46'-11"	-	above flood elevation	max. El. 25'-3"	4
327	CIS-TE-21	Core Exit Temperature	PCCV	N/A	46'-11"	-	above flood elevation	max. El. 25'-3"	4
328	CIS-TE-22	Core Exit Temperature	PCCV	N/A	46'-11"	-	above flood elevation	max. El. 25'-3"	4
329	CIS-TE-23	Core Exit Temperature	PCCV	N/A	46'-11"	-	above flood elevation	max. El. 25'-3"	4
330	CIS-TE-24	Core Exit Temperature	PCCV	N/A	46'-11"	-	above flood elevation	max. El. 25'-3"	4
331	CIS-TE-25	Core Exit Temperature	PCCV	N/A	46'-11"	-	above flood elevation	max. El. 25'-3"	4
332	CIS-TE-26	Core Exit Temperature	PCCV	N/A	46'-11"	-	above flood elevation	max. El. 25'-3"	4
333	RMS-RE-91	Containment High Range Area Radiation	PCCV	N/A	76'-5"	FA1-101-26	above flood elevation	max. El. 25'-3"	
334	RMS-RE-92	Containment High Range Area Radiation	PCCV	N/A	76'-5"	FA1-101-23	above flood elevation	max. El. 25'-3"	
335	RMS-RE-93	Containment High Range Area Radiation	PCCV	N/A	76'-5"	FA1-101-24	above flood elevation	max. El. 25'-3"	
336	RMS-RE-94	Containment High Range Area Radiation	PCCV	N/A	76'-5"	FA1-101-25	above flood elevation	max. El. 25'-3"	

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**Table 3K-1 PCCV Components Protected From Internal Flooding  
(Sheet 23 of 23)**

**Notes:**

1. Lower portion of reactor vessel is flooded; however there is no impact to function of this component.
2. There is no impact to function of refueling water storage pit, even if outside of pit is flooded.
3. Installation area of these components is not flooded, except during LOCA. Functions of these components are not required during LOCA.
4. These components are located on the top of reactor vessel.

**Table 3K-2 R/B RCA Components Protected From Internal Flooding  
(Sheet 1 of 20)**

Item No.	Equipment Tag	Description	Location				Flood Elevation above Floor [ft]	Notes	
			Building	Side	Floor Elevation	Fire Zone No.			Location Elevation above Floor
1	RCS-AOV-132	Air Operated Valve	R/B RCA	W	25'-3"	FA2-152-06	above flood elevation	0.69	
2	RCS-AOV-148	Air Operated Valve	R/B RCA	W	25'-3"	FA2-153-05	above flood elevation	0.69	
3	RCS-AOV-138	Air Operated Valve	R/B RCA	W	25'-3"	FA2-152-05	above flood elevation	0.69	
4	CVS-MOV-151	Motor Operated Valve	R/B RCA	W	25'-3"	FA2-117-24	above flood elevation	0.69	
5	CVS-MOV-152	Motor Operated Valve	R/B RCA	W	25'-3"	FA2-117-24	above flood elevation	0.69	
6	CVS-MOV-204	Motor Operated Valve	R/B RCA	W	25'-3"	FA2-153-05	above flood elevation	0.69	
7	CVS-MOV-178A	Motor Operated Valve	R/B RCA	W	25'-3"	FA2-117-24	above flood elevation	0.69	
8	CVS-MOV-178B	Motor Operated Valve	R/B RCA	W	25'-3"	FA2-117-24	above flood elevation	0.69	
9	CVS-AOV-006	Air Operated Valve	R/B RCA	W	25'-3"	FA2-117-24	above flood elevation	0.69	
10	CVS-MOV-178C	Motor Operated Valve	R/B RCA	W	25'-3"	FA2-117-24	above flood elevation	0.69	
11	CVS-MOV-178D	Motor Operated Valve	R/B RCA	W	25'-3"	FA2-117-24	above flood elevation	0.69	
12	SIS-RPP-001A	A-Safety Injection Pump	R/B RCA	E	-26'-4"	FA2-113-01	N/A	-	1
13	SIS-RPP-001B	B-Safety Injection Pump	R/B RCA	E	-26'-4"	FA2-114-01	N/A	-	1
14	SIS-RPP-001C	C-Safety Injection Pump	R/B RCA	W	-26'-4"	FA2-115-01	N/A	-	1
15	SIS-RPP-001D	D-Safety Injection Pump	R/B RCA	W	-26'-4"	FA2-116-01	N/A	-	1
16	SIS-MOV-001A	Motor Operated Valve	R/B RCA	E	-8'-7"	FA2-120-02	N/A	-	1
17	SIS-MOV-001B	Motor Operated Valve	R/B RCA	E	-8'-7"	FA2-151-01	N/A	-	1



**Table 3K-2 R/B RCA Components Protected From Internal Flooding  
(Sheet 2 of 20)**

Item No.	Equipment Tag	Description	Location				Flood Elevation above Floor [ft]	Notes	
			Building	Side	Floor Elevation	Fire Zone No.			
18	SIS-MOV-009A	Motor Operated Valve	R/B RCA	E	25'-3"	FA2-120-06	above flood elevation	0.54	
19	SIS-MOV-009B	Motor Operated Valve	R/B RCA	E	25'-3"	FA2-151-05	above flood elevation	0.54	
20	SIS-MOV-001C	Motor Operated Valve	R/B RCA	W	-8'-7"	FA2-152-01	N/A	-	1
21	SIS-MOV-001D	Motor Operated Valve	R/B RCA	W	-8'-7"	FA2-153-01	N/A	-	1
22	SIS-MOV-009C	Motor Operated Valve	R/B RCA	W	25'-3"	FA2-152-05	above flood elevation	0.69	
23	SIS-MOV-009D	Motor Operated Valve	R/B RCA	W	25'-3"	FA2-153-05	above flood elevation	0.69	
24	SIS-AOV-114	Air Operated Valve	R/B RCA	E	25'-3"	FA2-151-06	above flood elevation	0.54	
25	RHS-RPP-001A	A-Containment Spray/Residual Heat Removal Pump	R/B RCA	E	-26'-4"	FA2-113-02	N/A	-	1
26	RHS-RPP-001B	B-Containment Spray/Residual Heat Removal Pump	R/B RCA	E	-26'-4"	FA2-114-02	N/A	-	1
27	RHS-RPP-001C	C-Containment Spray/Residual Heat Removal Pump	R/B RCA	W	-26'-4"	FA2-115-02	N/A	-	1
28	RHS-RPP-001D	D-Containment Spray/Residual Heat Removal Pump	R/B RCA	W	-26'-4"	FA2-116-02	N/A	-	1
29	RHS-RHX-001A	A-Containment Spray/Residual Heat Removal Heat Exchanger	R/B RCA	E	3'-7"	FA2-120-04	N/A	-	1
30	RHS-RHX-001B	B-Containment Spray/Residual Heat Removal Heat Exchanger	R/B RCA	E	3'-7"	FA2-151-03	N/A	-	1
31	RHS-RHX-001C	C-Containment Spray/Residual Heat Removal Heat Exchanger	R/B RCA	W	3'-7"	FA2-152-03	N/A	-	1

**Table 3K-2 R/B RCA Components Protected From Internal Flooding  
(Sheet 3 of 20)**

Item No.	Equipment Tag	Description	Location					Flood Elevation above Floor [ft]	Notes
			Building	Side	Floor Elevation	Fire Zone No.	Location Elevation above Floor		
32	RHS-RHX-001D	D-Containment Spray/Residual Heat Removal Heat Exchanger	R/B RCA	W	3'-7"	FA2-153-03	N/A	-	1
33	RHS-MOV-021A	Motor Operated Valve	R/B RCA	E	25'-3"	FA2-120-06	above flood elevation	0.54	
34	RHS-MOV-021B	Motor Operated Valve	R/B RCA	E	25'-3"	FA2-151-05	above flood elevation	0.54	
35	RHS-HCV-603	Hand Control Valve	R/B RCA	E	3'-7"	FA2-120-02	N/A	-	1
36	RHS-FCV-601	Flow Control Valve	R/B RCA	E	3'-7"	FA2-120-02	N/A	-	1
37	RHS-MOV-021C	Motor Operated Valve	R/B RCA	W	25'-3"	FA2-152-05	above flood elevation	0.69	
38	RHS-MOV-021D	Motor Operated Valve	R/B RCA	W	25'-3"	FA2-153-05	above flood elevation	0.69	
39	RHS-HCV-633	Hand Control Valve	R/B RCA	W	3'-7"	FA2-153-01	N/A	-	1
40	RHS-FCV-631	Flow Control Valve	R/B RCA	W	3'-7"	FA2-153-01	N/A	-	1
41	CSS-MOV-004A	Motor Operated Valve	R/B RCA	E	25'-3"	FA2-120-06	above flood elevation	0.54	
42	CSS-MOV-004B	Motor Operated Valve	R/B RCA	E	25'-3"	FA2-151-05	above flood elevation	0.54	
43	CSS-MOV-001A	Motor Operated Valve	R/B RCA	E	-8'-7"	FA2-120-02	N/A	-	1
44	CSS-MOV-001B	Motor Operated Valve	R/B RCA	E	-8'-7"	FA2-151-01	N/A	-	1
45	CSS-MOV-004C	Motor Operated Valve	R/B RCA	W	25'-3"	FA2-152-05	above flood elevation	0.69	
46	CSS-MOV-004D	Motor Operated Valve	R/B RCA	W	25'-3"	FA2-153-05	above flood elevation	0.69	
47	CSS-MOV-001C	Motor Operated Valve	R/B RCA	W	-8'-7"	FA2-152-01	N/A	-	1
48	CSS-MOV-001D	Motor Operated Valve	R/B RCA	W	-8'-7"	FA2-153-01	N/A	-	1

**Table 3K-2 R/B RCA Components Protected From Internal Flooding**  
(Sheet 4 of 20)

Item No.	Equipment Tag	Description	Location				Flood Elevation above Floor [ft]	Notes	
			Building	Side	Floor Elevation	Fire Zone No.			Location Elevation above Floor
49	CSS-MOV-011	Motor Operated Valve	R/B RCA	E	3'-7"	FA2-151-01	N/A	-	1
50	NCS-MOV-145A	Motor Operated Valve	R/B RCA	E	3'-7"	FA2-117-08	above flood elevation	0.67	
51	NCS-MOV-438A	Motor Operated Valve	R/B RCA	E	25'-3"	FA2-151-06	above flood elevation	0.54	
52	NCS-MOV-145B	Motor Operated Valve	R/B RCA	E	3'-7"	FA2-151-04	above flood elevation	0.67	
53	NCS-MOV-145C	Motor Operated Valve	R/B RCA	W	3'-7"	FA2-152-04	above flood elevation	0.87	
54	NCS-MOV-145D	Motor Operated Valve	R/B RCA	W	3'-7"	FA2-117-07	above flood elevation	0.87	
55	NCS-MOV-232A	Motor Operated Valve	R/B RCA	E	25'-3"	FA2-151-06	above flood elevation	0.54	
56	NCS-MOV-232B	Motor Operated Valve	R/B RCA	W	25'-3"	FA2-152-06	above flood elevation	0.69	
57	NCS-MOV-233A	Motor Operated Valve	R/B RCA	E	25'-3"	FA2-151-06	above flood elevation	0.54	
58	NCS-MOV-233B	Motor Operated Valve	R/B RCA	W	25'-3"	FA2-152-06	above flood elevation	0.69	
59	NCS-MOV-234A	Motor Operated Valve	R/B RCA	E	25'-3"	FA2-151-06	above flood elevation	0.54	
60	NCS-MOV-234B	Motor Operated Valve	R/B RCA	W	25'-3"	FA2-152-06	above flood elevation	0.69	
61	NCS-MOV-511	Motor Operated Valve	R/B RCA	E	25'-3"	FA2-151-06	above flood elevation	0.54	
62	NCS-MOV-517	Motor Operated Valve	R/B RCA	E	25'-3"	FA2-151-06	above flood elevation	0.54	
63	NCS-MOV-402A	Motor Operated Valve	R/B RCA	E	25'-3"	FA2-151-06	above flood elevation	0.54	
64	NCS-MOV-531	Motor Operated Valve	R/B RCA	W	25'-3"	FA2-152-06	above flood elevation	0.69	
65	NCS-MOV-537	Motor Operated Valve	R/B RCA	W	25'-3"	FA2-152-06	above flood elevation	0.69	

**Table 3K-2 R/B RCA Components Protected From Internal Flooding  
(Sheet 5 of 20)**

Item No.	Equipment Tag	Description	Location				Flood Elevation above Floor [ft]	Notes	
			Building	Side	Floor Elevation	Fire Zone No.			
66	NCS-MOV-402B	Motor Operated Valve	R/B RCA	W	25'-3"	FA2-152-06	above flood elevation	0.69	
67	NCS-MOV-445A	Motor Operated Valve	R/B RCA	E	25'-3"	FA2-151-06	above flood elevation	0.54	
68	NCS-MOV-445B	Motor Operated Valve	R/B RCA	W	25'-3"	FA2-152-06	above flood elevation	0.69	
69	NCS-MOV-448A	Motor Operated Valve	R/B RCA	E	25'-3"	FA2-151-06	above flood elevation	0.54	
70	NCS-MOV-448B	Motor Operated Valve	R/B RCA	W	25'-3"	FA2-152-06	above flood elevation	0.69	
71	NCS-MOV-438B	Motor Operated Valve	R/B RCA	W	25'-3"	FA2-152-06	above flood elevation	0.69	
72	LMS-AOV-053	Air Operated Valve	R/B RCA	W	25'-3"	FA2-153-05	above flood elevation	0.69	
73	LMS-AOV-056	Air Operated Valve	R/B RCA	W	25'-3"	FA2-153-05	above flood elevation	0.69	
74	LMS-AOV-060	Air Operated Valve	R/B RCA	W	25'-3"	FA2-153-05	above flood elevation	0.69	
75	LMS-LCV-1000B	Level Control Valve	R/B RCA	E	25'-3"	FA2-120-06	above flood elevation	0.54	
76	LMS-AOV-105	Air Operated Valve	R/B RCA	E	25'-3"	FA2-120-06	above flood elevation	0.54	
77	PSS-MOV-031A	Motor Operated Valve	R/B RCA	W	25'-3"	FA2-153-05	above flood elevation	0.69	
78	PSS-MOV-031B	Motor Operated Valve	R/B RCA	W	25'-3"	FA2-153-05	above flood elevation	0.69	
79	PSS -MOV-052A	Motor Operated Valve	R/B RCA	W	25'-3"	FA2-117-23	above flood elevation	0.69	
80	PSS -MOV-052B	Motor Operated Valve	R/B RCA	W	25'-3"	FA2-117-23	above flood elevation	0.69	
81	PSS-AOV-063	Air Operated Valve	R/B RCA	W	25'-3"	FA2-153-05	above flood elevation	0.69	
82	PSS-MOV-071	Motor Operated Valve	R/B RCA	W	25'-3"	FA2-153-05	above flood elevation	0.69	

**Table 3K-2 R/B RCA Components Protected From Internal Flooding**  
(Sheet 6 of 20)

Item No.	Equipment Tag	Description	Location				Flood Elevation above Floor [ft]	Notes	
			Building	Side	Floor Elevation	Fire Zone No.			Location Elevation above Floor
83	SGS-AOV-031A	Air Operated Valve	R/B RCA	E	25'-3"	FA2-151-06	above flood elevation	0.54	
84	SGS-AOV-031B	Air Operated Valve	R/B RCA	E	25'-3"	FA2-151-06	above flood elevation	0.54	
85	SGS-AOV-031C	Air Operated Valve	R/B RCA	E	25'-3"	FA2-151-06	above flood elevation	0.54	
86	SGS-AOV-031D	Air Operated Valve	R/B RCA	E	25'-3"	FA2-151-06	above flood elevation	0.54	
87	RWS-MOV-004	Motor Operated Valve	R/B RCA	E	3'-7"	FA2-117-09	above flood elevation	0.67	
88	RWS-AOV-022	Air Operated Valve	R/B RCA	E	3'-7"	FA2-117-09	above flood elevation	0.67	
89	CAS-MOV-002	Motor Operated Valve	R/B RCA	W	25'-3"	FA2-152-06	above flood elevation	0.69	
90	RMS-MOV-002	Motor Operated Valve	R/B RCA	W	25'-3"	FA2-153-05	above flood elevation	0.69	
91	RMS-MOV-003	Motor Operated Valve	R/B RCA	W	25'-3"	FA2-153-05	above flood elevation	0.69	
92	VRS-RFU-001A	A-Annulus Emergency Exhaust Filtration Unit	R/B RCA	E	50'-2"	FA2-117-32	above flood elevation	0.54	
93	VRS-RFU-001B	B-Annulus Emergency Exhaust Filtration Unit	R/B RCA	W	50'-2"	FA2-117-29	above flood elevation	0.76	
94	VRS-RFN-001A	A-Annulus Emergency Exhaust Filtration Unit Fan	R/B RCA	E	50'-2"	FA2-117-32	above flood elevation	0.54	
95	VRS-RFN-001B	B-Annulus Emergency Exhaust Filtration Unit Fan	R/B RCA	W	50'-2"	FA2-117-29	above flood elevation	0.76	
96	VRS-MOD-001A	Motor Operated Damper	R/B RCA	E	50'-2"	FA2-117-32	above flood elevation	0.54	
97	VRS-MOD-001B	Motor Operated Damper	R/B RCA	W	50'-2"	FA2-117-29	above flood elevation	0.76	
98	VRS-MOD-002A	Motor Operated Damper	R/B RCA	E	50'-2"	FA2-117-32	above flood elevation	0.54	

**Table 3K-2 R/B RCA Components Protected From Internal Flooding  
(Sheet 7 of 20)**

Item No.	Equipment Tag	Description	Location				Flood Elevation above Floor [ft]	Notes	
			Building	Side	Floor Elevation	Fire Zone No.			Location Elevation above Floor
99	VRS-MOD-002B	Motor Operated Damper	R/B RCA	W	50'-2"	FA2-117-29	above flood elevation	0.76	
100	VRS-MOD-003A	Motor Operated Damper	R/B RCA	E	50'-2"	FA2-117-32	above flood elevation	0.54	
101	VRS-MOD-003B	Motor Operated Damper	R/B RCA	W	50'-2"	FA2-117-29	above flood elevation	0.76	
102	VRS-RAH-301A	A-Safeguard Component Area Air Handling Unit	R/B RCA	E	3'-7"	FA2-120-05	N/A	-	1
103	VRS-RAH-301B	B-Safeguard Component Area Air Handling Unit	R/B RCA	E	3'-7"	FA2-151-02	N/A	-	1
104	VRS-RAH-301C	C-Safeguard Component Area Air Handling Unit	R/B RCA	W	3'-7"	FA2-152-02	N/A	-	1
105	VRS-RAH-301D	D-Safeguard Component Area Air Handling Unit	R/B RCA	W	3'-7"	FA2-153-04	N/A	-	1
106	VRS-RFN-301A	A-Safeguard Component Area Air Handling Unit Fan	R/B RCA	E	3'-7"	FA2-120-05	N/A	-	1
107	VRS-RFN-301B	B-Safeguard Component Area Air Handling Unit Fan	R/B RCA	E	3'-7"	FA2-151-02	N/A	-	1
108	VRS-RFN-301C	C-Safeguard Component Area Air Handling Unit Fan	R/B RCA	W	3'-7"	FA2-152-02	N/A	-	1
109	VRS-RFN-301D	D-Safeguard Component Area Air Handling Unit Fan	R/B RCA	W	3'-7"	FA2-153-04	N/A	-	1
110	VRS-RCC-301A	A-Safeguard Component Area Air Handling Unit Cooling Coil	R/B RCA	E	3'-7"	FA2-120-05	N/A	-	1
111	VRS-RCC-301B	B-Safeguard Component Area Air Handling Unit Cooling Coil	R/B RCA	E	3'-7"	FA2-151-02	N/A	-	1

**Table 3K-2 R/B RCA Components Protected From Internal Flooding  
(Sheet 8 of 20)**

Item No.	Equipment Tag	Description	Location				Flood Elevation above Floor [ft]	Notes	
			Building	Side	Floor Elevation	Fire Zone No.			Location Elevation above Floor
112	VRS-RCC-301C	C-Safeguard Component Area Air Handling Unit Cooling Coil	R/B RCA	W	3'-7"	FA2-152-02	N/A	-	1
113	VRS-RCC-301D	D-Safeguard Component Area Air Handling Unit Cooling Coil	R/B RCA	W	3'-7"	FA2-153-04	N/A	-	1
114	VRS-REH-301A	A-Safeguard Component Area Air Handling Unit Electric Heating Coil	R/B RCA	E	3'-7"	FA2-120-05	N/A	-	1
115	VRS-REH-301B	B-Safeguard Component Area Air Handling Unit Electric Heating Coil	R/B RCA	E	3'-7"	FA2-151-02	N/A	-	1
116	VRS-REH-301C	C-Safeguard Component Area Air Handling Unit Electric Heating Coil	R/B RCA	W	3'-7"	FA2-152-02	N/A	-	1
117	VRS-REH-301D	D-Safeguard Component Area Air Handling Unit Electric Heating Coil	R/B RCA	W	3'-7"	FA2-153-04	N/A	-	1
118	VRS-MOD-301A	Motor Operated Damper	R/B RCA	E	3'-7"	FA2-120-05	N/A	-	1
119	VRS-MOD-301B	Motor Operated Damper	R/B RCA	E	3'-7"	FA2-151-02	N/A	-	1
120	VRS-MOD-301C	Motor Operated Damper	R/B RCA	W	3'-7"	FA2-152-02	N/A	-	1
121	VRS-MOD-301D	Motor Operated Damper	R/B RCA	W	3'-7"	FA2-153-04	N/A	-	1
122	VRS-MOD-302A	Motor Operated Damper	R/B RCA	E	3'-7"	FA2-120-05	N/A	-	1
123	VRS-MOD-302B	Motor Operated Damper	R/B RCA	E	3'-7"	FA2-151-02	N/A	-	1
124	VRS-MOD-302C	Motor Operated Damper	R/B RCA	W	3'-7"	FA2-152-02	N/A	-	1
125	VRS-MOD-302D	Motor Operated Damper	R/B RCA	W	3'-7"	FA2-153-04	N/A	-	1

**Table 3K-2 R/B RCA Components Protected From Internal Flooding**  
(Sheet 9 of 20)

Item No.	Equipment Tag	Description	Location				Flood Elevation above Floor [ft]	Notes	
			Building	Side	Floor Elevation	Fire Zone No.			Location Elevation above Floor
126	VRS-RAH-541A	A-Annulus Emergency Exhaust Filtration Unit Area Air Handling Unit	R/B RCA	E	50'-2"	FA2-117-32	above flood elevation	0.54	
127	VRS-RAH-541B	B-Annulus Emergency Exhaust Filtration Unit Area Air Handling Unit	R/B RCA	W	50'-2"	FA2-117-29	above flood elevation	0.76	
128	VRS-RFN-541A	A-Annulus Emergency Exhaust Filtration Unit Area Air Handling Unit Fan	R/B RCA	E	50'-2"	FA2-117-32	above flood elevation	0.54	
129	VRS-RFN-541B	B-Annulus Emergency Exhaust Filtration Unit Area Air Handling Unit Fan	R/B RCA	W	50'-2"	FA2-117-29	above flood elevation	0.76	
130	VRS-RCC-541A	A-Annulus Emergency Exhaust Filtration Unit Area Air Handling Unit Cooling Coil	R/B RCA	E	50'-2"	FA2-117-32	above flood elevation	0.54	
131	VRS-RCC-541B	A-Annulus Emergency Exhaust Filtration Unit Area Air Handling Unit Cooling Coil	R/B RCA	E	50'-2"	FA2-117-32	above flood elevation	0.54	
132	VRS-RCC-541C	B-Annulus Emergency Exhaust Filtration Unit Area Air Handling Unit Cooling Coil	R/B RCA	W	50'-2"	FA2-117-29	above flood elevation	0.76	
133	VRS-RCC-541D	B-Annulus Emergency Exhaust Filtration Unit Area Air Handling Unit Cooling Coil	R/B RCA	W	50'-2"	FA2-117-29	above flood elevation	0.76	



**Table 3K-2 R/B RCA Components Protected From Internal Flooding  
(Sheet 10 of 20)**

Item No.	Equipment Tag	Description	Location				Flood Elevation above Floor [ft]	Notes	
			Building	Side	Floor Elevation	Fire Zone No.			Location Elevation above Floor
134	VRS-REH-541A	A-Annulus Emergency Exhaust Filtration Unit Area Air Handling Unit Electric Heating Coil	R/B RCA	E	50'-2"	FA2-117-32	above flood elevation	0.54	
135	VRS-REH-541B	B-Annulus Emergency Exhaust Filtration Unit Area Air Handling Unit Electric Heating Coil	R/B RCA	W	50'-2"	FA2-117-29	above flood elevation	0.76	
136	VRS-RAH-551A	A-Penetration Area Air Handling Unit	R/B RCA	E	50'-2"	FA2-408-01	above flood elevation	0.54	
137	VRS-RAH-551B	B-Penetration Area Air Handling Unit	R/B RCA	E	50'-2"	FA2-409-01	above flood elevation	0.54	
138	VRS-RAH-551C	C-Penetration Area Air Handling Unit	R/B RCA	W	50'-2"	FA2-410-01	above flood elevation	0.76	
139	VRS-RAH-551D	D-Penetration Area Air Handling Unit	R/B RCA	W	50'-2"	FA2-411-01	above flood elevation	0.76	
140	VRS-RFN-551A	A-Penetration Area Air Handling Unit Fan	R/B RCA	E	50'-2"	FA2-408-01	above flood elevation	0.54	
141	VRS-RFN-551B	B-Penetration Area Air Handling Unit Fan	R/B RCA	E	50'-2"	FA2-409-01	above flood elevation	0.54	
142	VRS-RFN-551C	C-Penetration Area Air Handling Unit Fan	R/B RCA	W	50'-2"	FA2-410-01	above flood elevation	0.76	
143	VRS-RFN-551D	D-Penetration Area Air Handling Unit Fan	R/B RCA	W	50'-2"	FA2-411-01	above flood elevation	0.76	
144	VRS-RCC-551A	A-Penetration Area Air Handling Unit Cooling Coil	R/B RCA	E	50'-2"	FA2-408-01	above flood elevation	0.54	
145	VRS-RCC-551B	B-Penetration Area Air Handling Unit Cooling Coil	R/B RCA	E	50'-2"	FA2-409-01	above flood elevation	0.54	

**Table 3K-2 R/B RCA Components Protected From Internal Flooding**  
(Sheet 11 of 20)

Item No.	Equipment Tag	Description	Location				Flood Elevation above Floor [ft]	Notes	
			Building	Side	Floor Elevation	Fire Zone No.			Location Elevation above Floor
146	VRS-RCC-551C	C-Penetration Area Air Handling Unit Cooling Coil	R/B RCA	W	50'-2"	FA2-410-01	above flood elevation	0.76	
147	VRS-RCC-551D	D-Penetration Area Air Handling Unit Cooling Coil	R/B RCA	W	50'-2"	FA2-411-01	above flood elevation	0.76	
148	VRS-REH-551A	A-Penetration Area Air Handling Unit Electric Heating Coil	R/B RCA	E	50'-2"	FA2-408-01	above flood elevation	0.54	
149	VRS-REH-551B	B-Penetration Area Air Handling Unit Electric Heating Coil	R/B RCA	E	50'-2"	FA2-409-01	above flood elevation	0.54	
150	VRS-REH-551C	C-Penetration Area Air Handling Unit Electric Heating Coil	R/B RCA	W	50'-2"	FA2-410-01	above flood elevation	0.76	
151	VRS-REH-551D	D-Penetration Area Air Handling Unit Electric Heating Coil	R/B RCA	W	50'-2"	FA2-411-01	above flood elevation	0.76	
152	VCS-AOV-304	Air Operated Valve	R/B RCA	E	76'-5"	FA2-117-34	above flood elevation	0.87	
153	VCS-AOV-307	Air Operated Valve	R/B RCA	W	76'-5"	FA2-117-40	above flood elevation	0.99	
154	VCS-AOV-354	Air Operated Valve	R/B RCA	E	76'-5"	FA2-117-34	above flood elevation	0.87	
155	VCS-AOV-357	Air Operated Valve	R/B RCA	W	76'-5"	FA2-117-40	above flood elevation	0.99	
156	VAS-AOD-501A	Air Operated Damper	R/B RCA	E	25'-3"	FA2-117-19	above flood elevation	0.54	
157	VAS-AOD-501B	Air Operated Damper	R/B RCA	W	50'-2"	FA2-117-43	above flood elevation	0.76	
158	VAS-AOD-502A	Air Operated Damper	R/B RCA	E	25'-3"	FA2-120-06	above flood elevation	0.54	
159	VAS-AOD-502B	Air Operated Damper	R/B RCA	W	50'-2"	FA2-411-01	above flood elevation	0.76	
160	VAS-AOD-503A	Air Operated Damper	R/B RCA	E	25'-3"	FA2-120-06	above flood elevation	0.54	

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**Table 3K-2 R/B RCA Components Protected From Internal Flooding  
(Sheet 12 of 20)**

Item No.	Equipment Tag	Description	Location				Flood Elevation above Floor [ft]	Notes	
			Building	Side	Floor Elevation	Fire Zone No.			Location Elevation above Floor
161	VAS-AOD-503B	Air Operated Damper	R/B RCA	W	50'-2"	FA2-411-01	above flood elevation	0.76	
162	VAS-AOD-504A	Air Operated Damper	R/B RCA	E	25'-3"	FA2-117-19	above flood elevation	0.54	
163	VAS-AOD-504B	Air Operated Damper	R/B RCA	W	50'-2"	FA2-117-43	above flood elevation	0.76	
164	VAS-AOD-505A	Air Operated Damper	R/B RCA	E	3'-7"	FA2-117-08	above flood elevation	0.67	
165	VAS-AOD-505B	Air Operated Damper	R/B RCA	E	3'-7"	FA2-151-04	above flood elevation	0.67	
166	VAS-AOD-505C	Air Operated Damper	R/B RCA	W	3'-7"	FA2-152-04	above flood elevation	0.87	
167	VAS-AOD-505D	Air Operated Damper	R/B RCA	W	3'-7"	FA2-117-07	above flood elevation	0.87	
168	VAS-AOD-506A	Air Operated Damper	R/B RCA	E	3'-7"	FA2-120-04	N/A	-	1
169	VAS-AOD-506B	Air Operated Damper	R/B RCA	E	3'-7"	FA2-151-03	N/A	-	1
170	VAS-AOD-506C	Air Operated Damper	R/B RCA	W	3'-7"	FA2-152-03	N/A	-	1
171	VAS-AOD-506D	Air Operated Damper	R/B RCA	W	3'-7"	FA2-153-03	N/A	-	1
172	VAS-AOD-507A	Air Operated Damper	R/B RCA	E	3'-7"	FA2-120-04	N/A	-	1
173	VAS-AOD-507B	Air Operated Damper	R/B RCA	E	3'-7"	FA2-151-03	N/A	-	1
174	VAS-AOD-507C	Air Operated Damper	R/B RCA	W	3'-7"	FA2-152-03	N/A	-	1
175	VAS-AOD-507D	Air Operated Damper	R/B RCA	W	3'-7"	FA2-153-03	N/A	-	1
176	VAS-AOD-508A	Air Operated Damper	R/B RCA	E	3'-7"	FA2-117-08	above flood elevation	0.67	
177	VAS-AOD-508B	Air Operated Damper	R/B RCA	E	3'-7"	FA2-151-04	above flood elevation	0.67	

**Table 3K-2 R/B RCA Components Protected From Internal Flooding  
(Sheet 13 of 20)**

Item No.	Equipment Tag	Description	Location				Flood Elevation above Floor [ft]	Notes	
			Building	Side	Floor Elevation	Fire Zone No.			
178	VAS-AOD-508C	Air Operated Damper	R/B RCA	W	3'-7"	FA2-152-04	above flood elevation	0.87	
179	VAS-AOD-508D	Air Operated Damper	R/B RCA	W	3'-7"	FA2-117-07	above flood elevation	0.87	
180	VAS-AOD-511	Air Operated Damper	R/B RCA	W	76'-5"	FA2-117-44	above flood elevation	0.99	
181	VAS-AOD-512	Air Operated Damper	R/B RCA	W	76'-5"	FA2-117-44	above flood elevation	0.99	
182	VWS-TCV-2574	Chilled Water Control Valve	R/B RCA	E	3'-7"	FA2-120-05	N/A	-	1
183	VWS-TCV-2584	Chilled Water Control Valve	R/B RCA	E	3'-7"	FA2-151-02	N/A	-	1
184	VWS-TCV-2594	Chilled Water Control Valve	R/B RCA	W	3'-7"	FA2-152-02	N/A	-	1
185	VWS-TCV-2604	Chilled Water Control Valve	R/B RCA	W	3'-7"	FA2-153-04	N/A	-	1
186	VWS-TCV-2741A	Chilled Water Control Valve	R/B RCA	E	50'-2"	FA2-117-32	above flood elevation	0.54	
187	VWS-TCV-2741B	Chilled Water Control Valve	R/B RCA	E	50'-2"	FA2-117-32	above flood elevation	0.54	
188	VWS-TCV-2746A	Chilled Water Control Valve	R/B RCA	W	50'-2"	FA2-117-29	above flood elevation	0.76	
189	VWS-TCV-2746B	Chilled Water Control Valve	R/B RCA	W	50'-2"	FA2-117-29	above flood elevation	0.76	
190	VWS-TCV-2331	Chilled Water Control Valve	R/B RCA	E	50'-2"	FA2-408-01	above flood elevation	0.54	
191	VWS-TCV-2336	Chilled Water Control Valve	R/B RCA	E	50'-2"	FA2-409-01	above flood elevation	0.54	
192	VWS-TCV-2341	Chilled Water Control Valve	R/B RCA	W	50'-2"	FA2-410-01	above flood elevation	0.76	
193	VWS-TCV-2346	Chilled Water Control Valve	R/B RCA	W	50'-2"	FA2-411-01	above flood elevation	0.76	
194	VWS-MOV-403	Motor Operated Valve	R/B RCA	W	76'-5"	FA2-117-40	above flood elevation	0.99	

**Table 3K-2 R/B RCA Components Protected From Internal Flooding**  
(Sheet 14 of 20)

Item No.	Equipment Tag	Description	Location				Flood Elevation above Floor [ft]	Notes	
			Building	Side	Floor Elevation	Fire Zone No.			Location Elevation above Floor
195	VWS-MOV-407	Motor Operated Valve	R/B RCA	W	76'-5"	FA2-117-40	above flood elevation	0.99	
196	SRPP-A	Source Range Neutron Flux Preamplifier Panel (Train A)	R/B RCA	E	50'-2"	FA2-408-01	above flood elevation	0.54	
197	SRPP-D	Source Range Neutron Flux Preamplifier Panel (Train D)	R/B RCA	W	50'-2"	FA2-411-01	above flood elevation	0.76	
198	WRPP-A	Wide Range Neutron Flux Preamplifier Panel (Train A)	R/B RCA	E	50'-2"	FA2-408-01	above flood elevation	0.54	
199	WRPP-D	Wide Range Neutron Flux Preamplifier Panel (Train D)	R/B RCA	W	50'-2"	FA2-411-01	above flood elevation	0.76	
200	CVS-FT-218	Primary Makeup Water Supply Flow	R/B RCA	W	25'-3"	FA2-117-42	above flood elevation	0.69	
201	CVS-FT-219	Primary Makeup Water Supply Flow	R/B RCA	W	25'-3"	FA2-117-42	above flood elevation	0.69	
202	SIS-FT-962	A - Safety Injection Pump Discharge Flow	R/B RCA	E	-26'-4"	FA2-113-03	above flood elevation	1.49	
203	SIS-FT-963	B - Safety Injection Pump Discharge Flow	R/B RCA	E	-26'-4"	FA2-114-03	above flood elevation	1.49	
204	SIS-FT-964	C - Safety Injection Pump Discharge Flow	R/B RCA	W	-26'-4"	FA2-115-03	above flood elevation	2.79	
205	SIS-FT-965	D - Safety Injection Pump Discharge Flow	R/B RCA	W	-26'-4"	FA2-116-03	above flood elevation	2.79	
206	SIS-PT-960	A - Safety Injection Pump Suction Pressure	R/B RCA	E	-26'-4"	FA2-113-03	above flood elevation	1.49	
207	SIS-PT-961	B - Safety Injection Pump Suction Pressure	R/B RCA	E	-26'-4"	FA2-114-03	above flood elevation	1.49	

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**Table 3K-2 R/B RCA Components Protected From Internal Flooding  
(Sheet 15 of 20)**

Item No.	Equipment Tag	Description	Location				Flood Elevation above Floor [ft]	Notes	
			Building	Side	Floor Elevation	Fire Zone No.			Location Elevation above Floor
208	SIS-PT-962	C - Safety Injection Pump Suction Pressure	R/B RCA	W	-26'-4"	FA2-115-03	above flood elevation	2.79	
209	SIS-PT-963	D - Safety Injection Pump Suction Pressure	R/B RCA	W	-26'-4"	FA2-116-03	above flood elevation	2.79	
210	SIS-PT-964	A - Safety Injection Pump Discharge Pressure	R/B RCA	E	-26'-4"	FA2-113-03	above flood elevation	1.49	
211	SIS-PT-965	B - Safety Injection Pump Discharge Pressure	R/B RCA	E	-26'-4"	FA2-114-03	above flood elevation	1.49	
212	SIS-PT-966	C - Safety Injection Pump Discharge Pressure	R/B RCA	W	-26'-4"	FA2-115-03	above flood elevation	2.79	
213	SIS-PT-967	D - Safety Injection Pump Discharge Pressure	R/B RCA	W	-26'-4"	FA2-116-03	above flood elevation	2.79	
214	RHS-FT-601	A - Containment Spray / Residual Heat Removal Pump Discharge Flow	R/B RCA	E	-26'-4"	FA2-113-03	above flood elevation	1.49	
215	RHS-FT-604	A - Containment Spray / Residual Heat Removal Pump Minimum Flow	R/B RCA	E	3'-7"	FA2-117-08	above flood elevation	0.67	
216	RHS-FT-611	B - Containment Spray / Residual Heat Removal Pump Discharge Flow	R/B RCA	E	-26'-4"	FA2-114-03	above flood elevation	1.49	
217	RHS-FT-614	B - Containment Spray / Residual Heat Removal Pump Minimum Flow	R/B RCA	E	3'-7"	FA2-151-04	above flood elevation	0.67	
218	RHS-FT-621	C - Containment Spray / Residual Heat Removal Pump Discharge Flow	R/B RCA	W	-26'-4"	FA2-115-03	above flood elevation	2.79	

**Table 3K-2 R/B RCA Components Protected From Internal Flooding  
(Sheet 16 of 20)**

Item No.	Equipment Tag	Description	Location					Flood Elevation above Floor [ft]	Notes
			Building	Side	Floor Elevation	Fire Zone No.	Location Elevation above Floor		
219	RHS-FT-624	C - Containment Spray / Residual Heat Removal Pump Minimum Flow	R/B RCA	W	3'-7"	FA2-152-04	above flood elevation	0.87	
220	RHS-FT-631	D - Containment Spray / Residual Heat Removal Pump Discharge Flow	R/B RCA	W	-26'-4"	FA2-116-03	above flood elevation	2.79	
221	RHS-FT-634	D - Containment Spray / Residual Heat Removal Pump Minimum Flow	R/B RCA	W	3'-7"	FA2-117-07	above flood elevation	0.87	
222	RHS-PT-600	A - Containment Spray / Residual Heat Removal Pump Suction Pressure	R/B RCA	E	-26'-4"	FA2-113-03	above flood elevation	1.49	
223	RHS-PT-601	A - Containment Spray / Residual Heat Removal Pump Discharge Pressure	R/B RCA	E	-26'-4"	FA2-113-03	above flood elevation	1.49	
224	RHS-PT-610	B - Containment Spray / Residual Heat Removal Pump Suction Pressure	R/B RCA	E	-26'-4"	FA2-114-03	above flood elevation	1.49	
225	RHS-PT-611	B - Containment Spray / Residual Heat Removal Pump Discharge Pressure	R/B RCA	E	-26'-4"	FA2-114-03	above flood elevation	1.49	
226	RHS-PT-620	C - Containment Spray / Residual Heat Removal Pump Suction Pressure	R/B RCA	W	-26'-4"	FA2-115-03	above flood elevation	2.79	
227	RHS-PT-621	C - Containment Spray / Residual Heat Removal Pump Discharge Pressure	R/B RCA	W	-26'-4"	FA2-115-03	above flood elevation	2.79	

**Table 3K-2 R/B RCA Components Protected From Internal Flooding  
(Sheet 17 of 20)**

Item No.	Equipment Tag	Description	Location				Flood Elevation above Floor [ft]	Notes	
			Building	Side	Floor Elevation	Fire Zone No.			Location Elevation above Floor
228	RHS-PT-630	D - Containment Spray / Residual Heat Removal Pump Suction Pressure	R/B RCA	W	-26'-4"	FA2-116-03	above flood elevation	2.79	
229	RHS-PT-631	D - Containment Spray / Residual Heat Removal Pump Discharge Pressure	R/B RCA	W	-26'-4"	FA2-116-03	above flood elevation	2.79	
230	CSS-PT-950	Containment Pressure	R/B RCA	E	25'-3"	FA2-151-05	above flood elevation	0.54	
231	CSS-PT-951	Containment Pressure	R/B RCA	E	25'-3"	FA2-151-05	above flood elevation	0.54	
232	CSS-PT-952	Containment Pressure	R/B RCA	W	76'-5"	FA2-117-35	above flood elevation	0.87	
233	CSS-PT-953	Containment Pressure	R/B RCA	W	76'-5"	FA2-117-35	above flood elevation	0.87	
234	RHS-TE-604	A - Containment Spray / Residual Heat Removal Heat Exchanger Outlet Temperature	R/B RCA	E	3'-7"	FA2-120-02	N/A	-	1
235	RHS-TE-614	B - Containment Spray / Residual Heat Removal Heat Exchanger Outlet Temperature	R/B RCA	E	3'-7"	FA2-151-01	N/A	-	1
236	RHS-TE-624	C - Containment Spray / Residual Heat Removal Heat Exchanger Outlet Temperature	R/B RCA	W	3'-7"	FA2-152-01	N/A	-	1
237	RHS-TE-634	D - Containment Spray / Residual Heat Removal Heat Exchanger Outlet Temperature	R/B RCA	W	3'-7"	FA2-153-01	N/A	-	1
238	VRS-TS-2330	A - Penetration Area Temperature	R/B RCA	E	25'-3"	FA2-120-06	above flood elevation	0.54	



**Table 3K-2 R/B RCA Components Protected From Internal Flooding  
(Sheet 18 of 20)**

Item No.	Equipment Tag	Description	Location				Flood Elevation above Floor [ft]	Notes	
			Building	Side	Floor Elevation	Fire Zone No.			
239	VRS-TS-2333	A - Penetration Area Temperature	R/B RCA	E	25'-3"	FA2-120-06	above flood elevation	0.54	
240	VRS-TS-2334	A - Penetration Area Temperature	R/B RCA	E	25'-3"	FA2-120-06	above flood elevation	0.54	
241	VRS-TS-2335	B - Penetration Area Temperature	R/B RCA	E	25'-3"	FA2-151-05	above flood elevation	0.54	
242	VRS-TS-2338	B - Penetration Area Temperature	R/B RCA	E	25'-3"	FA2-151-05	above flood elevation	0.54	
243	VRS-TS-2339	B - Penetration Area Temperature	R/B RCA	E	25'-3"	FA2-151-05	above flood elevation	0.54	
244	VRS-TS-2340	C - Penetration Area Temperature	R/B RCA	W	25'-3"	FA2-152-05	above flood elevation	0.69	
245	VRS-TS-2343	C - Penetration Area Temperature	R/B RCA	W	25'-3"	FA2-152-05	above flood elevation	0.69	
246	VRS-TS-2344	C - Penetration Area Temperature	R/B RCA	W	25'-3"	FA2-152-05	above flood elevation	0.69	
247	VRS-TS-2345	D - Penetration Area Temperature	R/B RCA	W	25'-3"	FA2-153-05	above flood elevation	0.69	
248	VRS-TS-2348	D - Penetration Area Temperature	R/B RCA	W	25'-3"	FA2-153-05	above flood elevation	0.69	
249	VRS-TS-2349	D - Penetration Area Temperature	R/B RCA	W	25'-3"	FA2-153-05	above flood elevation	0.69	
250	VRS-TS-2572	A - Safeguard Component Area Temperature	R/B RCA	E	3'-7"	FA2-120-04	N/A	-	1
251	VRS-TS-2573	A - Safeguard Component Area Temperature	R/B RCA	E	3'-7"	FA2-120-04	N/A	-	1
252	VRS-TS-2575	A - Safeguard Component Area Temperature	R/B RCA	E	3'-7"	FA2-120-04	N/A	-	1
253	VRS-TS-2582	B - Safeguard Component Area Temperature	R/B RCA	E	3'-7"	FA2-151-03	N/A	-	1

**Table 3K-2 R/B RCA Components Protected From Internal Flooding  
(Sheet 19 of 20)**

Item No.	Equipment Tag	Description	Location				Flood Elevation above Floor [ft]	Notes	
			Building	Side	Floor Elevation	Fire Zone No.			Location Elevation above Floor
254	VRS-TS-2583	B - Safeguard Component Area Temperature	R/B RCA	E	3'-7"	FA2-151-03	N/A	-	1
255	VRS-TS-2585	B - Safeguard Component Area Temperature	R/B RCA	E	3'-7"	FA2-151-03	N/A	-	1
256	VRS-TS-2592	C - Safeguard Component Area Temperature	R/B RCA	W	3'-7"	FA2-152-03	N/A	-	1
257	VRS-TS-2593	C - Safeguard Component Area Temperature	R/B RCA	W	3'-7"	FA2-152-03	N/A	-	1
258	VRS-TS-2595	C - Safeguard Component Area Temperature	R/B RCA	W	3'-7"	FA2-152-03	N/A	-	1
259	VRS-TS-2602	D - Safeguard Component Area Temperature	R/B RCA	W	3'-7"	FA2-153-03	N/A	-	1
260	VRS-TS-2603	D - Safeguard Component Area Temperature	R/B RCA	W	3'-7"	FA2-153-03	N/A	-	1
261	VRS-TS-2605	D - Safeguard Component Area Temperature	R/B RCA	W	3'-7"	FA2-153-03	N/A	-	1
262	VRS-TS-2740	A - Annulus Emergency Exhaust Filtration Unit Area Temperature	R/B RCA	E	50'-2"	FA2-117-32	above flood elevation	0.54	
263	VRS-TS-2743	A - Annulus Emergency Exhaust Filtration Unit Area Temperature	R/B RCA	E	50'-2"	FA2-117-32	above flood elevation	0.54	
264	VRS-TS-2744	A - Annulus Emergency Exhaust Filtration Unit Area Temperature	R/B RCA	E	50'-2"	FA2-117-32	above flood elevation	0.54	
265	VRS-TS-2745	B - Annulus Emergency Exhaust Filtration Unit Area Temperature	R/B RCA	W	50'-2"	FA2-117-29	above flood elevation	0.76	
266	VRS-TS-2748	B - Annulus Emergency Exhaust Filtration Unit Area Temperature	R/B RCA	W	50'-2"	FA2-117-29	above flood elevation	0.76	

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**Table 3K-2 R/B RCA Components Protected From Internal Flooding  
(Sheet 20 of 20)**

Item No.	Equipment Tag	Description	Location				Flood Elevation above Floor [ft]	Notes	
			Building	Side	Floor Elevation	Fire Zone No.			Location Elevation above Floor
267	VRS-TS-2749	B - Annulus Emergency Exhaust Filtration Unit Area Temperature	R/B RCA	W	50'-2"	FA2-117-29	above flood elevation	0.76	

**Note:**

1. These components are protected by water-tight door and floor drain isolation valve against in-flow of flooding occurring outside of compartment. In addition, these components are not required to be protected against flooding occurring inside the compartment due to redundancy of other trains/components.

**Table 3K-3 R/B NRCA Components Protected From Internal Flooding**  
(Sheet 1 of 30)

Item No.	Equipment Tag	Description	Location				Flood Elevation above Floor [ft]	Notes	
			Building	Side	Floor Elevation	Fire Zone No.			Location Elevation above Floor
1	EFS-RPP-001A	A-Emergency Feedwater Pump	R/B NRCA	E	-26'-4"	FA2-102-01	N/A	-	1
2	EFS-RPP-001B	B-Emergency Feedwater Pump	R/B NRCA	E	-26'-4"	FA2-103-01	above flood elevation	0.47	
3	EFS-RPP-001C	C-Emergency Feedwater Pump	R/B NRCA	W	-26'-4"	FA2-109-01	above flood elevation	0.63	
4	EFS-RPP-001D	D-Emergency Feedwater Pump	R/B NRCA	W	-26'-4"	FA2-108-01	N/A	-	1
5	EFS-RPT-001A	A-Emergency Feedwater Pit	R/B NRCA	E	76'-5"	FA2-501-02	0	1.35	2
6	EFS-RPK-001B	B-Emergency Feedwater Pit	R/B NRCA	W	76'-5"	FA2-501-08	0	1.15	2
7	EFS-MOV-014A	Motor Operated Valve	R/B NRCA	E	-26'-4"	FA2-102-01	N/A	-	1
8	EFS-MOV-014B	Motor Operated Valve	R/B NRCA	E	-26'-4"	FA2-103-01	above flood elevation	0.47	
9	EFS-MOV-014C	Motor Operated Valve	R/B NRCA	W	-26'-4"	FA2-109-01	above flood elevation	0.63	
10	EFS-MOV-014D	Motor Operated Valve	R/B NRCA	W	-26'-4"	FA2-108-01	N/A	-	1
11	EFS-MOV-017A	A-Emergency Feedwater Control Valve	R/B NRCA	E	65'-0"	FA2-414-01	above flood elevation	4.6	
12	EFS-MOV-017B	B-Emergency Feedwater Control Valve	R/B NRCA	E	65'-0"	FA2-414-01	above flood elevation	4.6	
13	EFS-MOV-017C	C-Emergency Feedwater Control Valve	R/B NRCA	W	65'-0"	FA2-415-01	above flood elevation	4.6	
14	EFS-MOV-017D	D-Emergency Feedwater Control Valve	R/B NRCA	W	65'-0"	FA2-415-01	above flood elevation	4.6	
15	EFS-MOV-019A	A-Emergency Feedwater Isolation Valve	R/B NRCA	E	65'-0"	FA2-414-01	above flood elevation	4.6	

**Table 3K-3 R/B NRCA Components Protected From Internal Flooding**  
(Sheet 2 of 30)

Item No.	Equipment Tag	Description	Location				Flood Elevation above Floor [ft]	Notes	
			Building	Side	Floor Elevation	Fire Zone No.			Location Elevation above Floor
16	EFS-MOV-019B	B-Emergency Feedwater Isolation Valve	R/B NRCA	E	65'-0"	FA2-414-01	above flood elevation	4.6	
17	EFS-MOV-019C	C-Emergency Feedwater Isolation Valve	R/B NRCA	W	65'-0"	FA2-415-01	above flood elevation	4.6	
18	EFS-MOV-019D	D-Emergency Feedwater Isolation Valve	R/B NRCA	W	65'-0"	FA2-415-01	above flood elevation	4.6	
19	EFS-MOV-101A	A-Emergency Feedwater Pump A-Main Steam Line Steam Isolation Valve	R/B NRCA	E	65'-0"	FA2-414-01	above flood elevation	4.6	
20	EFS-MOV-101B	A-Emergency Feedwater Pump B-Main Steam Line Steam Isolation Valve	R/B NRCA	E	65'-0"	FA2-414-01	above flood elevation	4.6	
21	EFS-MOV-101C	D-Emergency Feedwater Pump C-Main Steam Line Steam Isolation Valve	R/B NRCA	W	65'-0"	FA2-415-01	above flood elevation	4.6	
22	EFS-MOV-101D	D-Emergency Feedwater Pump D-Main Steam Line Steam Isolation Valve	R/B NRCA	W	65'-0"	FA2-415-01	above flood elevation	4.6	
23	EFS-MOV-103A	A-Emergency Feedwater Pump Actuation Valve	R/B NRCA	E	65'-0"	FA2-414-01	above flood elevation	4.6	
24	EFS-MOV-103D	B-Emergency Feedwater Pump Actuation Valve	R/B NRCA	W	65'-0"	FA2-415-01	above flood elevation	4.6	
25	NFS-VLV-512A	A-Main Feedwater Isolation Valve	R/B NRCA	E	65'-0"	FA2-414-01	below flood elevation	4.6	3
26	NFS-VLV-512B	B-Main Feedwater Isolation Valve	R/B NRCA	E	65'-0"	FA2-414-01	below flood elevation	4.6	3

**Table 3K-3 R/B NRCA Components Protected From Internal Flooding  
(Sheet 3 of 30)**

Item No.	Equipment Tag	Description	Location				Flood Elevation above Floor [ft]	Notes	
			Building	Side	Floor Elevation	Fire Zone No.			Location Elevation above Floor
27	NFS-VLV-512C	C-Main Feedwater Isolation Valve	R/B NRCA	W	65'-0"	FA2-415-01	below flood elevation	4.6	3
28	NFS-VLV-512D	D-Main Feedwater Isolation Valve	R/B NRCA	W	65'-0"	FA2-415-01	below flood elevation	4.6	3
29	NMS-VLV-509A	A1-Main Steam Safety Valve	R/B NRCA	E	65'-0"	FA2-414-01	above flood elevation	4.6	
30	NMS-VLV-510A	A2-Main Steam Safety Valve	R/B NRCA	E	65'-0"	FA2-414-01	above flood elevation	4.6	
31	NMS-VLV-511A	A3-Main Steam Safety Valve	R/B NRCA	E	65'-0"	FA2-414-01	above flood elevation	4.6	
32	NMS-VLV-512A	A4-Main Steam Safety Valve	R/B NRCA	E	65'-0"	FA2-414-01	above flood elevation	4.6	
33	NMS-VLV-513A	A5-Main Steam Safety Valve	R/B NRCA	E	65'-0"	FA2-414-01	above flood elevation	4.6	
34	NMS-VLV-514A	A6-Main Steam Safety Valve	R/B NRCA	E	65'-0"	FA2-414-01	above flood elevation	4.6	
35	NMS-VLV-509B	B1-Main Steam Safety Valve	R/B NRCA	E	65'-0"	FA2-414-01	above flood elevation	4.6	
36	NMS-VLV-510B	B2-Main Steam Safety Valve	R/B NRCA	E	65'-0"	FA2-414-01	above flood elevation	4.6	
37	NMS-VLV-511B	B3-Main Steam Safety Valve	R/B NRCA	E	65'-0"	FA2-414-01	above flood elevation	4.6	
38	NMS-VLV-512B	B4-Main Steam Safety Valve	R/B NRCA	E	65'-0"	FA2-414-01	above flood elevation	4.6	
39	NMS-VLV-513B	B5-Main Steam Safety Valve	R/B NRCA	E	65'-0"	FA2-414-01	above flood elevation	4.6	
40	NMS-VLV-514B	B6-Main Steam Safety Valve	R/B NRCA	E	65'-0"	FA2-414-01	above flood elevation	4.6	
41	NMS-VLV-509C	C1-Main Steam Safety Valve	R/B NRCA	W	65'-0"	FA2-415-01	above flood elevation	4.6	
42	NMS-VLV-510C	C2-Main Steam Safety Valve	R/B NRCA	W	65'-0"	FA2-415-01	above flood elevation	4.6	
43	NMS-VLV-511C	C3-Main Steam Safety Valve	R/B NRCA	W	65'-0"	FA2-415-01	above flood elevation	4.6	

**Table 3K-3 R/B NRCA Components Protected From Internal Flooding**  
(Sheet 4 of 30)

Item No.	Equipment Tag	Description	Location				Flood Elevation above Floor [ft]	Notes	
			Building	Side	Floor Elevation	Fire Zone No.			Location Elevation above Floor
44	NMS-VLV-512C	C4-Main Steam Safety Valve	R/B NRCA	W	65'-0"	FA2-415-01	above flood elevation	4.6	
45	NMS-VLV-513C	C5-Main Steam Safety Valve	R/B NRCA	W	65'-0"	FA2-415-01	above flood elevation	4.6	
46	NMS-VLV-514C	C6-Main Steam Safety Valve	R/B NRCA	W	65'-0"	FA2-415-01	above flood elevation	4.6	
47	NMS-VLV-509D	D1-Main Steam Safety Valve	R/B NRCA	W	65'-0"	FA2-415-01	above flood elevation	4.6	
48	NMS-VLV-510D	D2-Main Steam Safety Valve	R/B NRCA	W	65'-0"	FA2-415-01	above flood elevation	4.6	
49	NMS-VLV-511D	D3-Main Steam Safety Valve	R/B NRCA	W	65'-0"	FA2-415-01	above flood elevation	4.6	
50	NMS-VLV-512D	D4-Main Steam Safety Valve	R/B NRCA	W	65'-0"	FA2-415-01	above flood elevation	4.6	
51	NMS-VLV-513D	D5-Main Steam Safety Valve	R/B NRCA	W	65'-0"	FA2-415-01	above flood elevation	4.6	
52	NMS-VLV-514D	D6-Main Steam Safety Valve	R/B NRCA	W	65'-0"	FA2-415-01	above flood elevation	4.6	
53	NMS-MOV-507A	A-Main Steam Relief Valve Block Valve	R/B NRCA	E	65'-0"	FA2-414-01	above flood elevation	4.6	
54	NMS-MOV-507B	B-Main Steam Relief Valve Block Valve	R/B NRCA	E	65'-0"	FA2-414-01	above flood elevation	4.6	
55	NMS-MOV-507C	C-Main Steam Relief Valve Block Valve	R/B NRCA	W	65'-0"	FA2-415-01	above flood elevation	4.6	
56	NMS-MOV-507D	D-Main Steam Relief Valve Block Valve	R/B NRCA	W	65'-0"	FA2-415-01	above flood elevation	4.6	
57	NMS-MOV-508A	A-Main Steam Depressurization Valve	R/B NRCA	E	65'-0"	FA2-414-01	above flood elevation	4.6	
58	NMS-MOV-508B	B-Main Steam Depressurization Valve	R/B NRCA	E	65'-0"	FA2-414-01	above flood elevation	4.6	

**Table 3K-3 R/B NRCA Components Protected From Internal Flooding  
(Sheet 5 of 30)**

Item No.	Equipment Tag	Description	Location				Flood Elevation above Floor [ft]	Notes	
			Building	Side	Floor Elevation	Fire Zone No.			Location Elevation above Floor
59	NMS-MOV-508C	C-Main Steam Depressurization Valve	R/B NRCA	W	65'-0"	FA2-415-01	above flood elevation	4.6	
60	NMS-MOV-508D	D-Main Steam Depressurization Valve	R/B NRCA	W	65'-0"	FA2-415-01	above flood elevation	4.6	
61	NMS-AOV-515A	A-Main Steam Isolation Valve	R/B NRCA	E	65'-0"	FA2-414-01	above flood elevation	4.6	
62	NMS-AOV-515B	B-Main Steam Isolation Valve	R/B NRCA	E	65'-0"	FA2-414-01	above flood elevation	4.6	
63	NMS-AOV-515C	C-Main Steam Isolation Valve	R/B NRCA	W	65'-0"	FA2-415-01	above flood elevation	4.6	
64	NMS-AOV-515D	D-Main Steam Isolation Valve	R/B NRCA	W	65'-0"	FA2-415-01	above flood elevation	4.6	
65	NMS-HCV-3615	A-Main Steam Bypass Isolation Valve	R/B NRCA	E	65'-0"	FA2-414-01	above flood elevation	4.6	
66	NMS-HCV-3625	B-Main Steam Bypass Isolation Valve	R/B NRCA	E	65'-0"	FA2-414-01	above flood elevation	4.6	
67	NMS-HCV-3635	C-Main Steam Bypass Isolation Valve Hand Control Valve	R/B NRCA	W	65'-0"	FA2-415-01	above flood elevation	4.6	
68	NMS-HCV-3645	D-Main Steam Bypass Isolation Valve Hand Control Valve	R/B NRCA	W	65'-0"	FA2-415-01	above flood elevation	4.6	
69	NMS-PCV-465	A-Main Steam Relief Valve	R/B NRCA	E	65'-0"	FA2-414-01	above flood elevation	4.6	
70	NMS-PCV-475	B-Main Steam Relief Valve	R/B NRCA	E	65'-0"	FA2-414-01	above flood elevation	4.6	
71	NMS-PCV-485	C-Main Steam Relief Valve	R/B NRCA	W	65'-0"	FA2-415-01	above flood elevation	4.6	
72	NMS-PCV-495	D-Main Steam Relief Valve	R/B NRCA	W	65'-0"	FA2-415-01	above flood elevation	4.6	
73	NMS-MOV-701A	A-Main Steam Drain Isolation Valve	R/B NRCA	E	65'-0"	FA2-414-01	above flood elevation	4.6	

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**Table 3K-3 R/B NRCA Components Protected From Internal Flooding  
(Sheet 6 of 30)**

Item No.	Equipment Tag	Description	Location				Flood Elevation above Floor [ft]	Notes	
			Building	Side	Floor Elevation	Fire Zone No.			Location Elevation above Floor
74	NMS-MOV-701B	B-Main Steam Drain Isolation Valve	R/B NRCA	E	65'-0"	FA2-414-01	above flood elevation	4.6	
75	NMS-MOV-701C	C-Main Steam Drain Isolation Valve	R/B NRCA	W	65'-0"	FA2-415-01	above flood elevation	4.6	
76	NMS-MOV-701D	D-Main Steam Drain Isolation Valve	R/B NRCA	W	65'-0"	FA2-415-01	above flood elevation	4.6	
77	NCS-RPP-001A	A-Component Cooling Water Pump	R/B NRCA	E	-26'-4"	FA2-104-01	above flood elevation	0.47	
78	NCS-RPP-001B	B-Component Cooling Water Pump	R/B NRCA	E	-26'-4"	FA2-105-01	above flood elevation	0.47	
79	NCS-RPP-001C	C-Component Cooling Water Pump	R/B NRCA	W	-26'-4"	FA2-106-01	above flood elevation	0.63	
80	NCS-RPP-001D	D-Component Cooling Water Pump	R/B NRCA	W	-26'-4"	FA2-107-01	above flood elevation	0.63	
81	NCS-RTK-001A	A-Component Cooling Water Surge tank	R/B NRCA	E	101'-0"	FA2-601-01	below flood elevation	1.7	4
82	NCS-RTK-001B	B-Component Cooling Water Surge Tank	R/B NRCA	W	101'-0"	FA2-602-01	below flood elevation	4.7	5
83	NCS-RHX-001A	A-Component Cooling Water Heat Exchanger	R/B NRCA	E	-26'-4"	FA2-104-01	above flood elevation	0.47	
84	NCS-RHX-001B	B-Component Cooling Water Heat Exchanger	R/B NRCA	E	-26'-4"	FA2-105-01	above flood elevation	0.47	
85	NCS-RHX-001C	C-Component Cooling Water Heat Exchanger	R/B NRCA	W	-26'-4"	FA2-106-01	above flood elevation	0.63	
86	NCS-RHX-001D	D-Component Cooling Water Heat Exchanger	R/B NRCA	W	-26'-4"	FA2-107-01	above flood elevation	0.63	
87	NCS-VLV-003A	Safety Valve	R/B NRCA	E	101'-0"	FA2-601-01	above flood elevation	1.7	
88	NCS-VLV-003B	Safety Valve	R/B NRCA	W	101'-0"	FA2-602-01	above flood elevation	4.7	

**Table 3K-3 R/B NRCA Components Protected From Internal Flooding**  
(Sheet 7 of 30)

Item No.	Equipment Tag	Description	Location				Flood Elevation above Floor [ft]	Notes	
			Building	Side	Floor Elevation	Fire Zone No.			
89	NCS-MOV-007A	Motor Operated Valve	R/B NRCA	E	-26'-4"	FA2-104-01	above flood elevation	0.47	
90	NCS-MOV-007B	Motor Operated Valve	R/B NRCA	E	-26'-4"	FA2-105-01	above flood elevation	0.47	
91	NCS-MOV-020A	Motor Operated Valve	R/B NRCA	E	-26'-4"	FA2-104-01	above flood elevation	0.47	
92	NCS-MOV-020B	Motor Operated Valve	R/B NRCA	E	-26'-4"	FA2-105-01	above flood elevation	0.47	
93	NCS-VLV-035A	Safety Valve	R/B NRCA	E	-26'-4"	FA2-105-01	above flood elevation	0.47	
94	NCS-VLV-035B	Safety Valve	R/B NRCA	E	-26'-4"	FA2-106-01	above flood elevation	0.63	
95	NCS-RCV-056A	Radiation Control Valve	R/B NRCA	E	101'-0"	FA2-601-01	above flood elevation	1.7	
96	NCS-LCV-1200	Level Control Valve	R/B NRCA	E	101'-0"	FA2-601-01	above flood elevation	1.7	
97	NCS-MOV-007C	Motor Operated Valve	R/B NRCA	W	-26'-4"	FA2-106-01	above flood elevation	0.63	
98	NCS-MOV-007D	Motor Operated Valve	R/B NRCA	W	-26'-4"	FA2-107-01	above flood elevation	0.63	
99	NCS-MOV-020C	Motor Operated Valve	R/B NRCA	W	-26'-4"	FA2-106-01	above flood elevation	0.63	
100	NCS-MOV-020D	Motor Operated Valve	R/B NRCA	W	-26'-4"	FA2-107-01	above flood elevation	0.63	
101	NCS-RCV-056B	Radiation Control Valve	R/B NRCA	W	101'-0"	FA2-602-01	above flood elevation	4.7	
102	NCS-LCV-1210	Level Control Valve	R/B NRCA	W	101'-0"	FA2-602-01	below flood elevation	4.7	7
103	NCS-PCV-1202	Pressure Control Valve	R/B NRCA	E	101'-0"	FA2-601-01	above flood elevation	1.7	
104	NCS-PCV-1212	Pressure Control Valve	R/B NRCA	W	101'-0"	FA2-602-01	above flood elevation	4.7	

**Table 3K-3 R/B NRCA Components Protected From Internal Flooding  
(Sheet 8 of 30)**

Item No.	Equipment Tag	Description	Location				Flood Elevation above Floor [ft]	Notes	
			Building	Side	Floor Elevation	Fire Zone No.			
105	EWS-RSR-003A	A-Component Cooling Water Heat Exchanger Inlet Strainer	R/B NRCA	E	-26'-4"	FA2-104-01	above flood elevation	0.47	
106	EWS-RSR-003B	B-Component Cooling Water Heat Exchanger Inlet Strainer	R/B NRCA	E	-26'-4"	FA2-105-01	above flood elevation	0.47	
107	EWS-RSR-003C	C-Component Cooling Water Heat Exchanger Inlet Strainer	R/B NRCA	W	-26'-4"	FA2-106-01	above flood elevation	0.63	
108	EWS-RSR-003D	D-Component Cooling Water Heat Exchanger Inlet Strainer	R/B NRCA	W	-26'-4"	FA2-107-01	above flood elevation	0.63	
109	SGS-AOV-001A	Air Operated Valve	R/B NRCA	E	65'-0"	FA2-414-01	above flood elevation	4.6	
110	SGS-AOV-001B	Air Operated Valve	R/B NRCA	E	65'-0"	FA2-414-01	above flood elevation	4.6	
111	SGS-AOV-001C	Air Operated Valve	R/B NRCA	W	65'-0"	FA2-415-01	above flood elevation	4.6	
112	SGS-AOV-001D	Air Operated Valve	R/B NRCA	W	65'-0"	FA2-415-01	above flood elevation	4.6	
113	SGS-AOV-002A	Air Operated Valve	R/B NRCA	E	65'-0"	FA2-414-01	above flood elevation	4.6	
114	SGS-AOV-002B	Air Operated Valve	R/B NRCA	E	65'-0"	FA2-414-01	above flood elevation	4.6	
115	SGS-AOV-002C	Air Operated Valve	R/B NRCA	W	65'-0"	FA2-415-01	above flood elevation	4.6	
116	SGS-AOV-002D	Air Operated Valve	R/B NRCA	W	65'-0"	FA2-415-01	above flood elevation	4.6	
117	VRS-RAH-101A	A-Main Control Room Air Handling Unit	R/B NRCA	E	50'-2"	FA2-402-01	above flood elevation	0.81	
118	VRS-RAH-101B	B-Main Control Room Air Handling Unit	R/B NRCA	E	50'-2"	FA2-401-01	above flood elevation	0.81	
119	VRS-RAH-101C	C-Main Control Room Air Handling Unit	R/B NRCA	W	50'-2"	FA2-403-01	above flood elevation	0.84	

**Table 3K-3 R/B NRCA Components Protected From Internal Flooding  
(Sheet 9 of 30)**

Item No.	Equipment Tag	Description	Location				Flood Elevation above Floor [ft]	Notes	
			Building	Side	Floor Elevation	Fire Zone No.			Location Elevation above Floor
120	VRS-RAH-101D	D-Main Control Room Air Handling Unit	R/B NRCA	W	50'-2"	FA2-404-01	above flood elevation	0.84	
121	VRS-RFN-101A	A-Main Control Room Air Handling Unit Fan	R/B NRCA	E	50'-2"	FA2-402-01	above flood elevation	0.81	
122	VRS-RFN-101B	B-Main Control Room Air Handling Unit Fan	R/B NRCA	E	50'-2"	FA2-401-01	above flood elevation	0.81	
123	VRS-RFN-101C	C-Main Control Room Air Handling Unit Fan	R/B NRCA	W	50'-2"	FA2-403-01	above flood elevation	0.84	
124	VRS-RFN-101D	D-Main Control Room Air Handling Unit Fan	R/B NRCA	W	50'-2"	FA2-404-01	above flood elevation	0.84	
125	VRS-RCC-101A	A-Main Control Room Air Handling Unit Cooling Coil	R/B NRCA	E	50'-2"	FA2-402-01	above flood elevation	0.81	
126	VRS-RCC-101B	B-Main Control Room Air Handling Unit Cooling Coil	R/B NRCA	E	50'-2"	FA2-401-01	above flood elevation	0.81	
127	VRS-RCC-101C	C-Main Control Room Air Handling Unit Cooling Coil	R/B NRCA	W	50'-2"	FA2-403-01	above flood elevation	0.84	
128	VRS-RCC-101D	D-Main Control Room Air Handling Unit Cooling Coil	R/B NRCA	W	50'-2"	FA2-404-01	above flood elevation	0.84	
129	VRS-REH-101A	A-Main Control Room Air Handling Unit Electric Heating Coil	R/B NRCA	E	50'-2"	FA2-402-01	above flood elevation	0.81	
130	VRS-REH-101B	B-Main Control Room Air Handling Unit Electric Heating Coil	R/B NRCA	E	50'-2"	FA2-401-01	above flood elevation	0.81	
131	VRS-REH-101C	C-Main Control Room Air Handling Unit Electric Heating Coil	R/B NRCA	W	50'-2"	FA2-403-01	above flood elevation	0.84	
132	VRS-REH-101D	D-Main Control Room Air Handling Unit Electric Heating Coil	R/B NRCA	W	50'-2"	FA2-404-01	above flood elevation	0.84	

**Table 3K-3 R/B NRCA Components Protected From Internal Flooding  
(Sheet 10 of 30)**

Item No.	Equipment Tag	Description	Location				Flood Elevation above Floor [ft]	Notes	
			Building	Side	Floor Elevation	Fire Zone No.			Location Elevation above Floor
133	VRS-RFU-111A	A-Main Control Room Emergency Filtration Unit	R/B NRCA	E	50'-2"	FA2-405-01	above flood elevation	0.81	
134	VRS-RFU-111B	B-Main Control Room Emergency Filtration Unit	R/B NRCA	W	50'-2"	FA2-406-01	above flood elevation	0.84	
135	VRS-RFN-111A	A-Main Control Room Emergency Filtration Unit Fan	R/B NRCA	E	50'-2"	FA2-405-01	above flood elevation	0.81	
136	VRS-RFN-111B	B-Main Control Room Emergency Filtration Unit Fan	R/B NRCA	W	50'-2"	FA2-406-01	above flood elevation	0.84	
137	VRS-REH-111A	A-Main Control Room Emergency Filtration Unit Electric Heating Coil	R/B NRCA	E	50'-2"	FA2-405-01	above flood elevation	0.81	
138	VRS-REH-111B	B-Main Control Room Emergency Filtration Unit Electric Heating Coil	R/B NRCA	W	50'-2"	FA2-406-01	above flood elevation	0.84	
139	VRS-MOD-101A	Motor Operated Damper	R/B NRCA	E	50'-2"	FA2-407-04	above flood elevation	0.81	
140	VRS-MOD-101B	Motor Operated Damper	R/B NRCA	W	50'-2"	FA2-407-01	above flood elevation	0.84	
141	VRS-MOD-102A	Motor Operated Damper	R/B NRCA	E	50'-2"	FA2-407-04	above flood elevation	0.81	
142	VRS-MOD-102B	Motor Operated Damper	R/B NRCA	W	50'-2"	FA2-407-01	above flood elevation	0.84	
143	VRS-AOD-103A	Air Operated Damper	R/B NRCA	E	50'-2"	FA2-412-01	above flood elevation	0.81	
144	VRS-AOD-103B	Air Operated Damper	R/B NRCA	W	50'-2"	FA2-413-01	above flood elevation	0.84	
145	VRS-MOD-104A	Motor Operated Damper	R/B NRCA	E	50'-2"	FA2-412-01	above flood elevation	0.81	
146	VRS-MOD-104B	Motor Operated Damper	R/B NRCA	W	50'-2"	FA2-413-01	above flood elevation	0.84	
147	VRS-MOD-105A	Motor Operated Damper	R/B NRCA	E	50'-2"	FA2-412-01	above flood elevation	0.81	

**Table 3K-3 R/B NRCA Components Protected From Internal Flooding  
(Sheet 11 of 30)**

Item No.	Equipment Tag	Description	Location				Flood Elevation above Floor [ft]	Notes	
			Building	Side	Floor Elevation	Fire Zone No.			
148	VRS-MOD-105B	Motor Operated Damper	R/B NRCA	E	50'-2"	FA2-412-01	above flood elevation	0.81	
149	VRS-MOD-105C	Motor Operated Damper	R/B NRCA	W	50'-2"	FA2-413-01	above flood elevation	0.84	
150	VRS-MOD-105D	Motor Operated Damper	R/B NRCA	W	50'-2"	FA2-413-01	above flood elevation	0.84	
151	VRS-MOD-106A	Motor Operated Damper	R/B NRCA	E	50'-2"	FA2-412-01	above flood elevation	0.81	
152	VRS-MOD-106B	Motor Operated Damper	R/B NRCA	E	50'-2"	FA2-412-01	above flood elevation	0.81	
153	VRS-MOD-106C	Motor Operated Damper	R/B NRCA	W	50'-2"	FA2-413-01	above flood elevation	0.84	
154	VRS-MOD-106D	Motor Operated Damper	R/B NRCA	W	50'-2"	FA2-413-01	above flood elevation	0.84	
155	VRS-MOD-107A	Motor Operated Damper	R/B NRCA	E	50'-2"	FA2-412-01	above flood elevation	0.81	
156	VRS-MOD-107B	Motor Operated Damper	R/B NRCA	W	50'-2"	FA2-413-01	above flood elevation	0.84	
157	VRS-MOD-111A	Motor Operated Damper	R/B NRCA	E	50'-2"	FA2-412-01	above flood elevation	0.81	
158	VRS-MOD-111B	Motor Operated Damper	R/B NRCA	W	50'-2"	FA2-413-01	above flood elevation	0.84	
159	VRS-MOD-112A	Motor Operated Damper	R/B NRCA	E	50'-2"	FA2-412-01	above flood elevation	0.81	
160	VRS-MOD-112B	Motor Operated Damper	R/B NRCA	W	50'-2"	FA2-413-01	above flood elevation	0.84	
161	VRS-MOD-113A	Motor Operated Damper	R/B NRCA	E	50'-2"	FA2-405-01	above flood elevation	0.81	
162	VRS-MOD-113B	Motor Operated Damper	R/B NRCA	W	50'-2"	FA2-406-01	above flood elevation	0.84	
163	VRS-AOD-121	Air Operated Damper	R/B NRCA	E	26'-11"	FA2-308-02	N/A	-	6
164	VRS-AOD-122	Air Operated Damper	R/B NRCA	E	50'-2"	FA2-412-01	above flood elevation	0.81	

**Table 3K-3 R/B NRCA Components Protected From Internal Flooding**  
(Sheet 12 of 30)

Item No.	Equipment Tag	Description	Location				Flood Elevation above Floor [ft]	Notes	
			Building	Side	Floor Elevation	Fire Zone No.			Location Elevation above Floor
165	VRS-AOD-131	Air Operated Damper	R/B NRCA	W	26'-11"	FA2-308-01	N/A	-	6
166	VRS-AOD-132	Air Operated Damper	R/B NRCA	W	50'-2"	FA2-413-01	above flood elevation	0.84	
167	VRS-RAH-201A	A-Class 1E Electrical Room Air Handling Unit	R/B NRCA	E	50'-2"	FA2-402-01	above flood elevation	0.81	
168	VRS-RAH-201B	B-Class 1E Electrical Room Air Handling Unit	R/B NRCA	E	50'-2"	FA2-401-01	above flood elevation	0.81	
169	VRS-RAH-201C	C-Class 1E Electrical Room Air Handling Unit	R/B NRCA	W	50'-2"	FA2-403-01	above flood elevation	0.84	
170	VRS-RAH-201D	D-Class 1E Electrical Room Air Handling Unit	R/B NRCA	W	50'-2"	FA2-404-01	above flood elevation	0.84	
171	VRS-RFN-201A	A-Class 1E Electrical Room Air Handling Unit Fan	R/B NRCA	E	50'-2"	FA2-402-01	above flood elevation	0.81	
172	VRS-RFN-201B	B-Class 1E Electrical Room Air Handling Unit Fan	R/B NRCA	E	50'-2"	FA2-401-01	above flood elevation	0.81	
173	VRS-RFN-201C	C-Class 1E Electrical Room Air Handling Unit Fan	R/B NRCA	W	50'-2"	FA2-403-01	above flood elevation	0.84	
174	VRS-RFN-201D	D-Class 1E Electrical Room Air Handling Unit Fan	R/B NRCA	W	50'-2"	FA2-404-01	above flood elevation	0.84	
175	VRS-RFN-202A	A-Class 1E Electrical Room Return Air Fan	R/B NRCA	E	50'-2"	FA2-402-01	above flood elevation	0.81	
176	VRS-RFN-202B	B-Class 1E Electrical Room Return Air Fan	R/B NRCA	E	50'-2"	FA2-401-01	above flood elevation	0.81	
177	VRS-RFN-202C	C-Class 1E Electrical Room Return Air Fan	R/B NRCA	W	50'-2"	FA2-403-01	above flood elevation	0.84	

**Table 3K-3 R/B NRCA Components Protected From Internal Flooding**  
(Sheet 13 of 30)

Item No.	Equipment Tag	Description	Location				Flood Elevation above Floor [ft]	Notes	
			Building	Side	Floor Elevation	Fire Zone No.			Location Elevation above Floor
182	VRS-RCC-201D	D-Class 1E Electrical Room Air Handling Unit Cooling Coil	R/B NRCA	W	50'-2"	FA2-404-01	above flood elevation	0.84	
183	VRS-REH-201A	A-Class 1E Electrical Room Air Handling Unit Electric Heating Coil	R/B NRCA	E	50'-2"	FA2-402-01	above flood elevation	0.81	
184	VRS-REH-201B	B-Class 1E Electrical Room Air Handling Unit Electric Heating Coil	R/B NRCA	E	50'-2"	FA2-401-01	above flood elevation	0.81	
185	VRS-REH-201C	C-Class 1E Electrical Room Air Handling Unit Electric Heating Coil	R/B NRCA	W	50'-2"	FA2-403-01	above flood elevation	0.84	
186	VRS-REH-201D	D-Class 1E Electrical Room Air Handling Unit Electric Heating Coil	R/B NRCA	W	50'-2"	FA2-404-01	above flood elevation	0.84	
187	VRS-MOD-201A	Motor Operated Damper	R/B NRCA	E	50'-2"	FA2-402-01	above flood elevation	0.81	
188	VRS-MOD-201B	Motor Operated Damper	R/B NRCA	E	50'-2"	FA2-401-01	above flood elevation	0.81	
189	VRS-MOD-201C	Motor Operated Damper	R/B NRCA	W	50'-2"	FA2-403-01	above flood elevation	0.84	
190	VRS-MOD-201D	Motor Operated Damper	R/B NRCA	W	50'-2"	FA2-404-01	above flood elevation	0.84	
191	VRS-MOD-202A	Motor Operated Damper	R/B NRCA	E	50'-2"	FA2-402-01	above flood elevation	0.81	
192	VRS-MOD-202B	Motor Operated Damper	R/B NRCA	E	50'-2"	FA2-401-01	above flood elevation	0.81	
193	VRS-MOD-202C	Motor Operated Damper	R/B NRCA	W	50'-2"	FA2-403-01	above flood elevation	0.84	
194	VRS-MOD-202D	Motor Operated Damper	R/B NRCA	W	50'-2"	FA2-404-01	above flood elevation	0.84	
195	VRS-MOD-203A	Motor Operated Damper	R/B NRCA	E	50'-2"	FA2-402-01	above flood elevation	0.81	
196	VRS-MOD-203B	Motor Operated Damper	R/B NRCA	E	50'-2"	FA2-401-01	above flood elevation	0.81	



**Table 3K-3 R/B NRCA Components Protected From Internal Flooding  
(Sheet 14 of 30)**

Item No.	Equipment Tag	Description	Location				Flood Elevation above Floor [ft]	Notes	
			Building	Side	Floor Elevation	Fire Zone No.			
197	VRS-MOD-203C	Motor Operated Damper	R/B NRCA	W	50'-2"	FA2-403-01	above flood elevation	0.84	
198	VRS-MOD-203D	Motor Operated Damper	R/B NRCA	W	50'-2"	FA2-404-01	above flood elevation	0.84	
199	VRS-MOD-204A	Motor Operated Damper	R/B NRCA	E	50'-2"	FA2-402-01	above flood elevation	0.81	
200	VRS-MOD-204B	Motor Operated Damper	R/B NRCA	E	50'-2"	FA2-401-01	above flood elevation	0.81	
201	VRS-MOD-204C	Motor Operated Damper	R/B NRCA	W	50'-2"	FA2-403-01	above flood elevation	0.84	
202	VRS-MOD-204D	Motor Operated Damper	R/B NRCA	W	50'-2"	FA2-404-01	above flood elevation	0.84	
203	VRS-AOD-205A	Air Operated Damper	R/B NRCA	E	50'-2"	FA2-402-01	above flood elevation	0.81	
204	VRS-AOD-205B	Air Operated Damper	R/B NRCA	E	50'-2"	FA2-401-01	above flood elevation	0.81	
205	VRS-AOD-205C	Air Operated Damper	R/B NRCA	W	50'-2"	FA2-403-01	above flood elevation	0.84	
206	VRS-AOD-205D	Air Operated Damper	R/B NRCA	W	50'-2"	FA2-404-01	above flood elevation	0.84	
207	VRS-RAH-401A	A-Emergency Feedwater Pump Area Air Handling Unit	R/B NRCA	E	-26'-4"	FA2-102-01	N/A	-	1
208	VRS-RAH-401B	B-Emergency Feedwater Pump Area Air Handling Unit	R/B NRCA	E	-26'-4"	FA2-103-01	above flood elevation	0.47	
209	VRS-RAH-401C	C-Emergency Feedwater Pump Area Air Handling Unit	R/B NRCA	W	-26'-4"	FA2-109-01	above flood elevation	0.63	
210	VRS-RAH-401D	D-Emergency Feedwater Pump Area Air Handling Unit	R/B NRCA	W	-26'-4"	FA2-108-01	N/A	-	1
211	VRS-RFN-401A	A-Emergency Feedwater Pump Area Air Handling Unit Fan	R/B NRCA	E	-26'-4"	FA2-102-01	N/A	-	1

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**Table 3K-3 R/B NRCA Components Protected From Internal Flooding**  
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Item No.	Equipment Tag	Description	Location				Flood Elevation above Floor [ft]	Notes	
			Building	Side	Floor Elevation	Fire Zone No.			Location Elevation above Floor
212	VRS-RFN-401B	B-Emergency Feedwater Pump Area Air Handling Unit Fan	R/B NRCA	E	-26'-4"	FA2-103-01	above flood elevation	0.47	
213	VRS-RFN-401C	C-Emergency Feedwater Pump Area Air Handling Unit Fan	R/B NRCA	W	-26'-4"	FA2-109-01	above flood elevation	0.63	
214	VRS-RFN-401D	D-Emergency Feedwater Pump Area Air Handling Unit Fan	R/B NRCA	W	-26'-4"	FA2-108-01	N/A	-	1
215	VRS-RCC-401A	A-Emergency Feedwater Pump Area Air Handling Unit Cooling Coil	R/B NRCA	E	-26'-4"	FA2-102-01	N/A	-	1
216	VRS-RCC-401B	B-Emergency Feedwater Pump Area Air Handling Unit Cooling Coil	R/B NRCA	E	-26'-4"	FA2-103-01	above flood elevation	0.47	
217	VRS-RCC-401C	C-Emergency Feedwater Pump Area Air Handling Unit Cooling Coil	R/B NRCA	W	-26'-4"	FA2-109-01	above flood elevation	0.63	
218	VRS-RCC-401D	D-Emergency Feedwater Pump Area Air Handling Unit Cooling Coil	R/B NRCA	W	-26'-4"	FA2-108-01	N/A	-	1
219	VRS-REH-401A	A-Emergency Feedwater Pump Area Air Handling Unit Electric Heating Coil	R/B NRCA	E	-26'-4"	FA2-102-01	N/A	-	1
220	VRS-REH-401B	B-Emergency Feedwater Pump Area Air Handling Unit Electric Heating Coil	R/B NRCA	E	-26'-4"	FA2-103-01	above flood elevation	0.47	
221	VRS-REH-401C	C-Emergency Feedwater Pump Area Air Handling Unit Electric Heating Coil	R/B NRCA	W	-26'-4"	FA2-109-01	above flood elevation	0.63	
222	VRS-REH-401D	D-Emergency Feedwater Pump Area Air Handling Unit Electric Heating Coil	R/B NRCA	W	-26'-4"	FA2-108-01	N/A	-	1

**Table 3K-3 R/B NRCA Components Protected From Internal Flooding  
(Sheet 16 of 30)**

Item No.	Equipment Tag	Description	Location				Flood Elevation above Floor [ft]	Notes	
			Building	Side	Floor Elevation	Fire Zone No.			Location Elevation above Floor
223	VRS-RAH-501A	A-Component Cooling Water Pump Area Air Handling Unit	R/B NRCA	E	-26'-4"	FA2-104-01	above flood elevation	0.47	
224	VRS-RAH-501B	B-Component Cooling Water Pump Area Air Handling Unit	R/B NRCA	E	-26'-4"	FA2-105-01	above flood elevation	0.47	
225	VRS-RAH-501C	C-Component Cooling Water Pump Area Air Handling Unit	R/B NRCA	W	-26'-4"	FA2-106-01	above flood elevation	0.63	
226	VRS-RAH-501D	D-Component Cooling Water Pump Area Air Handling Unit	R/B NRCA	W	-26'-4"	FA2-107-01	above flood elevation	0.63	
227	VRS-RFN-501A	A-Component Cooling Water Pump Area Air Handling Unit Fan	R/B NRCA	E	-26'-4"	FA2-104-01	above flood elevation	0.47	
228	VRS-RFN-501B	B-Component Cooling Water Pump Area Air Handling Unit Fan	R/B NRCA	E	-26'-4"	FA2-105-01	above flood elevation	0.47	
229	VRS-RFN-501C	C-Component Cooling Water Pump Area Air Handling Unit Fan	R/B NRCA	W	-26'-4"	FA2-106-01	above flood elevation	0.63	
230	VRS-RFN-501D	D-Component Cooling Water Pump Area Air Handling Unit Fan	R/B NRCA	W	-26'-4"	FA2-107-01	above flood elevation	0.63	
231	VRS-RCC-501A	A-Component Cooling Water Pump Area Air Handling Unit Cooling Coil	R/B NRCA	E	-26'-4"	FA2-104-01	above flood elevation	0.47	
232	VRS-RCC-501B	B-Component Cooling Water Pump Area Air Handling Unit Cooling Coil	R/B NRCA	E	-26'-4"	FA2-105-01	above flood elevation	0.47	
233	VRS-RCC-501C	C-Component Cooling Water Pump Area Air Handling Unit Cooling Coil	R/B NRCA	W	-26'-4"	FA2-106-01	above flood elevation	0.63	
234	VRS-RCC-501D	D-Component Cooling Water Pump Area Air Handling Unit Cooling Coil	R/B NRCA	W	-26'-4"	FA2-107-01	above flood elevation	0.63	

**Table 3K-3 R/B NRCA Components Protected From Internal Flooding  
(Sheet 17 of 30)**

Item No.	Equipment Tag	Description	Location				Flood Elevation above Floor [ft]	Notes	
			Building	Side	Floor Elevation	Fire Zone No.			Location Elevation above Floor
235	VRS-REH-501A	A-Component Cooling Water Pump Area Air Handling Unit Electric Heating Coil	R/B NRCA	E	-26'-4"	FA2-104-01	above flood elevation	0.47	
236	VRS-REH-501B	B-Component Cooling Water Pump Area Air Handling Unit Electric Heating Coil	R/B NRCA	E	-26'-4"	FA2-105-01	above flood elevation	0.47	
237	VRS-REH-501C	C-Component Cooling Water Pump Area Air Handling Unit Electric Heating Coil	R/B NRCA	W	-26'-4"	FA2-106-01	above flood elevation	0.63	
238	VRS-REH-501D	D-Component Cooling Water Pump Area Air Handling Unit Electric Heating Coil	R/B NRCA	W	-26'-4"	FA2-107-01	above flood elevation	0.63	
239	VWS-TCV-2845	Chilled Water Control Valve	R/B NRCA	E	50'-2"	FA2-402-01	above flood elevation	0.81	
240	VWS-TCV-2855	Chilled Water Control Valve	R/B NRCA	E	50'-2"	FA2-401-01	above flood elevation	0.81	
241	VWS-TCV-2865	Chilled Water Control Valve	R/B NRCA	W	50'-2"	FA2-403-01	above flood elevation	0.84	
242	VWS-TCV-2875	Chilled Water Control Valve	R/B NRCA	W	50'-2"	FA2-404-01	above flood elevation	0.84	
243	VWS-TCV-2784	Chilled Water Control Valve	R/B NRCA	E	50'-2"	FA2-402-01	above flood elevation	0.81	
244	VWS-TCV-2794	Chilled Water Control Valve	R/B NRCA	E	50'-2"	FA2-401-01	above flood elevation	0.81	
245	VWS-TCV-2804	Chilled Water Control Valve	R/B NRCA	W	50'-2"	FA2-403-01	above flood elevation	0.84	
246	VWS-TCV-2814	Chilled Water Control Valve	R/B NRCA	W	50'-2"	FA2-404-01	above flood elevation	0.84	
247	VWS-TCV-2671	Chilled Water Control Valve	R/B NRCA	E	-26'-4"	FA2-102-01	N/A	-	1

**Table 3K-3 R/B NRCA Components Protected From Internal Flooding  
(Sheet 18 of 30)**

Item No.	Equipment Tag	Description	Location				Flood Elevation above Floor [ft]	Notes	
			Building	Side	Floor Elevation	Fire Zone No.			
248	VWS-TCV-2676	Chilled Water Control Valve	R/B NRCA	E	-26'-4"	FA2-103-01	above flood elevation	0.47	
249	VWS-TCV-2681	Chilled Water Control Valve	R/B NRCA	W	-26'-4"	FA2-109-01	above flood elevation	0.63	
250	VWS-TCV-2686	Chilled Water Control Valve	R/B NRCA	W	-26'-4"	FA2-108-01	N/A	-	1
251	VWS-TCV-2721A	Chilled Water Control Valve	R/B NRCA	E	-26'-4"	FA2-104-01	above flood elevation	0.47	
252	VWS-TCV-2721B	Chilled Water Control Valve	R/B NRCA	E	-26'-4"	FA2-105-01	above flood elevation	0.47	
253	VWS-TCV-2721C	Chilled Water Control Valve	R/B NRCA	W	-26'-4"	FA2-106-01	above flood elevation	0.63	
254	VWS-TCV-2721D	Chilled Water Control Valve	R/B NRCA	W	-26'-4"	FA2-107-01	above flood elevation	0.63	
255	OC	Operator Console	R/B NRCA	W	26'-11"	FA2-308-01	N/A	-	6
256	RPS-A	A-Reactor Protection System Cabinet	R/B NRCA	E	26'-11"	FA2-304-01	N/A	-	6
257	EFS-A	A-ESF Actuation System Cabinet	R/B NRCA	E	26'-11"	FA2-304-01	N/A	-	6
258	SVP-A	A-Safety VDU Processor Cabinet	R/B NRCA	E	26'-11"	FA2-304-01	N/A	-	6
259	SLS-A	A-Safety Logic System Cabinet	R/B NRCA	E	26'-11"	FA2-304-01	N/A	-	6
260	RPS-B	B-Reactor Protection System Cabinet	R/B NRCA	E	26'-11"	FA2-307-01	N/A	-	6
261	EFS-B	B-ESF Actuation System Cabinet	R/B NRCA	E	26'-11"	FA2-307-01	N/A	-	6
262	SVP-B	B-Safety VDU Processor Cabinet	R/B NRCA	E	26'-11"	FA2-307-01	N/A	-	6
263	SLS-B	B-Safety Logic System Cabinet	R/B NRCA	E	26'-11"	FA2-307-01	N/A	-	6

**Table 3K-3 R/B NRCA Components Protected From Internal Flooding  
(Sheet 19 of 30)**

Item No.	Equipment Tag	Description	Location					Flood Elevation above Floor [ft]	Notes
			Building	Side	Floor Elevation	Fire Zone No.	Location Elevation above Floor		
264	RPS-C	C-Reactor Protection System Cabinet	R/B NRCA	W	26'-11"	FA2-312-01	N/A	-	6
265	EFS-C	C-ESF Actuation System Cabinet	R/B NRCA	W	26'-11"	FA2-312-01	N/A	-	6
266	SVP-C	C-Safety VDU Processor Cabinet	R/B NRCA	W	26'-11"	FA2-312-01	N/A	-	6
267	SLS-C	C-Safety Logic System Cabinet	R/B NRCA	W	26'-11"	FA2-312-01	N/A	-	6
268	RPS-D	D-Reactor Protection System Cabinet	R/B NRCA	W	26'-11"	FA2-309-01	N/A	-	6
269	EFS-D	D-ESF Actuation System Cabinet	R/B NRCA	W	26'-11"	FA2-309-01	N/A	-	6
270	SVP-D	D-Safety VDU Processor Cabinet	R/B NRCA	W	26'-11"	FA2-309-01	N/A	-	6
271	SLS-D	D-Safety Logic System Cabinet	R/B NRCA	W	26'-11"	FA2-309-01	N/A	-	6
272	MC-A	A-Class 1E 6.9kV Switchgear	R/B NRCA	E	3'-7"	FA2-202-01	N/A	-	6
273	LC-A	A-Class 1E 480V Load Center	R/B NRCA	E	3'-7"	FA2-202-01	N/A	-	6
274	MCC-A	A-Class 1E Motor Control Center	R/B NRCA	E	3'-7"	FA2-202-01	N/A	-	6
275	MCC-A1	A1-Class 1E Motor Control Center	R/B NRCA	E	3'-7"	FA2-202-01	N/A	-	6
276	RIO-A	A-Safety Remote I/O Cabinet	R/B NRCA	E	3'-7"	FA2-202-01	N/A	-	6
277	PBH-A	A-Pressurizer Heater Distribution Panel	R/B NRCA	E	3'-7"	FA2-202-01	N/A	-	6
278	RPTS-A	A-RCP Trip Switchgear	R/B NRCA	E	3'-7"	FA2-203-01	N/A	-	6
279	MC-B	B-Class 1E 6.9kV Switchgear	R/B NRCA	E	3'-7"	FA2-203-01	N/A	-	6

**Table 3K-3 R/B NRCA Components Protected From Internal Flooding  
(Sheet 20 of 30)**

Item No.	Equipment Tag	Description	Location				Flood Elevation above Floor [ft]	Notes	
			Building	Side	Floor Elevation	Fire Zone No.			Location Elevation above Floor
280	LC-B	B-Class 1E 480V Load Center	R/B NRCA	E	3'-7"	FA2-203-01	N/A	-	6
281	MCC-B	B-Class 1E Motor Control Center	R/B NRCA	E	3'-7"	FA2-203-01	N/A	-	6
282	RIO-B	B-Safety Remote I/O Cabinet	R/B NRCA	E	26'-11"	FA2-307-01	N/A	-	6
283	PBH-B	B-Pressurizer Heater Distribution Panel	R/B NRCA	E	3'-7"	FA2-203-01	N/A	-	6
284	RPTS-B	B-RCP Trip Switchgear	R/B NRCA	E	3'-7"	FA2-203-01	N/A	-	6
285	MC-C	C-Class 1E 6.9kV Switchgear	R/B NRCA	W	3'-7"	FA2-204-01	N/A	-	6
286	LC-C	C-Class 1E 480V Load Center	R/B NRCA	W	3'-7"	FA2-204-01	N/A	-	6
287	MCC-C	C-Class 1E Motor Control Center	R/B NRCA	W	3'-7"	FA2-204-01	N/A	-	6
288	RIO-C	C-Safety Remote I/O Cabinet	R/B NRCA	W	26'-11"	FA2-312-01	N/A	-	6
289	PBH-C	C-Pressurizer Heater Distribution Panel	R/B NRCA	W	3'-7"	FA2-204-01	N/A	-	6
290	RPTS-C	C-RCP Trip Switchgear	R/B NRCA	W	3'-7"	FA2-204-01	N/A	-	6
291	MC-D	D-Class 1E 6.9kV Switchgear	R/B NRCA	W	3'-7"	FA2-205-01	N/A	-	6
292	LC-D	D-Class 1E 480V Load Center	R/B NRCA	W	3'-7"	FA2-205-01	N/A	-	6
293	MCC-D	D-Class 1E Motor Control Center	R/B NRCA	W	3'-7"	FA2-205-01	N/A	-	6
294	MCC-D1	D1-Class 1E Motor Control Center	R/B NRCA	W	3'-7"	FA2-205-01	N/A	-	6
295	RIO-D	D-Safety Remote I/O Cabinet	R/B NRCA	W	3'-7"	FA2-205-01	N/A	-	6

**Table 3K-3 R/B NRCA Components Protected From Internal Flooding  
(Sheet 21 of 30)**

Item No.	Equipment Tag	Description	Location				Flood Elevation above Floor [ft]	Notes	
			Building	Side	Floor Elevation	Fire Zone No.			Location Elevation above Floor
296	PBH-D	D-Pressurizer Heater Distribution Panel	R/B NRCA	W	3'-7"	FA2-205-01	N/A	-	6
297	RPTS-D	D-RCP Trip Switchgear	R/B NRCA	W	3'-7"	FA2-204-01	N/A	-	6
298	RSC	Remote Shutdown Console	R/B NRCA	E	76'-5"	FA2-504-01	N/A	-	6
299	MRTP-1	MCR/RSR Transfer Panel (1)	R/B NRCA	W	76'-5"	FA2-501-11	above flood elevation	1.15	
300	MRTP-2	MCR/RSR Transfer Panel (2)	R/B NRCA	E	76'-5"	FA2-504-01	N/A	-	6
301	RTBC-1	Reactor Trip Breaker Cabinet (1)	R/B NRCA	W	76'-5"	FA2-502-01	N/A	-	6
302	RTBC-2	Reactor Trip Breaker Cabinet (2)	R/B NRCA	W	76'-5"	FA2-503-01	N/A	-	6
303	DDP-A	A-Reactor Building DC Distribution Panel	R/B NRCA	E	26'-11"	FA2-302-01	N/A	-	6
304	SDC-A	A-Solenoid Distribution Panel	R/B NRCA	E	26'-11"	FA2-302-01	N/A	-	6
305	IBC-A	A-Class 1E UPS Unit	R/B NRCA	E	26'-11"	FA2-302-01	N/A	-	6
306	IBB-A	A-Class 1EI&C Power Transformer	R/B NRCA	E	26'-11"	FA2-302-01	N/A	-	6
307	IBD-A	A-Class 1E AC120V Panelboard	R/B NRCA	E	26'-11"	FA2-302-01	N/A	-	6
308	MVIA1	A-MOV Inverter1	R/B NRCA	E	26'-11"	FA2-302-01	N/A	-	6
309	MVIA2	A-MOV Inverter2	R/B NRCA	E	26'-11"	FA2-302-01	N/A	-	6
310	MVCA1	A-MOV Motor Control Center1	R/B NRCA	E	3'-7"	FA2-202-01	N/A	-	6
311	MVCA2	A-MOV Motor Control Center2	R/B NRCA	E	3'-7"	FA2-202-01	N/A	-	6



**Table 3K-3 R/B NRCA Components Protected From Internal Flooding  
(Sheet 22 of 30)**

Item No.	Equipment Tag	Description	Location				Flood Elevation above Floor [ft]	Notes	
			Building	Side	Floor Elevation	Fire Zone No.			Location Elevation above Floor
312	DDP-B	B-Reactor Building DC Distribution Panel	R/B NRCA	E	26'-11"	FA2-303-01	N/A	-	6
313	SDC-B	B-Solenoid Distribution Panel	R/B NRCA	E	26'-11"	FA2-303-01	N/A	-	6
314	IBC-B	B-Class 1E UPS Unit	R/B NRCA	E	26'-11"	FA2-303-01	N/A	-	6
315	IBB-B	B-Class 1E I&C Power Transformer	R/B NRCA	E	26'-11"	FA2-303-01	N/A	-	6
316	IBD-B	B-Class 1E AC120V Panelboard	R/B NRCA	E	26'-11"	FA2-303-01	N/A	-	6
317	MVIB	B-MOV Inverter	R/B NRCA	E	26'-11"	FA2-303-01	N/A	-	6
318	MVCB	B-MOV Motor Control Center	R/B NRCA	E	3'-7"	FA2-203-01	N/A	-	6
319	DDP-C	C-Reactor Building DC Distribution Panel	R/B NRCA	W	26'-11"	FA2-314-01	N/A	-	6
320	SDC-C	C-Solenoid Distribution Panel	R/B NRCA	W	26'-11"	FA2-314-01	N/A	-	6
321	IBC-C	C-Class 1E UPS Unit	R/B NRCA	W	26'-11"	FA2-314-01	N/A	-	6
322	IBB-C	C-I&C Power Transformer	R/B NRCA	W	26'-11"	FA2-314-01	N/A	-	6
323	IBD-C	C-Class 1E AC120V Panelboard	R/B NRCA	W	26'-11"	FA2-314-01	N/A	-	6
324	MVIC	C-MOV Inverter	R/B NRCA	W	26'-11"	FA2-314-01	N/A	-	6
325	MVCC	C-MOV Motor Control Center	R/B NRCA	W	3'-7"	FA2-204-01	N/A	-	6
326	DDP-D	D-Reactor Building DC Distribution Panel	R/B NRCA	W	26'-11"	FA2-313-01	N/A	-	6
327	SDC-D	D-Solenoid Distribution Panel	R/B NRCA	W	26'-11"	FA2-313-01	N/A	-	6

**Table 3K-3 R/B NRCA Components Protected From Internal Flooding  
(Sheet 23 of 30)**

Item No.	Equipment Tag	Description	Location				Flood Elevation above Floor [ft]	Notes	
			Building	Side	Floor Elevation	Fire Zone No.			Location Elevation above Floor
328	IBC-D	D-Class 1E UPS Unit	R/B NRCA	W	26'-11"	FA2-313-01	N/A	-	6
329	IBB-D	D-Class 1E I&C Power Transformer	R/B NRCA	W	26'-11"	FA2-313-01	N/A	-	6
330	IBD-D	D-Class 1E AC120V Panelboard	R/B NRCA	W	26'-11"	FA2-313-01	N/A	-	6
331	MVID1	D-MOV Inverter1	R/B NRCA	W	26'-11"	FA2-313-01	N/A	-	6
332	MVID2	D-MOV Inverter2	R/B NRCA	W	26'-11"	FA2-313-01	N/A	-	6
333	MVCD1	D-MOV Motor Control Center1	R/B NRCA	W	3'-7"	FA2-205-01	N/A	-	6
334	MVCD2	D-MOV Motor Control Center2	R/B NRCA	W	3'-7"	FA2-205-01	N/A	-	6
335	EFS-FT-3716	A - Emergency Feedwater Flow	R/B NRCA	E	-26'-4"	FA2-102-01	N/A	-	6
336	EFS-FT-3726	B - Emergency Feedwater Flow	R/B NRCA	E	-26'-4"	FA2-103-01	above flood elevation	0.47	
337	EFS-FT-3736	C - Emergency Feedwater Flow	R/B NRCA	W	-26'-4"	FA2-109-01	above flood elevation	0.63	
338	EFS-FT-3746	D - Emergency Feedwater Flow	R/B NRCA	W	-26'-4"	FA2-108-01	N/A	-	1
339	EFS-LT-3760	A - Emergency Feedwater Pit Water Level	R/B NRCA	E	76'-5"	FA2-501-01	above flood elevation	1.35	
340	EFS-LT-3761	A - Emergency Feedwater Pit Water Level	R/B NRCA	E	76'-5"	FA2-501-01	above flood elevation	1.35	
341	EFS-LT-3770	B - Emergency Feedwater Pit Water Level	R/B NRCA	W	76'-5"	FA2-501-11	above flood elevation	1.15	
342	EFS-LT-3771	B - Emergency Feedwater Pit Water Level	R/B NRCA	W	76'-5"	FA2-501-11	above flood elevation	1.15	

**Table 3K-3 R/B NRCA Components Protected From Internal Flooding  
(Sheet 24 of 30)**

Item No.	Equipment Tag	Description	Location				Flood Elevation above Floor [ft]	Notes	
			Building	Side	Floor Elevation	Fire Zone No.			
343	EFS-PT-3752	A - Emergency Feedwater Pump Discharge Pressure	R/B NRCA	E	-26'-4"	FA2-102-01	N/A	-	1
344	EFS-PT-3750	B - Emergency Feedwater Pump Discharge Pressure	R/B NRCA	E	-26'-4"	FA2-103-01	above flood elevation	0.47	
345	EFS-PT-3751	C - Emergency Feedwater Pump Discharge Pressure	R/B NRCA	W	-26'-4"	FA2-109-01	above flood elevation	0.63	
346	EFS-PT-3753	D - Emergency Feedwater Pump Discharge Pressure	R/B NRCA	W	-26'-4"	FA2-108-01	N/A	-	1
347	NMS-PT-465	A - Main Steam Line Pressure	R/B NRCA	E	76'-5"	FA2-501-01	above flood elevation	1.35	
348	NMS-PT-466	A - Main Steam Line Pressure	R/B NRCA	E	76'-5"	FA2-501-01	above flood elevation	1.35	
349	NMS-PT-467	A - Main Steam Line Pressure	R/B NRCA	E	76'-5"	FA2-501-01	above flood elevation	1.35	
350	NMS-PT-468	A - Main Steam Line Pressure	R/B NRCA	E	76'-5"	FA2-501-01	above flood elevation	1.35	
351	NMS-PT-475	B - Main Steam Line Pressure	R/B NRCA	E	65'-0"	FA2-414-01	above flood elevation	4.6	
352	NMS-PT-476	B - Main Steam Line Pressure	R/B NRCA	E	65'-0"	FA2-414-01	above flood elevation	4.6	
353	NMS-PT-477	B - Main Steam Line Pressure	R/B NRCA	E	65'-0"	FA2-414-01	above flood elevation	4.6	
354	NMS-PT-478	B - Main Steam Line Pressure	R/B NRCA	E	65'-0"	FA2-414-01	above flood elevation	4.6	
355	NMS-PT-485	C - Main Steam Line Pressure	R/B NRCA	W	76'-5"	FA2-501-11	above flood elevation	4.6	
356	NMS-PT-486	C - Main Steam Line Pressure	R/B NRCA	W	76'-5"	FA2-501-11	above flood elevation	4.6	
357	NMS-PT-487	C - Main Steam Line Pressure	R/B NRCA	W	76'-5"	FA2-501-11	above flood elevation	4.6	
358	NMS-PT-488	C - Main Steam Line Pressure	R/B NRCA	W	76'-5"	FA2-501-11	above flood elevation	4.6	

**Table 3K-3 R/B NRCA Components Protected From Internal Flooding  
(Sheet 25 of 30)**

Item No.	Equipment Tag	Description	Location				Flood Elevation above Floor [ft]	Notes	
			Building	Side	Floor Elevation	Fire Zone No.			Location Elevation above Floor
359	NMS-PT-495	D - Main Steam Line Pressure	R/B NRCA	W	65'-0"	FA2-415-01	above flood elevation	4.6	
360	NMS-PT-496	D - Main Steam Line Pressure	R/B NRCA	W	65'-0"	FA2-415-01	above flood elevation	4.6	
361	NMS-PT-497	D - Main Steam Line Pressure	R/B NRCA	W	65'-0"	FA2-415-01	above flood elevation	4.6	
362	NMS-PT-498	D - Main Steam Line Pressure	R/B NRCA	W	65'-0"	FA2-415-01	above flood elevation	4.6	
363	NCS-FT-1224	A - Component Cooling Water Header Flow	R/B NRCA	E	-26'-4"	FA2-104-01	above flood elevation	0.47	
364	NCS-FT-1225	B - Component Cooling Water Header Flow	R/B NRCA	E	-26'-4"	FA2-105-01	above flood elevation	0.47	
365	NCS-FT-1227	C - Component Cooling Water Header Flow	R/B NRCA	W	-26'-4"	FA2-106-01	above flood elevation	0.63	
366	NCS-FT-1228	D - Component Cooling Water Header Flow	R/B NRCA	W	-26'-4"	FA2-107-01	above flood elevation	0.63	
367	NCS-LT-1200	A - Component Cooling Water Surge Tank Water Level	R/B NRCA	E	101'-0"	FA2-601-01	above flood elevation	1.7	
368	NCS-LT-1201	A - Component Cooling Water Surge Tank Water Level	R/B NRCA	E	101'-0"	FA2-601-01	above flood elevation	1.7	
369	NCS-LT-1210	B - Component Cooling Water Surge Tank Water Level	R/B NRCA	W	101'-0"	FA2-602-01	above flood elevation	4.7	
370	NCS-LT-1211	B - Component Cooling Water Surge Tank Water Level	R/B NRCA	W	101'-0"	FA2-602-01	above flood elevation	4.7	
371	NCS-PT-1220	A - Component Cooling Water Header Pressure	R/B NRCA	E	-26'-4"	FA2-104-01	above flood elevation	0.47	
372	NCS-PT-1221	B - Component Cooling Water Header Pressure	R/B NRCA	E	-26'-4"	FA2-105-01	above flood elevation	0.47	

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to RAI 220-2058

**Table 3K-3 R/B NRCA Components Protected From Internal Flooding  
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Item No.	Equipment Tag	Description	Location				Flood Elevation above Floor [ft]	Notes	
			Building	Side	Floor Elevation	Fire Zone No.			Location Elevation above Floor
373	NCS-PT-1222	C - Component Cooling Water Header Pressure	R/B NRCA	W	-26'-4"	FA2-106-01	above flood elevation	0.63	
374	NCS-PT-1223	D - Component Cooling Water Header Pressure	R/B NRCA	W	-26'-4"	FA2-107-01	above flood elevation	0.63	
375	EWS-FT-2024	A - Component Cooling Water Heat Exchanger Essential Service Water Flow	R/B NRCA	E	-26'-4"	FA2-104-01	above flood elevation	0.47	
376	EWS-FT-2025	B - Component Cooling Water Heat Exchanger Essential Service Water Flow	R/B NRCA	E	-26'-4"	FA2-105-01	above flood elevation	0.47	
377	EWS-FT-2026	C - Component Cooling Water Heat Exchanger Essential Service Water Flow	R/B NRCA	W	-26'-4"	FA2-106-01	above flood elevation	0.63	
378	EWS-FT-2027	D - Component Cooling Water Heat Exchanger Essential Service Water Flow	R/B NRCA	W	-26'-4"	FA2-107-01	above flood elevation	0.63	
379	NCS-TE-1215	A - Component Cooling Water Supply Temperature	R/B NRCA	E	-26'-4"	FA2-104-01	above flood elevation	0.47	
380	NCS-TE-1216	B - Component Cooling Water Supply Temperature	R/B NRCA	E	-26'-4"	FA2-105-01	above flood elevation	0.47	
381	NCS-TE-1217	C - Component Cooling Water Supply Temperature	R/B NRCA	W	-26'-4"	FA2-106-01	above flood elevation	0.63	
382	NCS-TE-1218	D - Component Cooling Water Supply Temperature	R/B NRCA	W	-26'-4"	FA2-107-01	above flood elevation	0.63	
383	RMS-RE-83A	Main Control Room Outside Air Intake Particulate Radiation	R/B NRCA	E	50'-2"	FA2-407-02	above flood elevation	0.81	

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**Table 3K-3 R/B NRCA Components Protected From Internal Flooding  
(Sheet 27 of 30)**

Item No.	Equipment Tag	Description	Location				Flood Elevation above Floor [ft]	Notes	
			Building	Side	Floor Elevation	Fire Zone No.			
384	RMS-RE-83B	Main Control Room Outside Air Intake Particulate Radiation	R/B NRCA	W	50'-2"	FA2-407-03	above flood elevation	0.84	
385	RMS-RE-84A	Main Control Room Outside Air Intake Gas Radiation	R/B NRCA	E	50'-2"	FA2-407-02	above flood elevation	0.81	
386	RMS-RE-84B	Main Control Room Outside Air Intake Gas Radiation	R/B NRCA	W	50'-2"	FA2-407-03	above flood elevation	0.84	
387	RMS-RE-85A	Main Control Room Outside Air Intake Iodine Radiation	R/B NRCA	E	50'-2"	FA2-407-02	above flood elevation	0.81	
388	RMS-RE-85B	Main Control Room Outside Air Intake Iodine Radiation	R/B NRCA	W	50'-2"	FA2-407-03	above flood elevation	0.84	
389	VRS-TS-2670	A - Emergency Feedwater Pump Area Temperature	R/B NRCA	E	-26'-4"	FA2-102-01	N/A	-	1
390	VRS-TS-2673	A - Emergency Feedwater Pump Area Temperature	R/B NRCA	E	-26'-4"	FA2-102-01	N/A	-	1
391	VRS-TS-2674	A - Emergency Feedwater Pump Area Temperature	R/B NRCA	E	-26'-4"	FA2-102-01	N/A	-	1
392	VRS-TS-2675	B - Emergency Feedwater Pump Area Temperature	R/B NRCA	E	-26'-4"	FA2-103-01	above flood elevation	0.47	
393	VRS-TS-2678	B - Emergency Feedwater Pump Area Temperature	R/B NRCA	E	-26'-4"	FA2-103-01	above flood elevation	0.47	
394	VRS-TS-2679	B - Emergency Feedwater Pump Area Temperature	R/B NRCA	E	-26'-4"	FA2-103-01	above flood elevation	0.47	
395	VRS-TS-2680	C - Emergency Feedwater Pump Area Temperature	R/B NRCA	W	-26'-4"	FA2-109-01	above flood elevation	0.63	
396	VRS-TS-2683	C - Emergency Feedwater Pump Area Temperature	R/B NRCA	W	-26'-4"	FA2-109-01	above flood elevation	0.63	

**Table 3K-3 R/B NRCA Components Protected From Internal Flooding  
(Sheet 28 of 30)**

Item No.	Equipment Tag	Description	Location				Flood Elevation above Floor [ft]	Notes	
			Building	Side	Floor Elevation	Fire Zone No.			Location Elevation above Floor
397	VRS-TS-2684	C - Emergency Feedwater Pump Area Temperature	R/B NRCA	W	-26'-4"	FA2-109-01	above flood elevation	0.63	
398	VRS-TS-2685	D - Emergency Feedwater Pump Area Temperature	R/B NRCA	W	-26'-4"	FA2-108-01	N/A	-	1
399	VRS-TS-2688	D - Emergency Feedwater Pump Area Temperature	R/B NRCA	W	-26'-4"	FA2-108-01	N/A	-	1
400	VRS-TS-2689	D - Emergency Feedwater Pump Area Temperature	R/B NRCA	W	-26'-4"	FA2-108-01	N/A	-	1
401	VRS-TS-2720A	A - Component Cooling Water Pump Area Temperature	R/B NRCA	E	-26'-4"	FA2-104-01	above flood elevation	0.47	
402	VRS-TS-2723A	A - Component Cooling Water Pump Area Temperature	R/B NRCA	E	-26'-4"	FA2-104-01	above flood elevation	0.47	
403	VRS-TS-2724A	A - Component Cooling Water Pump Area Temperature	R/B NRCA	E	-26'-4"	FA2-104-01	above flood elevation	0.47	
404	VRS-TS-2720B	B - Component Cooling Water Pump Area Temperature	R/B NRCA	E	-26'-4"	FA2-105-01	above flood elevation	0.47	
405	VRS-TS-2723B	B - Component Cooling Water Pump Area Temperature	R/B NRCA	E	-26'-4"	FA2-105-01	above flood elevation	0.47	
406	VRS-TS-2724B	B - Component Cooling Water Pump Area Temperature	R/B NRCA	E	-26'-4"	FA2-105-01	above flood elevation	0.47	
407	VRS-TS-2720C	C - Component Cooling Water Pump Area Temperature	R/B NRCA	W	-26'-4"	FA2-106-01	above flood elevation	0.63	
408	VRS-TS-2723C	C - Component Cooling Water Pump Area Temperature	R/B NRCA	W	-26'-4"	FA2-106-01	above flood elevation	0.63	
409	VRS-TS-2724C	C - Component Cooling Water Pump Area Temperature	R/B NRCA	W	-26'-4"	FA2-106-01	above flood elevation	0.63	

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**Table 3K-3 R/B NRCA Components Protected From Internal Flooding  
(Sheet 29 of 30)**

Item No.	Equipment Tag	Description	Location				Flood Elevation above Floor [ft]	Notes	
			Building	Side	Floor Elevation	Fire Zone No.			Location Elevation above Floor
410	VRS-TS-2720D	D - Component Cooling Water Pump Area Temperature	R/B NRCA	W	-26'-4"	FA2-107-01	above flood elevation	0.63	
411	VRS-TS-2723D	D - Component Cooling Water Pump Area Temperature	R/B NRCA	W	-26'-4"	FA2-107-01	above flood elevation	0.63	
412	VRS-TS-2724D	D - Component Cooling Water Pump Area Temperature	R/B NRCA	W	-26'-4"	FA2-107-01	above flood elevation	0.63	
413	VRS-TS-2725C	C - Essential Chiller Unit Area Temperature	R/B NRCA	W	-26'-4"	FA3-108-01	above flood elevation	0.63	
414	VRS-TS-2728C	C - Essential Chiller Unit Area Temperature	R/B NRCA	W	-26'-4"	FA3-108-01	above flood elevation	0.63	
415	VRS-TS-2729C	C - Essential Chiller Unit Area Temperature	R/B NRCA	W	-26'-4"	FA3-108-01	above flood elevation	0.63	
416	VRS-TS-2725D	D - Essential Chiller Unit Area Temperature	R/B NRCA	W	-26'-4"	FA3-110-01	above flood elevation	0.63	
417	VRS-TS-2728D	D - Essential Chiller Unit Area Temperature	R/B NRCA	W	-26'-4"	FA3-110-01	above flood elevation	0.63	
418	VRS-TS-2729D	D - Essential Chiller Unit Area Temperature	R/B NRCA	W	-26'-4"	FA3-110-01	above flood elevation	0.63	
419	VRS-TS-2787	A - Class 1E Electrical Room Temperature	R/B NRCA	E	3'-7"	FA2-202-01	N/A	-	6
420	VRS-TS-2797	B - Class 1E Electrical Room Temperature	R/B NRCA	E	3'-7"	FA2-203-01	N/A	-	6
421	VRS-TS-2807	C - Class 1E Electrical Room Temperature	R/B NRCA	W	3'-7"	FA2-204-01	N/A	-	6
422	VRS-TS-2817	D - Class 1E Electrical Room Temperature	R/B NRCA	W	3'-7"	FA2-205-01	N/A	-	6



**Table 3K-3 R/B NRCA Components Protected From Internal Flooding  
(Sheet 30 of 30)**

Item No.	Equipment Tag	Description	Location				Flood Elevation above Floor [ft]	Notes	
			Building	Side	Floor Elevation	Fire Zone No.			
423	VRS-TS-2849	Main Control Room Temperature	R/B NRCA	W	26'-11"	FA2-308-01	N/A	-	6
424	VRS-TS-2859	Main Control Room Temperature	R/B NRCA	W	26'-11"	FA2-308-01	N/A	-	6
425	VRS-TS-2869	Main Control Room Temperature	R/B NRCA	W	26'-11"	FA2-308-01	N/A	-	6
426	VRS-TS-2879	Main Control Room Temperature	R/B NRCA	W	26'-11"	FA2-308-01	N/A	-	6

**Notes:**

1. These components are protected by water-tight door and floor drain isolation valve against in-flow of flooding occurring outside of compartment. In addition, these components are not required to be protected against flooding occurring inside the compartment due to redundancy of other trains/components.
2. There is no impact to this component, even if outside of pit is flooded.
3. These components are not required for safe shutdown. In addition, the function of containment isolation is maintained due to installation areas of these components are not flooded during LOCA.
4. Support leg of A-CCW surge tank is flooded, but there is no impact to function of this component.
5. Lower portion of B-CCW surge tank is flooded, but there is no impact to function of this component.
6. These components are protected by water-tight door against in-flow of flooding occurring outside of compartment.
7. This valve is required to maintain function of CCW surge tank. However, function of CCW surge tank can be maintained by other non-flooded valves, even if this valve is flooded.

**Table 3K-4 PS/B Components Protected From Internal Flooding**  
(Sheet 1 of 6)

Item No.	Equipment Tag	Description	Location				Flood Elevation above Floor [ft]	Notes	
			Building	Side	Floor Elevation	Fire Zone No.			Location Elevation above Floor
1	VRS-PFN-251A	A-Class 1E Battery Room Exhaust Fan	PS/B	E	3'-7"	FA3-104-04	N/A	-	1
2	VRS-PFN-251B	B-Class 1E Battery Room Exhaust Fan	PS/B	E	3'-7"	FA3-103-03	N/A	-	1
3	VRS-PFN-251C	C-Class 1E Battery Room Exhaust Fan	PS/B	W	3'-7"	FA3-109-03	N/A	-	1
4	VRS-PFN-251D	D-Class 1E Battery Room Exhaust Fan	PS/B	W	3'-7"	FA3-111-04	N/A	-	1
5	VRS-MOD-251A	Motor Operated Damper	PS/B	E	3'-7"	FA3-104-04	N/A	-	1
6	VRS-MOD-251B	Motor Operated Damper	PS/B	E	3'-7"	FA3-103-03	N/A	-	1
7	VRS-MOD-251C	Motor Operated Damper	PS/B	W	3'-7"	FA3-109-03	N/A	-	1
8	VRS-MOD-251D	Motor Operated Damper	PS/B	W	3'-7"	FA3-111-04	N/A	-	1
9	VRS-MOD-252A	Motor Operated Damper	PS/B	E	3'-7"	FA3-104-04	N/A	-	1
10	VRS-MOD-252B	Motor Operated Damper	PS/B	E	3'-7"	FA3-103-03	N/A	-	1
11	VRS-MOD-252C	Motor Operated Damper	PS/B	W	3'-7"	FA3-109-03	N/A	-	1
12	VRS-MOD-252D	Motor Operated Damper	PS/B	W	3'-7"	FA3-111-04	N/A	-	1
13	VRS-PAH-511A	A-Essential Chiller Unit Area Air Handling Unit	PS/B	E	-26'-4"	FA3-101-01	above flood elevation	0.47	
14	VRS-PAH-511B	B-Essential Chiller Unit Area Air Handling Unit	PS/B	E	-26'-4"	FA3-102-01	above flood elevation	0.47	

**Table 3K-4 PS/B Components Protected From Internal Flooding  
(Sheet 2 of 6)**

Item No.	Equipment Tag	Description	Location				Flood Elevation above Floor [ft]	Notes	
			Building	Side	Floor Elevation	Fire Zone No.			Location Elevation above Floor
15	VRS-PAH-511C	C-Essential Chiller Unit Area Air Handling Unit	PS/B	W	-26'-4"	FA3-108-01	above flood elevation	0.63	
16	VRS-PAH-511D	D-Essential Chiller Unit Area Air Handling Unit	PS/B	W	-26'-4"	FA3-110-01	above flood elevation	0.63	
17	VRS-PFN-511A	A-Essential Chiller Unit Area Air Handling Unit Fan	PS/B	E	-26'-4"	FA3-101-01	above flood elevation	0.47	
18	VRS-PFN-511B	B-Essential Chiller Unit Area Air Handling Unit Fan	PS/B	E	-26'-4"	FA3-102-01	above flood elevation	0.47	
19	VRS-PFN-511C	C-Essential Chiller Unit Area Air Handling Unit Fan	PS/B	W	-26'-4"	FA3-108-01	above flood elevation	0.63	
20	VRS-PFN-511D	D-Essential Chiller Unit Area Air Handling Unit Fan	PS/B	W	-26'-4"	FA3-110-01	above flood elevation	0.63	
21	VRS-PCC-511A	A-Essential Chiller Unit Area Air Handling Unit Cooling Coil	PS/B	E	-26'-4"	FA3-101-01	above flood elevation	0.47	
22	VRS-PCC-511B	B-Essential Chiller Unit Area Air Handling Unit Cooling Coil	PS/B	E	-26'-4"	FA3-102-01	above flood elevation	0.47	
23	VRS-PCC-511C	C-Essential Chiller Unit Area Air Handling Unit Cooling Coil	PS/B	W	-26'-4"	FA3-108-01	above flood elevation	0.63	
24	VRS-PCC-511D	D-Essential Chiller Unit Area Air Handling Unit Cooling Coil	PS/B	W	-26'-4"	FA3-110-01	above flood elevation	0.63	
25	VRS-PEH-511A	A-Essential Chiller Unit Area Air Handling Unit Electric Heating Coil	PS/B	E	-26'-4"	FA3-101-01	above flood elevation	0.47	
26	VRS-PEH-511B	B-Essential Chiller Unit Area Air Handling Unit Electric Heating Coil	PS/B	E	-26'-4"	FA3-102-01	above flood elevation	0.47	
27	VRS-PEH-511C	C-Essential Chiller Unit Area Air Handling Unit Electric Heating Coil	PS/B	W	-26'-4"	FA3-108-01	above flood elevation	0.63	

**Table 3K-4 PS/B Components Protected From Internal Flooding  
(Sheet 3 of 6)**

Item No.	Equipment Tag	Description	Location				Flood Elevation above Floor [ft]	Notes	
			Building	Side	Floor Elevation	Fire Zone No.			Location Elevation above Floor
28	VRS-PEH-511D	D-Essential Chiller Unit Area Air Handling Unit Electric Heating Coil	PS/B	W	-26'-4"	FA3-110-01	above flood elevation	0.63	
29	VWS-PEQ-001A	A-Essential Chiller Unit	PS/B	E	-26'-4"	FA3-101-01	above flood elevation	0.47	
30	VWS-PEQ-001B	B-Essential Chiller Unit	PS/B	E	-26'-4"	FA3-102-01	above flood elevation	0.47	
31	VWS-PEQ-001C	C-Essential Chiller Unit	PS/B	W	-26'-4"	FA3-108-01	above flood elevation	0.63	
32	VWS-PEQ-001D	D-Essential Chiller Unit	PS/B	W	-26'-4"	FA3-110-01	above flood elevation	0.63	
33	VWS-PPP-001A	A-Essential Chilled Water Pump	PS/B	E	-26'-4"	FA3-101-01	above flood elevation	0.47	
34	VWS-PPP-001B	B-Essential Chilled Water Pump	PS/B	E	-26'-4"	FA3-102-01	above flood elevation	0.47	
35	VWS-PPP-001C	C-Essential Chilled Water Pump	PS/B	W	-26'-4"	FA3-108-01	above flood elevation	0.63	
36	VWS-PPP-001D	D-Essential Chilled Water Pump	PS/B	W	-26'-4"	FA3-110-01	above flood elevation	0.63	
37	VWS-PTK-001A	A-Essential Chilled Water Compression Tank	PS/B	E	-26'-4"	FA3-101-01	above flood elevation	0.47	
38	VWS-PTK-001B	B-Essential Chilled Water Compression Tank	PS/B	E	-26'-4"	FA3-102-01	above flood elevation	0.47	
39	VWS-PTK-001C	C-Essential Chilled Water Compression Tank	PS/B	W	-26'-4"	FA3-108-01	above flood elevation	0.63	
40	VWS-PTK-001D	D-Essential Chilled Water Compression Tank	PS/B	W	-26'-4"	FA3-110-01	above flood elevation	0.63	
41	VWS-TCV-2726A	Chilled Water Control Valve	PS/B	E	-26'-4"	FA3-101-01	above flood elevation	0.47	
42	VWS-TCV-2726B	Chilled Water Control Valve	PS/B	E	-26'-4"	FA3-102-01	above flood elevation	0.47	

**Table 3K-4 PS/B Components Protected From Internal Flooding  
(Sheet 4 of 6)**

Item No.	Equipment Tag	Description	Location				Flood Elevation above Floor [ft]	Notes	
			Building	Side	Floor Elevation	Fire Zone No.			Location Elevation above Floor
43	VWS-TCV-2726C	Chilled Water Control Valve	PS/B	W	-26'-4"	FA3-108-01	above flood elevation	0.63	
44	VWS-TCV-2726D	Chilled Water Control Valve	PS/B	W	-26'-4"	FA3-110-01	above flood elevation	0.63	
45	VWS-VLV-253A	Safety Valve	PS/B	E	-26'-4"	FA3-101-01	above flood elevation	0.47	
46	VWS-VLV-253B	Safety Valve	PS/B	E	-26'-4"	FA3-102-01	above flood elevation	0.47	
47	VWS-VLV-253C	Safety Valve	PS/B	W	-26'-4"	FA3-108-01	above flood elevation	0.63	
48	VWS-VLV-253D	Safety Valve	PS/B	W	-26'-4"	FA3-110-01	above flood elevation	0.63	
49	A-EGTG	A-Class 1E Gas Turbine Generator	PS/B	E	3'-7"	FA3-104-04	N/A	-	1
50	B-EGTG	B-Class 1E Gas Turbine Generator	PS/B	E	3'-7"	FA3-103-03	N/A	-	1
51	C-EGTG	C-Class 1E Gas Turbine Generator	PS/B	W	3'-7"	FA3-109-03	N/A	-	1
52	D-EGTG	D-Class 1E Gas Turbine Generator	PS/B	W	3'-7"	FA3-111-04	N/A	-	1
53	BCP-A	A-Class 1E Battery Charger	PS/B	E	-14'-2"	FA3-117-01	N/A	-	1
54	DCC-A	A-Class 1E DC Switchboard	PS/B	E	-14'-2"	FA3-117-01	N/A	-	1
55	DCC-A1	A1-Class 1E DC Switchboard	PS/B	E	-14'-2"	FA3-117-01	N/A	-	1
56	BCP-B	B-Class 1E Battery Charger	PS/B	E	-14'-2"	FA3-118-01	N/A	-	1
57	DCC-B	B-Class 1E DC Switchboard	PS/B	E	-14'-2"	FA3-118-01	N/A	-	1
58	BCP-C	C-Class 1E Battery Charger	PS/B	W	-14'-2"	FA3-122-01	N/A	-	1
59	DCC-C	C-Class 1E DC Switchboard	PS/B	W	-14'-2"	FA3-122-01	N/A	-	1

**Table 3K-4 PS/B Components Protected From Internal Flooding**  
(Sheet 5 of 6)

Item No.	Equipment Tag	Description	Location				Flood Elevation above Floor [ft]	Notes	
			Building	Side	Floor Elevation	Fire Zone No.			Location Elevation above Floor
60	BCP-D	D-Class 1E Battery Charger	PS/B	W	-14'-2"	FA3-123-01	N/A	-	1
61	DCC-D	D-Class 1E DC Switchboard	PS/B	W	-14'-2"	FA3-123-01	N/A	-	1
62	DCC-D1	D1-Class 1E DC Switchboard	PS/B	W	-14'-2"	FA3-123-01	N/A	-	1
63	VCC-A	A-Ventilation Chiller Control Cabinet	PS/B	E	-26'-4"	FA3-101-01	above flood elevation	0.47	
64	VCC-B	B-Ventilation Chiller Control Cabinet	PS/B	E	-26'-4"	FA3-102-01	above flood elevation	0.47	
65	VCC-C	C-Ventilation Chiller Control Cabinet	PS/B	W	-26'-4"	FA3-108-01	above flood elevation	0.63	
66	VCC-D	D-Ventilation Chiller Control Cabinet	PS/B	W	-26'-4"	FA3-110-01	above flood elevation	0.63	
67	BAT-A	A-Class 1E Battery	PS/B	E	-26'-4"	FA3-115-01	above flood elevation	0.47	
68	BAT-B	B-Class 1E Battery	PS/B	E	-26'-4"	FA3-116-01	above flood elevation	0.47	
69	BAT-C	C-Class 1E Battery	PS/B	W	-26'-4"	FA3-120-01	above flood elevation	0.63	
70	BAT-D	D-Class 1E Battery	PS/B	W	-26'-4"	FA3-121-01	above flood elevation	0.63	
71	EPBA	A-Class 1E Gas Turbine Generator Control Board	PS/B	E	3'-7"	FA3-104-04	N/A	-	1
72	EPBB	B-Class 1E Gas Turbine Generator Control Board	PS/B	E	3'-7"	FA3-103-03	N/A	-	1
73	EPBC	C-Class 1E Gas Turbine Generator Control Board	PS/B	W	3'-7"	FA3-109-03	N/A	-	1

**Table 3K-4 PS/B Components Protected From Internal Flooding  
(Sheet 6 of 6)**

Item No.	Equipment Tag	Description	Location				Flood Elevation above Floor [ft]	Notes	
			Building	Side	Floor Elevation	Fire Zone No.			Location Elevation above Floor
74	EPBD	D-Class 1E Gas Turbine Generator Control Board	PS/B	W	3'-7"	FA3-111-04	N/A	-	1
75	VRS-TS-2725A	A - Essential Chiller Unit Area Temperature	PS/B	E	-26'-4"	FA3-101-01	above flood elevation	0.47	
76	VRS-TS-2728A	A - Essential Chiller Unit Area Temperature	PS/B	E	-26'-4"	FA3-101-01	above flood elevation	0.47	
77	VRS-TS-2729A	A - Essential Chiller Unit Area Temperature	PS/B	E	-26'-4"	FA3-101-01	above flood elevation	0.47	
78	VRS-TS-2725B	B - Essential Chiller Unit Area Temperature	PS/B	E	-26'-4"	FA3-102-01	above flood elevation	0.47	
79	VRS-TS-2728B	B - Essential Chiller Unit Area Temperature	PS/B	E	-26'-4"	FA3-102-01	above flood elevation	0.47	
80	VRS-TS-2729B	B - Essential Chiller Unit Area Temperature	PS/B	E	-26'-4"	FA3-102-01	above flood elevation	0.47	

**Notes:**

1. These components are protected by water-tight door against in-flow of flooding occurring outside of compartment. In addition, these components are not required to be protected against flooding occurring inside the compartment due to redundancy of other trains/components.

- Fire fighting operations
- Pump mechanical seal failures

The combination of events is not considered. However, an earthquake event followed by fire fighting operations for an earthquake induced fire is considered.

For flood events caused by an earthquake, equipment or pipe (not classified as seismic category I) in the R/B are assumed to be fully compromised and the total volume of the fluid contained within the subject equipment or pipe contributes to the flood volume. Equipment or piping not classified as seismic category I in areas outside of the area of concern is also assumed to be fully compromised, and if the discharge fluids can not be demonstrated to be excluded from the area of concern, their volume is included in the flood volume. The US-APWR is designed for maximum water levels created by internal flooding sources. The internal flood design accommodates the effects of, and is compatible with, environmental conditions associated with normal operations, maintenance, testing, and postulated accidents, including LOCAs.

Water-tight doors are used as protective barriers to prevent flood waters from spreading to adjacent divisions in various buildings and elevations. Water-tight doors have position indication for closure verification and are periodically inspected and tested to ensure proper functionality.

Open pits are isolated within water tight compartments using water tight doors, penetration seals, and normally closed floor drains. In this manner, flooding effects caused by open pit water sloshing are considered.

For flood events caused by the postulated failure of piping, defined in Section 3.6, the rupture of the single worst-case piping in the area of concern is assumed in the flood analysis for each area of concern. The discharge volume is calculated according to "Subcompartment Pressure and Temperature Transient Analysis in Light Water Reactors", American National Standards Institute (ANSI)/American Nuclear Society (ANS) 56.10-1987, Section 3 (Reference 3.4-6), and is included in the pipe break and cracks flood evaluation. The structures adjacent to the postulated pipe rupture locations are also designed for the maximum associated hydrodynamic loads due to a pipe failure as discussed in Section 3.6. The loads and load combinations are addressed in detail in Section 3.8.

In the flooding effects from fire fighting operations, water discharged from only fire hose stations is assumed. In fire fighting operations, a discharge rate of 125 gpm is assumed for a period of 2 hours from two hose stations.

Pump mechanical seal failures of concern are limited to the active pumps identified in Section 3.9. Seal failure is a low probability event based on the use of robust pump mechanical seals. Additionally, monitoring of mechanical seal water temperature, pressure, and flow rate across the pump mechanical seals provides the means of limiting the effects of pump seal failure through early detection and timely corrective action. As such, pump mechanical seal failure presents a sufficiently low probability of occurrence and flood volume that it can be credibly ignored.



- Water at the pressurizer compartment flows to the SG compartment by way of the inlet/outlet to the SG compartment.
- Water in the regenerative heat exchanger room, the letdown heat exchanger room, and the excess letdown heat exchanger room flow out their respective entrance doorways. The flow path from there is to the respective level floor drains or through the alternate paths.
- Water flowing onto the elevation 25 ft, 3 in. floor flows to the RWSP through the 18 in. transfer piping provided at 10 places on the floor surface and into the flow to the PCCV drain pump room through the stair opening on the floor surface. Water also flows into the HVAC header compartment from the PCCV drain pump room by way of a walkway through the lower primary shield wall.

Thus, flood waters in the containment reaches the RWSP, the HVAC header compartment, the PCCV drain pump room, and the reactor cavity.

Inside the containment, the largest water retaining components are the refueling cavity, and the RWSP. The RWSP and the refueling cavity are robust reinforced concrete seismic category I structures with thick walls which have been designed for all applicable loads, including the potential in-containment missile loads and hydrodynamic loads. Due to their robust design, a postulated failure of these structures is not credible. Additionally, the combined fuel transfer canal/reactor cavity pit during all but refueling operations is dry. Since a LOCA represents the worst case flooding event, sloshing is not a factor in PCCV flooding.

There are piping systems inside the PCCV such as the CCW system and fire protection water supply system (fire water) that are connected to large-volume water sources, however a significant accidental release of water into the PCCV from these sources are not plausible for the following reasons:

- All CCW piping inside the PCCV is classified as seismic category I.
- Containment isolation valves outside the PCCV for the fire protection water supply system are normally closed. Therefore, there is no water released by a pipe break of the fire protection water supply system inside PCCV.
- The RCP purge water head tank and C/V reactor coolant drain tank are non-seismic components which contain water inside the PCCV. The total amount of water contained within these tanks is 106 ft<sup>3</sup>, which is significantly less than the volume of water from a LOCA.

The maximum flooding event in the containment is therefore a result of a LOCA. During a LOCA, water held in the RCS and water from the accumulator tanks is injected into the RCS, and flows from the damaged main coolant pipe. Additionally, spray and injection of the RWSP volume is assumed.

The volume of water from a LOCA is conservatively assumed to be equal to the volume of the RCS volume, the four accumulator tank volumes, and the volume of the RWSP for a total volume of 113,000 ft<sup>3</sup>.

- Fire Fighting Operations

Flooding contribution from fire-fighting operations is based on the full operation of two hose stations for 2 hours. The flow rate from 1 hose station is 125 gpm. With two stations operating for 2 hours, the total volume of water is 4,010 ft<sup>3</sup>.

Based on the above, the worst case flooding on the west side of the R/B is a HELB at 11,570 ft<sup>3</sup>. On the east side of the plant, the worst case flooding is an earthquake followed by fire fighting operations due to an earthquake induced fire at 5,070 ft<sup>3</sup>.

The square footage of floor area subject to flooding at elevation -26 ft, 4 in. is as follows:

- East side: 3,400 ft<sup>2</sup>
- West side: 4,150 ft<sup>2</sup>

Based on these values, the maximum water levels are as follows:

- East side: 1.49 ft above elevation -26 ft, 4 in.
- West side: 2.79 ft above elevation -26 ft, 4 in.

The SI pump and CS/RHR pump are installed in a room which prevents flow-in water by water-tight door, and floor drains of these rooms are separated by closed valve or check valve for each train. Therefore, the pumps are not flooded. Instrumentation of the SI pump and CS/RHR pump are installed above the flood water level.

#### **Elevation 3 ft, 7 in.**

Flood waters occurring above elevation -26 ft, 4 in. drain to floor elevation -26 ft, 4 in. through floor drains, stairwell, elevator shaft and/or equipment hatch. However, the evaluation above elevation -26 ft, 4 in. conservatively assumes that the flooding water is not drained.

The equipment to be protected in the east area of RCA at elevation 3 ft, 7 in. are the A and B train CS/RHR heat exchanger (HX), and the A and B train safeguard component area air handling unit, and the A train SFP pump. The equipment to be protected in the west area of RCA at elevation 3 ft, 7 in. are the C and D train CS/RHR HX, and the C and D train safeguard component area air handling unit, and B train SFP pump.

The CS/RHR HX and the safeguard component area air handling unit are isolated by concrete walls and water-tight door. Moreover, floor drains of these rooms are separated from floor drains outside of these rooms and are also separated for each train. Therefore, flood water is assumed to run across the area except the CS/RHR HX and the safeguard component area air handling unit rooms.

Flood Events are considered as follows:

- Earthquake

The total water volume from the earthquake event is same as that of elevation -26 ft, 4 in.

- HELB/MELB

HELB event is not a concern, because the postulated pipe break at the discharge nozzle of the CVCS charging pump occurs at a location on a lower floor level.

- Fire Fighting Operations

The total water volume from the fire fighting operation events is same as that of elevation -26 ft, 4 in.

Based on the flood events described above, the worst case results are from a combination of earthquake and fire fighting operations. The total volume of flood water caused by this combination is 5,070 ft<sup>3</sup> in both the east and west area.

The footage of subject area and the water level are as follows:

- East side: 7,550 ft<sup>2</sup> area, 0.67 ft water height above elevation 3 ft, 7 in.
- West side: 5,850 ft<sup>2</sup> area, 0.87 ft water height above elevation 3 ft, 7 in.

CS/RHR HX and safeguard component area air handling unit are installed in the room which prevents flow-in water by water-tight door, and floor drains of these rooms are separated from floor drains outside of these rooms and are also separated for each trains. Therefore, components are not flooded. The instrumentation of the CS/RHR HX and safeguard component area air handling unit are installed above the flood water level.

The height (top of concrete) of A and B train SFP pump foundations are 1.0 ft above the floor elevation 3 ft, 7 in. Therefore, the SFP pumps are not flooded.

**Elevation 25 ft, 3 in.**

The equipment to be protected in the east and west area of RCA elevation 25 ft, 3 in. are the containment isolation valves in piping penetration room.

Flood Events are considered as follows:

- Earthquake

The total water volume from the earthquake event is same as that of elevation -26 ft, 4 in.

- HELB/MELB

HELB event is not a concern, because the postulated pipe break at the discharge nozzle of the CVCS charging pump occurs at a location on a lower floor level.

- Fire Fighting Operations

The total water volume from the fire fighting operation events is same as that of elevation -26 ft, 4 in.

Based on the flood events described above, the worst case results are from a combination of earthquake and fire fighting operations. The total volume of flood water caused by this combination is 5,070 ft<sup>3</sup> in both the east and west area.

The air handling unit foundations (top of concrete) height is 1.0 foot above floor elevation 50 ft, 2 in. As such, the air handling units are not flooded.

**Elevation 76 ft, 5 in.**

Elevation 76 ft, 5 in. of the NRCA is divided into the MS/FW piping area and other areas by concrete walls and water-tight doors. Moreover, the MS/FW piping area is divided into the two areas, east and west, by the concrete wall.

The equipment to be protected in the MS/FW piping area is the MS isolation valve, main feedwater isolation valve (MFIV), and MS depressurization valve.

The equipment to be protected in the subject area, except the MS/FW piping area, is the instrumentation of the EFW pit, and the remote shutdown console within the remote shutdown room.

Flood events in the MS/FW piping area are considered as follows:

- Earthquake

The total water volume from the earthquake event is same as that of elevation -26 ft, 4 in.

- HELB/MELB

In the flooding events caused by the postulated failure of piping, the high energy piping consists of main steam, feedwater, and SG blowdown piping, within the MS/FW piping area. A rupture of the feedwater piping in this area represents the worst case flooding scenario for this area. This is based on a 1.0 ft<sup>2</sup> break, as defined in Section 3.6, in the feedwater piping upstream of the feedwater check valve. The rupture at this point results in feedwater from the SG and from within the associated feedwater piping flow back into and flooding the compartment. In addition, the main feedwater pump is assumed be pumping at the maximum flowrate. As a result of this scenario, the water level in the SG would decline resulting in a low level alarm/signal from the SG water level indication instrumentation. The low water signal initiates the feedwater isolation circuit. Based on actuation of the feedwater isolation circuit, the main feedwater pump is tripped, which stops the main feedwater pump. The volume of water which floods the main steam/feedwater pipe/relief valve compartment, based on the time required to reach the low water level set point, is 12,180 ft<sup>3</sup>. The flood water occurring in the main steam/feed water piping room is drained to the T/B sump through the floor drain. Conservatively assuming that the drain line is clogged, the flood water will not be discharged by way of the floor drain.

- Fire Fighting Operations

The total water volume from the fire fighting operation events is same as that of elevation -26 ft, 4 in.

Based on the above, the worst case flooding in the MS/FW piping area is a piping rupture at 12,180 ft<sup>3</sup>. The floor area of the MS/FW piping area is 2,640 ft<sup>2</sup>; therefore the water level caused by piping rupture area is 4.6 ft above elevation 65 ft, 0 in, the bottom of the MS/FW piping area. The actuators of valve to be protected are designed to be

located at heights above the level of flood water. In addition, the bottom of doorways to the MS/FW piping area is at elevation 76 ft, 5 in. This is 11 ft, 5 in. above the floor at elevation 65 ft, 0 in, and the doorways located level is higher than the level of flood water. Therefore, the flood water flow from the MS/FW piping area to the balance of the NRCA portion of the R/B is not a consideration.

Flood events in the subject area except MS/FW piping room are considered as follows;

- Earthquake

The total water volume from the earthquake event is same as that of elevation - 26 ft, 4 in. The EFW pit is isolated by installing the water-tight doors to doorway to prevent flood water by sloshing of EFW pit spilling to other area.

- HELB/MELB

HELB event is not a concern, because maximum flood level within the MS/FW piping area is well below the door elevation as described above.

- Fire Fighting Operations

The total water volume from the fire fighting operation events is same as that of elevation -26 ft, 4 in.

Based on the flood events described above, the worst case results are from a combination of earthquake and fire fighting operations. The total volume of flood water caused by this combination is 4,710 ft<sup>3</sup> in both the east and west area.

The footage of subject area and the water level are as follows;

- East side: 3,500 ft<sup>2</sup> area, 1.35 ft above elevation 76 ft, 5 in.

- West side: 4,100 ft<sup>2</sup> area, 1.15 ft above elevation 76 ft, 5 in.

The instrumentation of the EFW pit is designed to be located at heights above the level of flood water. The remote shutdown console is installed in the remote shutdown room. There is no piping and therefore no flooding sources inside the remote shutdown room. In addition, the remote shutdown room is protected from in-flow of water from flood sources by a water-tight door.

### 3.4.2 Analysis Procedures

The static and dynamic effects of the design-basis flood or groundwater conditions, which are identified in Section 2.4, are applied to seismic category I structures. Section 3.8 specifies the applicable codes, standards, and specifications used in the design of seismic category I structures. The loads and load combination subsections of Section 3.8 take into consideration the static and dynamic loadings on seismic category I structures including hydrostatic loading as the result of the design-basis flood and/or ground conditions identified in Section 2.4. Section 3.8 also provides the design and analysis procedures used to transform the static and dynamic effects of the DBFL and ground water levels applied to seismic category I structures to assure their design meet the applicable acceptance criteria.