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May 27, 2010

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

Attention: Mr. Jeffrey A. Ciocco

Docket No. 52-021
MHI Ref: UAP-HF-10149

Subject: MHI's Responses to US-APWR DCD RAI No. 579-4481 Revision 2

Reference: 1) "Request for Additional Information No. 579-4481 Revision 2, SRP Section: 03.04.01 – Internal Flood Protection for Onsite Equipment Failures, Application Section: 3.4.1," dated April 28, 2010.

With this letter, Mitsubishi Heavy Industries, Ltd. ("MHI") transmits to the U.S. Nuclear Regulatory Commission ("NRC") a document entitled "Response to Request for Additional Information No. 579-4481 Revision 2".

Enclosed are the responses to 4 RAIs contained within Reference 1. Of the RAIs in Reference 1, four (4) will not be answered within this package. They are RAI 3.4.1-24, 26 through 28 which have a 45-day response time, as agreed to between the NRC and MHI, and will be issued at a later date by a separate transmittal.

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

Sincerely,

Atsushi Kumaki for

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

Enclosure:

1. Responses to Request for Additional Information No. 579-4481 Revision 2

D081
NRO

CC: J. A. Ciocco
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Enclosure 1

UAP-HF-10149
Docket No. 52-021

Responses to Request for Additional Information
No. 579-4481 Revision 2

May, 2010

RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION

05/27/2010

US-APWR Design Certification

Mitsubishi Heavy Industries, Ltd.

Docket No. 52-021

RAI NO.: **579-4481 REVISION 2**

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

APPLICATION SECTION: **3.4.1**

DATE OF RAI ISSUE: **04/28/2010**

QUESTION NO.: 03.04.01-21

In response to request for information (RAI) Question No. 3.4.1-01, Mitsubishi stated that the power source fuel storage vaults (PSFSVs) and essential service water pipe tunnel (ESWPT) are included in the standard plant design. However, it is not clear that the Design Control Document (DCD) has identified the set of systems, structures, and components (SSCs) located inside the PSFSVs and ESWPT that should be protected from flooding. Per DCD Tier 2 Table 3.2-2, "Classification of Mechanical and Fluid Systems, Components, and Equipment," and DCD Tier 2 Section 9.5.3.4, the PSFSVs contain seismic category I SSCs, specifically fuel oil storage tanks for the gas turbine generators. Also, DCD Tier 2 Table 3.2-2 indicates that the ESWPT contains some seismic category I SSCs, including essential service water valves. Furthermore, the DCD does not describe how internal flood protection is achieved for safety-related SSCs located inside the PSFSVs and ESWPT.

As discussed in Standard Review Plan (SRP) 3.4.1, Section II, "Acceptance Criteria," General Design 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." 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 should be protected from flooding should be reviewed, and therefore, should be identified in the DCD. Meeting the requirements of GDC 2 includes evaluating the effects of flooding from full circumferential failures of non-seismic, moderate-energy piping.

Also discussed in SRP3.4.1, 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. In accordance with SRP 3.4.1, Section I, "Areas of Review," there are a number of specific areas that should be reviewed, including SSCs that could be sources of internal flooding, the adequacy of flood isolation, provisions for protection against possible in-leakage sources, and design features used to mitigate the effects of internal flooding.

Provide a complete list of SSCs located within the PSFSVs and ESWPT that require protection from internal flood. Also, demonstrate how these SSCs are protected from internal flooding in accordance with SRP 3.4.1. Describe and demonstrate the adequacy of instrumentation for flood detection within the PSFSVs and ESWPT. Include this information in the DCD, identify which revision will include the change, and provide a markup in your response.

Reference: MHI's Responses to US-APWR DCD RAI No. 220-2058; MHI Ref: UAP-HF-09152; Dated April 8, 2009; ML091030066.

ANSWER:

In the response to RAI 220-2058, Question No. 3.4.1-01, MHI stated that system descriptions of the power source fuel storage vaults (PSFSVs) and essential service water pipe tunnel (ESWPT) are included in the standard plant design as a functional requirement. However, the PSFSVs and ESWPT structural design including seismic dynamic qualification, as applicable, are to be finalized based on the site-specific arrangement. After finalization of the structural design, internal flooding protection for these site-specific SSCs are to be qualified by the COL Applicant. MHI will revise the DCD to state that the COL Applicant is responsible for protection from internal flooding of site-specific SSCs that provide nuclear safety-related functions.

Impact on DCD

See Attachment 1 for mark-up of DCD Tier 2, Section 3.4, changes to be incorporated.

- Add the following statement after the last paragraph in DCD Subsection 3.4.1.3:

  "Appendix 3K provides the location of components within safety-related buildings of the US-APWR, and compares the maximum internal flood elevation within the vicinity of the components. The COL Applicant is responsible for the protection from internal flooding for those site-specific SSCs that provide nuclear safety-related functions or whose postulated failure due to internal flooding could adversely affect the ability of the plant to achieve and maintain a safe shutdown condition."

- Add the following COL item after COL 3.4(6) in Subsection 3.4.3:

  COL 3.4(7) *The COL Applicant is responsible for the protection from internal flooding for those site-specific SSCs that provide nuclear safety-related functions or whose postulated failure due to internal flooding could adversely affect the ability of the plant to achieve and maintain a safe shutdown condition.*

See Attachment 2 for the mark-up of DCD Tier 2, Section 1.8, changes to be incorporated.

- Add the following after COL 3.4(6) in Table 1.8-2 (sheet 4 of 44):

  COL 3.4(7) *The COL Applicant is responsible for the protection from internal flooding for those site-specific SSCs that provide nuclear safety-related functions or whose postulated failure due to internal flooding could adversely affect the ability of the plant to achieve and maintain a safe shutdown condition.*

Impact on COLA

The resolution regarding COL 3.4(7) that describes protection of site-specific SSCs from internal flooding will be added to FSAR Section 3.4.

Impact on PRA

There is no impact on the PRA.

RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION

05/27/2010

US-APWR Design Certification

Mitsubishi Heavy Industries, Ltd.

Docket No. 52-021

RAI NO.: **579-4481 REVISION 2**

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

APPLICATION SECTION: **3.4.1**

DATE OF RAI ISSUE: **04/28/2010**

QUESTION NO.: 03.04.01-22

In the amended May 21,2009 response to request for information (RAI) Question No.3.4.1-06, Mitsubishi stated that the Design Control Document (DCD) Tier 2 will be revised to include a complete list of systems, structures, and components (SSCs) inside the PS/B that require flood protection. A copy of this list has been included as part of Mitsubishi's response. This list contains numerous equipment items, including the Class 1E turbine generators and Class 1E batteries. However, neither this list nor the DCD Tier 2 identifies the need to protect electrical interconnections among components (e.g., cables) within the PS/B.

General Design 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." Per Standard Review Plan (SRP) 3.4.1, Item 1.1, the set of SSCs that must be protected from flooding should be reviewed, and therefore, should be identified in the DCD.

Identify the electrical interconnections among components located within the PS/B that require protection from internal flooding (e.g., cables). Include this information in the DCD, identify which revision will include the change, and provide a markup in your response.

Reference: Amended MHI's Responses to US-APWR DCD RAI No. 220-2058; MHI Ref: UAP-HF-09251; Dated May 21, 2009; ML091480377.

ANSWER:

The complete list of SSCs inside the PS/B that require flood protection was already provided in DCD Tier 2, Revision 2, Table 3K-4. The electrical interconnections among components (e.g. cables) were excluded as SSCs requiring protection against internal flooding, since the cables have a sheath around the wire and will maintain their function even if submerged. MHI will revise the DCD to state the reason for the cables being excluded from Table 3K-4.

Impact on DCD

See Attachment 3 for mark-up of DCD Tier 2, Appendix 3K changes to be incorporated.

- Add new Note 2 to end of DCD Table 3K-4 Notes:

  "2. The electrical interconnections among components (e.g., cables) are excluded as SSCs requiring protection against internal flooding, because cables have a sheath around the wire and will maintain their function even if submerged."

Impact on COLA

There is no impact on the COLA.

Impact on PRA

There is no impact on the PRA.

RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION

05/27/2010

US-APWR Design Certification

Mitsubishi Heavy Industries, Ltd.

Docket No. 52-021

RAI NO.: **579-4481 REVISION 2**

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

APPLICATION SECTION: **03.04.01**

DATE OF RAI ISSUE: **04/28/2010**

QUESTION NO.: 03.04.01-23

In the amended May 21, 2009 response to request for information (RAI) Question No.3.4.1-10, Mitsubishi stated that the Design Control Document (DCD) Tier 2 will be revised to include a complete list of systems, structures, and components (SSCs) inside the prestressed concrete containment vessel (PCCV) that require flood protection and the location of these SSCs relative to the flood level. A copy of this list has been included as part of Mitsubishi's response. The list reports maximum flood levels as measured above the nominal floor elevations of each SSC. For each SSC, the maximum flood level is reported to be 7.7m (25' 3") above the nominal floor elevation, even though the SSCs are distributed among several different floor elevations. Based on a review of the PCCV interior layout and the discussion provided in DCD Tier 2 Section 3.4.1.5.1, it does not appear that the maximum flood level would always be 7.7m (25 ft. 3 in.) above each of the nominal floor elevations.

In accordance with Standard Review Plan (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.

Verify the locations of safety-related SSCs inside the PCCV relative to the internal flood level as reported in your response to (RAI) Question No. 3.4.1-10. Update the internal flood level information as necessary. Include this information in the DCD, identify the revision in which it will be included, and provide a markup in your response.

Reference: Amended MHI's Responses to US-APWR DCD RAI No. 220-2058; MHI Ref: UAP-HF-09251; Dated May 21, 2009; ML091480377.

ANSWER:

The purpose of Table 3K-1 is to list all of the protective SSCs inside PCCV that require flood protection and to verify the locations of SSCs relative to the internal flood level. As described in DCD Subsection 3.4.1.5.1, the maximum flood event in the containment is a result of a LOCA and the volume of water from a LOCA is conservatively assumed to be 113,000 ft^3. The total volume of storage space in PCCV below the diaphragm at elevation 25 ft, 3 in. is 127,000 ft^3. Therefore, the maximum flood level will not be over 25ft, 3 in. inside PCCV.

The format of Table 3K-1 will be modified to verify whether each SSC is above the maximum flood elevation (EL. 25'-3") or not by adding the elevation of each SSC, and the column "SSC's level relative to the flood elevation (EL. 25'-3")" will be added to the Table 3K-1.

MHI will revise the DCD to state the purpose of the Table 3K-1 and to change the format of Table 3K-1.

Impact on DCD

See Attachment 1 for mark-up of DCD Tier 2, Section 3.4 Revision 3, changes to be incorporated.

- Add the following statement after the last paragraph of DCD 3.4.1.5.1:

  "Table 3K-1 is provided in order to list all the protective SSCs inside PCCV that require flood protection and to verify the locations of SSCs relative to the internal flood level. Table 3K-1 includes the information whether each SSC is above the maximum flood elevation inside PCCV (EL.25'-3") or not."

- See Attachment 3 for mark-up of DCD Tier 2, Appendix 3K, changes to be incorporated.

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

Item No.	Equipment Tag	Description	Location of SSCs					Notes
			Building	Side	Floor Elevation	Fire Zone No.	SSC level relative to the flood elevation (EL. 25'-3")	
1	RCS-MTK-001	Reactor Vessel	PCCV	N/A	-9'-2"	FA1-103-03	below	1
2	RCS-MHX-001A	A-Steam Generator	PCCV	N/A	25'-3"	FA1-101-11	above	
3	RCS-MHX-001B	B-Steam Generator	PCCV	N/A	25'-3"	FA1-101-08	above	
4	RCS-MHX-001C	C-Steam Generator	PCCV	N/A	25'-3"	FA1-101-09	above	
5	RCS-MHX-001D	D-Steam Generator	PCCV	N/A	25'-3"	FA1-101-10	above	

Refer to Attachment 3 for the mark-up of the remainder of Table 3K-1 which will be revised similarly to the above changes.

Impact on COLA

There is no impact on the COLA.

Impact on PRA

There is no impact on the PRA.

RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION

05/27/2010

US-APWR Design Certification

Mitsubishi Heavy Industries, Ltd.

Docket No. 52-021

RAI NO.: **NO. 0579-4481 REVISION 2**

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

APPLICATION SECTION: **03.04.01**

DATE OF RAI ISSUE: **04/28/2010**

QUESTION NO.: 03.04.01-25

In the amended May 21, 2009 response to request for information (RAI) Question No.3.4.1-14, Mitsubishi stated that sanitary piping represents the only sources of water inside the Main Control Room (MCR). Mitsubishi further states that internal flood countermeasures are not required inside the MCR because the "water lines are less than or equal to 1B." However, this statement is not clear, as Mitsubishi does not explain or define the term "1B." Furthermore, Mitsubishi does not propose to revise the Design Control Document (DCD) to describe how the MCR is protected from water sources inside the MCR.

As discussed in Standard Review Plan (SRP) 3.4.1, Section II, "Acceptance Criteria," General Design 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 systems, structures, and components (SSCs) important to safety being designed to accommodate the effects of environmental conditions associated with postulated 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.

Explain how safety-related equipment in the MCR is protected from internal floods related to sanitary piping located inside the MCR. Define any abbreviations or special terminology used in this explanation (e.g. "1B"). Include this information in the DCD, identify the revision in which it will be included, and provide a markup in your response.

Reference: Amended MHI's Responses to US-APWR DCD RAI No. 220-2058; MHI Ref: UAP-HF-09251; Dated May 21, 2009; ML091480377.

ANSWER:

MHI agrees that the term "1B" was not fully explained in the response to RAI 220-2058 Question No. 3.4.1-14. The term "1B" is the abbreviation of "1 inch nominal diameter pipe".

The postulated break/cracks are defined in DCD Subsection 3.6.2.1.3. For the moderate-energy fluid system piping, leakage cracks are not postulated in 1-inch nominal diameter and smaller piping. Since the sanitary piping in MCR is 1-inch nominal diameter moderated-energy fluid system piping, the cracks are not postulated.

MHI will revise the DCD to state that the leakage from sanitary piping in MCR is not postulated in internal flooding evaluation.

Impact on DCD

See Attachment 1 for mark-up of DCD Tier 2, Section 3.4, changes to be incorporated.

- Add the following after the second paragraph in DCD Subsection 3.4.1.5.2.2 for Elevation 25 ft, 3 in.:

  "Cracks are not postulated in the sanitary piping located in the MCR since it is 1-inch nominal diameter moderated-energy fluid system piping."

Impact on COLA

There is no impact on the COLA.

Impact on PRA

There is no impact on the PRA.

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

- T/B

  The T/B adjoins the NRCA of the R/B. The T/B is subject to flooding from a variety of potential sources including the circulating water, service water, condensate/feedwater, CCW, demineralized water, and fire protection systems.

  The bounding flooding source for the T/B is a break in the circulating water piping.

  A break in the circulating water system (CWS) piping would result in water flowing into the lower elevation of the T/B, elevation -18 ft, 0 in. When the flood water fills the lower level of the T/B, to prevent the CWS flood volume from affecting R/B equipment, a flood relief panel system is built into the T/B exterior walls. Passive actuation of the flood relief panels allows the CWS flood volume to drain out to the yard area. In the yard area, the flood volume is directed away from the plant structures by virtue of the site grading and yard drainage system. In addition, the water tight doors are installed in the doorways at ground level between T/B and R/B.

  There is no equipment to be protected from flooding in the T/B.

Appendix 3K provides the location of components within safety-related buildings of the US-APWR, and compares the maximum internal flood elevation within the vicinity of the components. The COL Applicant is responsible for the protection from internal flooding for those site-specific SSCs that provide nuclear safety-related functions or whose postulated failure due to internal flooding could adversely affect the ability of the plant to achieve and maintain a safe shutdown condition.

3.4.1.4 Evaluation of External Flooding

The following steps outline the external flood evaluation process:

(1) Identification of components required to maintain functionality during a flood event

(2) Identification of flood sources and flow paths relative to the identified components

(3) Risk assessment for components affected by a flood event

(4) Failure mode and effects analysis for components affected by a flood event

(5) Determination of appropriate actions to preclude impact to component safety functions

For purposes of the US-APWR standard plant design, the plant site DBFL caused by external source flooding is discussed in Section 2.4.

The PMP for the US-APWR standard plant design is defined in Section 2.4.

Based on the DBFL and the plant elevation with regard to the DBFL as presented in Section 2.4, the safety-related SSCs are protected from flooding along with the static and dynamic forces, if applicable, associated with a design basis flood in accordance with the requirements of RG 1.102 (Reference 3.4-3). The COL Applicant is to

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^3.

The total volume of storage space below the diaphragm at elevation 25 ft, 3 in. is 127,000 ft^3. All flood water is collected below the bottom-layer partition. The components to be protected are installed above this diaphragm; the SSCs inside the PCCV such as emergency letdown line isolation valve, safety depressurization valve and pressurizer backup heater are not affected by flood waters.

Table 3K-1 is provided in order to list all the protective SSCs inside PCCV that require flood protection and to verify the locations of SSCs relative to the internal flood level. Table 3K-1 includes the information whether each SSC is above the maximum flood elevation inside PCCV (EL.25'-3") or not.

3.4.1.5.2 Reactor Building Flooding Events

The US-APWR R/B consists of a RCA separated physically by concrete walls and/or floors and a NRCA. These concrete walls are designed so that flooding may not cross between mutual areas by installing penetrations for pipe, ducts, and cable trays above the maximum flooding level and/or by sealing the penetrations. As recommended by SRP 14.3.2 (Reference 3.4-4), penetrations in divisional walls are at least 8 ft, 3 in. above the floor, and safety-related electrical, instrumentation, and control equipment are located sufficiently above the flood level.

Inside the R/B, the cask wash down pit, the new fuel storage pit, and the interconnected spent fuel pit, the transfer canal, the cask loading pit, and the fuel inspection pit, with the tops of these open pits all located at plant elevation 76 ft, 5 in., represent potential large volumes of water. These pits are robust seismic category I structural reinforced concrete with thick walls, which have been designed for applicable loads, including hydrodynamic loads. Due to their robust design, postulated failure of these structures is not credible. Flood water that could be displaced out of these pits due to hydrodynamic effects such as sloshing is enclosed within pit area by water tight compartmentalization.

The R/B is adjoined by the A/B, and as such, the A/B consists of a RCA and a NRCA which are physically separated. Doorways with water-tight doors are provided between the RCA of the R/B and the RCA of the A/B. Similarly, doorways with water-tight doors are provided between the NRCA of the R/B and the NRCA of the A/B, and between the NRCA of R/B and T/B.

The NRCA of the R/B adjoins the PS/B, with doorways providing potential flow paths through the areas.

3.4.1.5.2.1 Radiological Controlled Area

The RCA is arranged with each of the four safety trains separated into four quadrants

- 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^3 in both the east and west area.

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

- East side: 1,500 ft^2 area, 3.14 ft above elevation 3 ft, 7 in.

- West side:1,500 ft^2 area, 3.14 ft above elevation 3 ft, 7 in.

Class 1E electrical panels are installed in the room which prevents flow-in water by water-tight door. Therefore, panels are not flooded.

Elevation 25 ft, 3 in.

The equipment to be protected in the NRCA portion of elevation 25 ft, 3 in. is the main control panel and Class 1E I&C panels. The main control room and Class 1E I&C rooms are isolated from corridor by concrete walls and water-tight door.

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.

- High-Energy Line Break/Moderate-Energy Line Break (HELB/MELB)

  HELB event is not a concern, because there are no piping breaks, which are assumed to occur in the subject area.

- Fire Fighting Operations

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

<u>Cracks are not postulated in the sanitary piping located in the MCR since it is 1-inch nominal diameter moderated-energy fluid system piping.</u>

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^3 in both the east and west area.

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

- East side: 1,500 ft^2 area, 3.14 ft above elevation 25 ft, 3 in.

- West side: 1,650 ft^2 area, 2.85 ft above elevation 25 ft, 3 in.

COL 3.4(4) *The COL Applicant is to address any additional measures below grade to protect against exterior flooding and the intrusion of ground water into seismic category I buildings and structures.*

COL 3.4(5) *The COL Applicant is to identify and design, if necessary, any site-specific flood protection measures such as levees, seawalls, floodwalls, site bulkheads, revetments, or breakwaters per the guidelines of RG 1.102 (Reference 3.4-3), or dewatering system if the plant is not built above the DBFL.*

COL 3.4(6) *The COL Applicant is to identify any site-specific physical models used to predict prototype performance of hydraulic structures and systems.*

COL 3.4(7) *The COL Applicant is responsible for the protection from internal flooding for those site-specific SSCs that provide nuclear safety-related functions or whose postulated failure due to internal flooding could adversely affect the ability of the plant to achieve and maintain a safe shutdown condition.*

Table 1.8-2 Compilation of All Combined License Applicant Items for Chapters 1-19 (sheet 4 of 44)

COL ITEM NO.	COL ITEM
COL 3.4(3)	*Site-specific flooding hazards from engineered features, such as from cooling water system piping, is to be addressed by the COL Applicant.*
COL 3.4(4)	*The COL Applicant is to address any additional measures below grade to protect against exterior flooding and the intrusion of ground water into seismic category I buildings and structures.*
COL 3.4(5)	*The COL Applicant is to identify and design, if necessary, any site-specific flood protection measures such as levees, seawalls, floodwalls, site bulkheads, revetments, or breakwaters per the guidelines of RG 1.102 (Reference 3.4-3), or dewatering system if the plant is not built above the DBFL.*
COL 3.4(6)	*The COL Applicant is to identify any site-specific physical models used to predict prototype performance of hydraulic structures and systems.*
COL 3.4(7)	*The COL Applicant is responsible for the protection from internal flooding for those site-specific SSCs that provide nuclear safety-related functions or whose postulated failure due to internal flooding could adversely affect the ability of the plant to achieve and maintain a safe shutdown condition.*
COL 3.5(1)	*The COL Applicant is to have plant procedures in place prior to fuel load that specify unsecured equipment, including portable pressurized gas cylinders, located inside or outside containment and required for maintenance or undergoing maintenance is to be removed from containment prior to operation, moved to a location where it is not a potential hazard to SSCs important to safety, or seismically restrained to prevent it from becoming a missile.*
COL 3.5(2)	*The COL Applicant is to commit to actions to maintain P_1 within this acceptable limit as outlined in RG 1.115, "Protection Against Low-Trajectory Turbine Missiles" (Reference 3.5-6) and SRP Section 3.5.1.3, "Turbine Missiles" (Reference 3.5-7).*
COL 3.5(3)	*As described in DCD, Section 2.2, the COL Applicant is to establish the presence of potential hazards, except aircraft, which is reviewed in Subsection 3.5.1.6, and the effects of potential accidents in the vicinity of the site.*

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

Item No.	Equipment Tag	Description	Location of SSCs					~~Flood Elevation above Floor [ft]~~	Notes
			Building	Side	Floor Elevation	Fire Zone No.	~~Location Elevation above Floor~~ SSC level relative to the flood elevation (EL. 25'-3")		
1	RCS-MTK-001	Reactor Vessel	PCCV	N/A	-9'-2"	FA1-103-03	below ~~flood elevation~~	~~max. El. 25'-3"~~	1
2	RCS-MHX-001A	A-Steam Generator	PCCV	N/A	25'-3"	FA1-101-11	above ~~flood elevation~~	~~max. El. 25'-3"~~	
3	RCS-MHX-001B	B-Steam Generator	PCCV	N/A	25'-3"	FA1-101-08	above ~~flood elevation~~	~~max. El. 25'-3"~~	
4	RCS-MHX-001C	C-Steam Generator	PCCV	N/A	25'-3"	FA1-101-09	above ~~flood elevation~~	~~max. El. 25'-3"~~	
5	RCS-MHX-001D	D-Steam Generator	PCCV	N/A	25'-3"	FA1-101-10	above ~~flood elevation~~	~~max. El. 25'-3"~~	
6	RCS-MTK-002	Pressurizer	PCCV	N/A	58'-5"	FA1-101-21	above ~~flood elevation~~	~~max. El. 25'-3"~~	
7	RCS-MPP-001A	A-Reactor Coolant Pump	PCCV	N/A	25'-3"	FA1-101-11	above ~~flood elevation~~	~~max. El. 25'-3"~~	
8	RCS-MPP-001B	B-Reactor Coolant Pump	PCCV	N/A	25'-3"	FA1-101-08	above ~~flood elevation~~	~~max. El. 25'-3"~~	
9	RCS-MPP-001C	C-Reactor Coolant Pump	PCCV	N/A	25'-3"	FA1-101-09	above ~~flood elevation~~	~~max. El. 25'-3"~~	
10	RCS-MPP-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 of SSCs					~~Flood Elevation above Floor [ft]~~	Notes
			Building	Side	Floor Elevation	Fire Zone No.	~~Location Elevation above Floor~~ SSC level relative to the flood elevation (EL. 25'-3")		
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-061A	A-Pressurizer Spray Valve	PCCV	N/A	50'-2"	FA1-101-15	above ~~flood elevation~~	~~max. El. 25'-3"~~	
28	RCS-PCV-061B	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-361	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 of SSCs					~~Flood Elevation above Floor [ft]~~	Notes
			Building	Side	Floor Elevation	Fire Zone No.	~~Location Elevation above Floor~~ SSC level relative to the flood elevation (EL. 25' -3")		
35	CVS-LCV-362	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-MTK-001A	A-Accumulator	PCCV	N/A	25'-3"	FA1-101-07	above ~~flood elevation~~	~~max. El. 25'-3"~~	
47	SIS-MTK-001B	B-Accumulator	PCCV	N/A	25'-3"	FA1-101-04	above ~~flood elevation~~	~~max. El. 25'-3"~~	
48	SIS-MTK-001C	C-Accumulator	PCCV	N/A	25'-3"	FA1-101-05	above ~~flood elevation~~	~~max. El. 25'-3"~~	

49	SIS-MTK-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 of SSCs					~~Flood Elevation above Floor [ft]~~	Notes
			Building	Side	Floor Elevation	Fire Zone No.	~~Location Elevation above Floor~~ SSC level relative to the flood elevation (EL. 25'-3")		
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-031A	Motor Operated Valve	PCCV	N/A	25'-3"	FA1-101-11	above ~~flood elevation~~	~~max. El. 25'-3"~~	
55	SIS-MOV-032A	Motor Operated Valve	PCCV	N/A	25'-3"	FA1-101-11	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 of SSCs					~~Flood Elevation above Floor [ft]~~	Notes
			Building	Side	Floor Elevation	Fire Zone No.	~~Location Elevation above Floor~~ SSC level relative to the flood elevation (EL. 25'-3")		
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-017	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 of SSCs					~~Flood Elevation above Floor [ft]~~	Notes
			Building	Side	Floor Elevation	Fire Zone No.	~~Location Elevation above Floor~~ SSC level relative to the flood elevation (EL. 25' -3")		
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-024B	Air Operated Valve	PCCV	N/A	25'-3"	FA1-101-04	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 of SSCs					~~Flood Elevation above Floor [ft]~~	Notes
			Building	Side	Floor Elevation	Fire Zone No.	~~Location Elevation above Floor~~ SSC level relative to the flood elevation (EL. 25' -3")		
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-024C	Air Operated Valve	PCCV	N/A	25'-3"	FA1-101-05	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-SNZ-001	Spray Nozzle	PCCV	N/A	76'-5"	FA1-101-26	above ~~flood elevation~~	~~max. El. 25'-3"~~	
115	CSS-SNZ-001	Spray Nozzle	PCCV	N/A	76'-5"	FA1-101-23	above ~~flood elevation~~	~~max. El. 25'-3"~~	
116	CSS-SNZ-001	Spray Nozzle	PCCV	N/A	76'-5"	FA1-101-24	above ~~flood elevation~~	~~max. El. 25'-3"~~	

117	CSS-SNZ-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 of SSCs					~~Flood Elevation above Floor [ft]~~	Notes
			Building	Side	Floor Elevation	Fire Zone No.	~~Location Elevation above Floor~~ SSC level relative to the flood elevation (EL. 25'-3")		
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-131A	Flow Control Valve	PCCV	N/A	25'-3"	FA1-101-05	above ~~flood elevation~~	~~max. El. 25'-3"~~	
127	NCS-FCV-131B	Flow Control Valve	PCCV	N/A	25'-3"	FA1-101-05	above ~~flood elevation~~	~~max. El. 25'-3"~~	
128	NCS-TCV-013	Temperature Control Valve	PCCV	N/A	50'-2"	FA1-101-16	above ~~flood elevation~~	~~max. El. 25'-3"~~	
129	NCS-FCV-129A	Flow Control Valve	PCCV	N/A	25'-3"	FA1-101-07	above ~~flood elevation~~	~~max. El. 25'-3"~~	
130	NCS-FCV-129B	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"~~	

ATTACHMENT 3
to RAI 579-4481

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 of SSCs					~~Flood Elevation above Floor [ft]~~	Notes
			Building	Side	Floor Elevation	Fire Zone No.	~~Location Elevation above Floor~~ SSC level relative to the flood elevation (EL. 25'-3")		
137	NCS-FCV-130A	Flow Control Valve	PCCV	N/A	25'-3"	FA1-101-04	above ~~flood elevation~~	~~max. El. 25'-3"~~	
138	NCS-FCV-130B	Flow Control Valve	PCCV	N/A	25'-3"	FA1-101-04	above ~~flood elevation~~	~~max. El. 25'-3"~~	
139	NCS-FCV-132A	Flow Control Valve	PCCV	N/A	25'-3"	FA1-101-06	above ~~flood elevation~~	~~max. El. 25'-3"~~	
140	NCS-FCV-132B	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-010A	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 of SSCs					~~Flood Elevation above Floor [ft]~~	Notes
			Building	Side	Floor Elevation	Fire Zone No.	~~Location Elevation above Floor~~ SSC level relative to the flood elevation (EL. 25'-3")		
154	PSS-AOV-062D	Air Operated Valve	PCCV	N/A	25'-3"	FA1-101-06	above ~~flood elevation~~	~~max. El. 25'-3"~~	
155	RWS-MPT-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	25'-3"	FA1-101-07	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		Containment Electrical Penetration	PCCV	N/A	50'-2"	FA1-101-18	above ~~flood elevation~~	~~max. El. 25'-3"~~	
163		Containment Electrical Penetration	PCCV	N/A	50'-2"	FA1-101-15	above ~~flood elevation~~	~~max. El. 25'-3"~~	
164		Containment Electrical Penetration	PCCV	N/A	50'-2"	FA1-101-16	above ~~flood elevation~~	~~max. El. 25'-3"~~	
165		Containment Electrical Penetration	PCCV	N/A	50'-2"	FA1-101-17	above ~~flood elevation~~	~~max. El. 25'-3"~~	
166		Containment Electrical Penetration	PCCV	N/A	76'-5"	FA1-101-23	above ~~flood elevation~~	~~max. El. 25'-3"~~	
167		Containment Electrical Penetration	PCCV	N/A	76'-5"	FA1-101-24	above ~~flood elevation~~	~~max. El. 25'-3"~~	

168	RCS-FT-022	Loop A - Reactor Coolant Flow	PCCV	N/A	25'-3"	FA1-101-07	above ~~flood elevation~~	~~max. El. 25'-3"~~	
169	RCS-FT-023	Loop A - Reactor Coolant Flow	PCCV	N/A	25'-3"	FA1-101-07	above ~~flood elevation~~	~~max. El. 25'-3"~~	
170	RCS-FT-024	Loop A - Reactor Coolant Flow	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 11 of 23)

Item No.	Equipment Tag	Description	Location of SSCs					~~Flood Elevation above Floor [ft]~~	Notes
			Building	Side	Floor Elevation	Fire Zone No.	~~Location Elevation above Floor~~ SSC level relative to the flood elevation (EL. 25'-3")		
171	RCS-FT-025	Loop A - Reactor Coolant Flow	PCCV	N/A	25'-3"	FA1-101-07	above ~~flood elevation~~	~~max. El. 25'-3"~~	
172	RCS-FT-032	Loop B - Reactor Coolant Flow	PCCV	N/A	25'-3"	FA1-101-04	above ~~flood elevation~~	~~max. El. 25'-3"~~	
173	RCS-FT-033	Loop B - Reactor Coolant Flow	PCCV	N/A	25'-3"	FA1-101-04	above ~~flood elevation~~	~~max. El. 25'-3"~~	
174	RCS-FT-034	Loop B - Reactor Coolant Flow	PCCV	N/A	25'-3"	FA1-101-04	above ~~flood elevation~~	~~max. El. 25'-3"~~	
175	RCS-FT-035	Loop B - Reactor Coolant Flow	PCCV	N/A	25'-3"	FA1-101-04	above ~~flood elevation~~	~~max. El. 25'-3"~~	
176	RCS-FT-042	Loop C - Reactor Coolant Flow	PCCV	N/A	25'-3"	FA1-101-05	above ~~flood elevation~~	~~max. El. 25'-3"~~	
177	RCS-FT-043	Loop C - Reactor Coolant Flow	PCCV	N/A	25'-3"	FA1-101-05	above ~~flood elevation~~	~~max. El. 25'-3"~~	
178	RCS-FT-044	Loop C - Reactor Coolant Flow	PCCV	N/A	25'-3"	FA1-101-05	above ~~flood elevation~~	~~max. El. 25'-3"~~	
179	RCS-FT-045	Loop C - Reactor Coolant Flow	PCCV	N/A	25'-3"	FA1-101-05	above ~~flood elevation~~	~~max. El. 25'-3"~~	
180	RCS-FT-052	Loop D - Reactor Coolant Flow	PCCV	N/A	25'-3"	FA1-101-06	above ~~flood elevation~~	~~max. El. 25'-3"~~	
181	RCS-FT-053	Loop D - Reactor Coolant Flow	PCCV	N/A	25'-3"	FA1-101-06	above ~~flood elevation~~	~~max. El. 25'-3"~~	
182	RCS-FT-054	Loop D - Reactor Coolant Flow	PCCV	N/A	25'-3"	FA1-101-06	above ~~flood elevation~~	~~max. El. 25'-3"~~	
183	RCS-FT-055	Loop D - Reactor Coolant Flow	PCCV	N/A	25'-3"	FA1-101-06	above ~~flood elevation~~	~~max. El. 25'-3"~~	
184	RCS-LT-061	Pressurizer Water Level	PCCV	N/A	50'-2"	FA1-101-16	above ~~flood elevation~~	~~max. El. 25'-3"~~	

185	RCS-LT-062	Pressurizer Water Level	PCCV	N/A	50'-2"	FA1-101-16	above ~~flood elevation~~	~~max. El. 25'-3"~~	
186	RCS-LT-063	Pressurizer Water Level	PCCV	N/A	50'-2"	FA1-101-15	above ~~flood elevation~~	~~max. El. 25'-3"~~	
187	RCS-LT-064	Pressurizer Water Level	PCCV	N/A	50'-2"	FA1-101-15	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 of SSCs					~~Flood Elevation above Floor [ft]~~	Notes
			Building	Side	Floor Elevation	Fire Zone No.	~~Location Elevation above Floor~~ SSC level relative to the flood elevation (EL. 25'-3")		
188	RCS-PT-020	Loop A - Reactor Coolant Pressure	PCCV	N/A	25'-3"	FA1-101-07	above ~~flood elevation~~	~~max. El. 25'-3"~~	
189	RCS-PT-030	Loop B - Reactor Coolant Pressure	PCCV	N/A	25'-3"	FA1-101-04	above ~~flood elevation~~	~~max. El. 25'-3"~~	
190	RCS-PT-040	Loop C - Reactor Coolant Pressure	PCCV	N/A	25'-3"	FA1-101-05	above ~~flood elevation~~	~~max. El. 25'-3"~~	
191	RCS-PT-050	Loop D - Reactor Coolant Pressure	PCCV	N/A	25'-3"	FA1-101-06	above ~~flood elevation~~	~~max. El. 25'-3"~~	
192	RCS-PT-061	Pressurizer Pressure	PCCV	N/A	76'-5"	FA1-101-24	above ~~flood elevation~~	~~max. El. 25'-3"~~	
193	RCS-PT-062	Pressurizer Pressure	PCCV	N/A	76'-5"	FA1-101-24	above ~~flood elevation~~	~~max. El. 25'-3"~~	
194	RCS-PT-063	Pressurizer Pressure	PCCV	N/A	76'-5"	FA1-101-24	above ~~flood elevation~~	~~max. El. 25'-3"~~	
195	RCS-PT-064	Pressurizer Pressure	PCCV	N/A	76'-5"	FA1-101-24	above ~~flood elevation~~	~~max. El. 25'-3"~~	
196	SIS-FT-072	A - Safety Injection Pump Minimum Flow	PCCV	N/A	25'-3"	FA1-101-07	above ~~flood elevation~~	~~max. El. 25'-3"~~	
197	SIS-FT-073	B - Safety Injection Pump Minimum Flow	PCCV	N/A	25'-3"	FA1-101-04	above ~~flood elevation~~	~~max. El. 25'-3"~~	
198	SIS-FT-074	C - Safety Injection Pump Minimum Flow	PCCV	N/A	25'-3"	FA1-101-05	above ~~flood elevation~~	~~max. El. 25'-3"~~	
199	SIS-FT-075	D - Safety Injection Pump Minimum Flow	PCCV	N/A	25'-3"	FA1-101-06	above ~~flood elevation~~	~~max. El. 25'-3"~~	
200	SIS-LT-010	A - Accumulator Water Level	PCCV	N/A	25'-3"	FA1-101-07	above ~~flood elevation~~	~~max. El. 25'-3"~~	

201	SIS-LT-020	B - Accumulator Water Level	PCCV	N/A	25'-3"	FA1-101-04	above ~~flood elevation~~	~~max. El. 25'-3"~~	
202	SIS-LT-030	C - Accumulator Water Level	PCCV	N/A	25'-3"	FA1-101-05	above ~~flood elevation~~	~~max. El. 25'-3"~~	
203	SIS-LT-040	D - Accumulator Water Level	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 13 of 23)

Item No.	Equipment Tag	Description	Location of SSCs					~~Flood Elevation above Floor [ft]~~	Notes
			Building	Side	Floor Elevation	Fire Zone No.	~~Location Elevation above Floor~~ SSC level relative to the flood elevation (EL. 25'-3")		
204	SIS-PT-010	A - Accumulator Pressure	PCCV	N/A	25'-3"	FA1-101-07	above ~~flood elevation~~	~~max. El. 25'-3"~~	
205	SIS-PT-020	B - Accumulator Pressure	PCCV	N/A	25'-3"	FA1-101-04	above ~~flood elevation~~	~~max. El. 25'-3"~~	
206	SIS-PT-030	C - Accumulator Pressure	PCCV	N/A	25'-3"	FA1-101-05	above ~~flood elevation~~	~~max. El. 25'-3"~~	
207	SIS-PT-040	D - Accumulator Pressure	PCCV	N/A	25'-3"	FA1-101-06	above ~~flood elevation~~	~~max. El. 25'-3"~~	
208	FWS-LT-510	A - Steam Generator Water Level (Narrow Range)	PCCV	N/A	76'-5"	FA1-101-26	above ~~flood elevation~~	~~max. El. 25'-3"~~	
209	FWS-LT-511	A - Steam Generator Water Level (Narrow Range)	PCCV	N/A	76'-5"	FA1-101-26	above ~~flood elevation~~	~~max. El. 25'-3"~~	
210	FWS-LT-512	A - Steam Generator Water Level (Narrow Range)	PCCV	N/A	76'-5"	FA1-101-26	above ~~flood elevation~~	~~max. El. 25'-3"~~	
211	FWS-LT-513	A - Steam Generator Water Level (Narrow Range)	PCCV	N/A	76'-5"	FA1-101-26	above ~~flood elevation~~	~~max. El. 25'-3"~~	
212	FWS-LT-514	A - Steam Generator Water Level (Wide Range)	PCCV	N/A	76'-5"	FA1-101-26	above ~~flood elevation~~	~~max. El. 25'-3"~~	
213	FWS-LT-520	B - Steam Generator Water Level (Narrow Range)	PCCV	N/A	76'-5"	FA1-101-23	above ~~flood elevation~~	~~max. El. 25'-3"~~	
214	FWS-LT-521	B - Steam Generator Water Level (Narrow Range)	PCCV	N/A	76'-5"	FA1-101-23	above ~~flood elevation~~	~~max. El. 25'-3"~~	

215	FWS-LT-522	B - Steam Generator Water Level (Narrow Range)	PCCV	N/A	76'-5"	FA1-101-23	above ~~flood elevation~~	~~max. El. 25'-3"~~	
216	FWS-LT-523	B - Steam Generator Water Level (Narrow Range)	PCCV	N/A	76'-5"	FA1-101-23	above ~~flood elevation~~	~~max. El. 25'-3"~~	
217	FWS-LT-524	B - Steam Generator Water Level (Wide Range)	PCCV	N/A	76'-5"	FA1-101-23	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 of SSCs					~~Flood Elevation above Floor [ft]~~	Notes
			Building	Side	Floor Elevation	Fire Zone No.	~~Location Elevation above Floor~~ SSC level relative to the flood elevation (EL. 25' -3")		
218	FWS-LT-530	C - Steam Generator Water Level (Narrow Range)	PCCV	N/A	76'-5"	FA1-101-24	above ~~flood elevation~~	~~max. El. 25'-3"~~	
219	FWS-LT-531	C - Steam Generator Water Level (Narrow Range)	PCCV	N/A	76'-5"	FA1-101-24	above ~~flood elevation~~	~~max. El. 25'-3"~~	
220	FWS-LT-532	C - Steam Generator Water Level (Narrow Range)	PCCV	N/A	76'-5"	FA1-101-24	above ~~flood elevation~~	~~max. El. 25'-3"~~	
221	FWS-LT-533	C - Steam Generator Water Level (Narrow Range)	PCCV	N/A	76'-5"	FA1-101-24	above ~~flood elevation~~	~~max. El. 25'-3"~~	
222	FWS-LT-534	C - Steam Generator Water Level (Wide Range)	PCCV	N/A	76'-5"	FA1-101-24	above ~~flood elevation~~	~~max. El. 25'-3"~~	
223	FWS-LT-540	D - Steam Generator Water Level (Narrow Range)	PCCV	N/A	76'-5"	FA1-101-25	above ~~flood elevation~~	~~max. El. 25'-3"~~	
224	FWS-LT-541	D - Steam Generator Water Level (Narrow Range)	PCCV	N/A	76'-5"	FA1-101-25	above ~~flood elevation~~	~~max. El. 25'-3"~~	
225	FWS-LT-542	D - Steam Generator Water Level (Narrow Range)	PCCV	N/A	76'-5"	FA1-101-25	above ~~flood elevation~~	~~max. El. 25'-3"~~	
226	FWS-LT-543	D - Steam Generator Water Level (Narrow Range)	PCCV	N/A	76'-5"	FA1-101-25	above ~~flood elevation~~	~~max. El. 25'-3"~~	
227	FWS-LT-544	D - Steam Generator Water Level (Wide Range)	PCCV	N/A	76'-5"	FA1-101-25	above ~~flood elevation~~	~~max. El. 25'-3"~~	
228	RWS-LT-010	Refueling Water Storage Pit Water Level (Narrow Range)	PCCV	N/A	25'-3"	FA1-101-07	above ~~flood elevation~~	~~max. El. 25'-3"~~	

229	RWS-LT-011	Refueling Water Storage Pit Water Level (Wide Range)	PCCV	N/A	25'-3"	FA1-101-07	above ~~flood elevation~~	~~max. El. 25'-3"~~	
230	RWS-LT-012	Refueling Water Storage Pit Water Level (Narrow Range)	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 15 of 23)

Item No.	Equipment Tag	Description	Location of SSCs					~~Flood Elevation above Floor [ft]~~	Notes
			Building	Side	Floor Elevation	Fire Zone No.	~~Location Elevation above Floor~~ SSC level relative to the flood elevation (EL. 25'-3")		
231	RWS-LT-013	Refueling Water Storage Pit Water Level (Wide Range)	PCCV	N/A	25'-3"	FA1-101-06	above ~~flood elevation~~	~~max. El. 25'-3"~~	
232	RCS-TE-020	Loop A - Reactor Coolant Hot Leg Temperature (Wide Range)	PCCV	N/A	25'-3"	FA1-101-11	above ~~flood elevation~~	~~max. El. 25'-3"~~	
233	RCS-TE-021A	Loop A - Reactor Coolant Hot Leg Temperature (Narrow Range)	PCCV	N/A	25'-3"	FA1-101-11	above ~~flood elevation~~	~~max. El. 25'-3"~~	
234	RCS-TE-021B	Loop A - Reactor Coolant Hot Leg Temperature (Narrow Range)	PCCV	N/A	25'-3"	FA1-101-11	above ~~flood elevation~~	~~max. El. 25'-3"~~	
235	RCS-TE-021C	Loop A - Reactor Coolant Hot Leg Temperature (Narrow Range)	PCCV	N/A	25'-3"	FA1-101-11	above ~~flood elevation~~	~~max. El. 25'-3"~~	
236	RCS-TE-021D	Loop A - Reactor Coolant Cold Leg Temperature (Narrow Range)	PCCV	N/A	25'-3"	FA1-101-11	above ~~flood elevation~~	~~max. El. 25'-3"~~	
237	RCS-TE-023A	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"~~	
238	RCS-TE-023B	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"~~	
239	RCS-TE-023C	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"~~	

240	RCS-TE-023D	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"~~	
241	RCS-TE-025	Loop A - Reactor Coolant Cold Leg Temperature (Wide 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 of SSCs					~~Flood Elevation above Floor [ft]~~	Notes
			Building	Side	Floor Elevation	Fire Zone No.	~~Location Elevation above Floor~~ SSC level relative to the flood elevation (EL. 25'-3")		
242	RCS-TE-030	Loop B - Reactor Coolant Hot Leg Temperature (Wide Range)	PCCV	N/A	25'-3"	FA1-101-08	above ~~flood elevation~~	~~max. El. 25'-3"~~	
243	RCS-TE-031A	Loop B - Reactor Coolant Hot Leg Temperature (Narrow Range)	PCCV	N/A	25'-3"	FA1-101-08	above ~~flood elevation~~	~~max. El. 25'-3"~~	
244	RCS-TE-031B	Loop B - Reactor Coolant Hot Leg Temperature (Narrow Range)	PCCV	N/A	25'-3"	FA1-101-08	above ~~flood elevation~~	~~max. El. 25'-3"~~	
245	RCS-TE-031C	Loop B - Reactor Coolant Hot Leg Temperature (Narrow Range)	PCCV	N/A	25'-3"	FA1-101-08	above ~~flood elevation~~	~~max. El. 25'-3"~~	
246	RCS-TE-031D	Loop B - Reactor Coolant Cold Leg Temperature (Narrow Range)	PCCV	N/A	25'-3"	FA1-101-08	above ~~flood elevation~~	~~max. El. 25'-3"~~	
247	RCS-TE-033A	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"~~	
248	RCS-TE-033B	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"~~	
249	RCS-TE-033C	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"~~	
250	RCS-TE-033D	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"~~	

251	RCS-TE-035	Loop B - Reactor Coolant Cold Leg Temperature (Wide Range)	PCCV	N/A	25'-3"	FA1-101-08	above ~~flood elevation~~	~~max. El. 25'-3"~~	
252	RCS-TE-040	Loop C - Reactor Coolant Hot Leg Temperature (Wide 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 17 of 23)

Item No.	Equipment Tag	Description	Location of SSCs					Flood Elevation above Floor [ft]	Notes
			Building	Side	Floor Elevation	Fire Zone No.	Location Elevation above Floor SSC level relative to the flood elevation (EL. 25' -3")		
253	RCS-TE-041A	Loop C - Reactor Coolant Hot Leg Temperature (Narrow Range)	PCCV	N/A	25'-3"	FA1-101-09	above flood elevation	max. El. 25' 3"	
254	RCS-TE-041B	Loop C - Reactor Coolant Hot Leg Temperature (Narrow Range)	PCCV	N/A	25'-3"	FA1-101-09	above flood elevation	max. El. 25' 3"	
255	RCS-TE-041C	Loop C - Reactor Coolant Hot Leg Temperature (Narrow Range)	PCCV	N/A	25'-3"	FA1-101-09	above flood elevation	max. El. 25' 3"	
256	RCS-TE-041D	Loop C - Reactor Coolant Cold Leg Temperature (Narrow Range)	PCCV	N/A	25'-3"	FA1-101-09	above flood elevation	max. El. 25' 3"	
257	RCS-TE-043A	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"	
258	RCS-TE-043B	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"	
259	RCS-TE-043C	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"	
260	RCS-TE-043D	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"	
261	RCS-TE-045	Loop C - Reactor Coolant Cold Leg Temperature (Wide Range)	PCCV	N/A	25'-3"	FA1-101-09	above flood elevation	max. El. 25' 3"	

262	RCS-TE-050	Loop D - Reactor Coolant Hot Leg Temperature (Wide Range)	PCCV	N/A	25'-3"	FA1-101-10	above ~~flood elevation~~	~~max. El. 25'-3"~~	
263	RCS-TE-051A	Loop D - Reactor Coolant Hot 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 18 of 23)

Item No.	Equipment Tag	Description	Location of SSCs					~~Flood Elevation above Floor [ft]~~	Notes
			Building	Side	Floor Elevation	Fire Zone No.	~~Location Elevation above Floor~~ SSC level relative to the flood elevation (EL. 25'-3")		
264	RCS-TE-051B	Loop D - Reactor Coolant Hot Leg Temperature (Narrow Range)	PCCV	N/A	25'-3"	FA1-101-10	above ~~flood elevation~~	~~max. El. 25'-3"~~	
265	RCS-TE-051C	Loop D - Reactor Coolant Hot Leg Temperature (Narrow Range)	PCCV	N/A	25'-3"	FA1-101-10	above ~~flood elevation~~	~~max. El. 25'-3"~~	
266	RCS-TE-051D	Loop D - Reactor Coolant Cold Leg Temperature (Narrow Range)	PCCV	N/A	25'-3"	FA1-101-10	above ~~flood elevation~~	~~max. El. 25'-3"~~	
267	RCS-TE-053A	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"~~	
268	RCS-TE-053B	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"~~	
269	RCS-TE-053C	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"~~	
270	RCS-TE-053D	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"~~	
271	RCS-TE-055	Loop D - Reactor Coolant Cold Leg Temperature (Wide Range)	PCCV	N/A	25'-3"	FA1-101-10	above ~~flood elevation~~	~~max. El. 25'-3"~~	
272	CSS-TE-020	Containment Temperature	PCCV	N/A	76'-5"	FA1-101-26	above ~~flood elevation~~	~~max. El. 25'-3"~~	

273	RCS-SE-028A	A - Reactor Coolant Pump Speed	PCCV	N/A	25'-3"	FA1-101-11	above ~~flood elevation~~	~~max. El. 25'-3"~~	
274	RCS-SE-028B	A - Reactor Coolant Pump Speed (spare)	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 19 of 23)

Item No.	Equipment Tag	Description	Location of SSCs					~~Flood Elevation above Floor [ft]~~	Notes
			Building	Side	Floor Elevation	Fire Zone No.	~~Location Elevation above Floor~~ SSC level relative to the flood elevation (EL. 25'-3")		
275	RCS-SE-038A	B - Reactor Coolant Pump Speed	PCCV	N/A	25'-3"	FA1-101-08	above ~~flood elevation~~	~~max. El. 25'-3"~~	
276	RCS-SE-038B	B - Reactor Coolant Pump Speed (spare)	PCCV	N/A	25'-3"	FA1-101-08	above ~~flood elevation~~	~~max. El. 25'-3"~~	
277	RCS-SE-048A	C - Reactor Coolant Pump Speed	PCCV	N/A	25'-3"	FA1-101-09	above ~~flood elevation~~	~~max. El. 25'-3"~~	
278	RCS-SE-048B	C - Reactor Coolant Pump Speed (spare)	PCCV	N/A	25'-3"	FA1-101-09	above ~~flood elevation~~	~~max. El. 25'-3"~~	
279	RCS-SE-058A	D - Reactor Coolant Pump Speed	PCCV	N/A	25'-3"	FA1-101-10	above ~~flood elevation~~	~~max. El. 25'-3"~~	
280	RCS-SE-058B	D - Reactor Coolant Pump Speed (spare)	PCCV	N/A	25'-3"	FA1-101-10	above ~~flood elevation~~	~~max. El. 25'-3"~~	
281	CIS-NE-31	Source Range Neutron Flux	PCCV	N/A	20'-2"	FA1-101-03	below ~~flood elevation~~	~~max. El. 25'-3"~~	3
282	CIS-NE-32	Source Range Neutron Flux	PCCV	N/A	20'-2"	FA1-101-03	below ~~flood elevation~~	~~max. El. 25'-3"~~	3
283	CIS-NE-35	Intermediate Range Neutron Flux	PCCV	N/A	20'-2"	FA1-101-03	above ~~flood elevation~~	~~max. El. 25'-3"~~	
284	CIS-NE-36	Intermediate Range Neutron Flux	PCCV	N/A	20'-2"	FA1-101-03	above ~~flood elevation~~	~~max. El. 25'-3"~~	
285	CIS-NE-41A	Power Range Neutron Flux (Upper)	PCCV	N/A	20'-2"	FA1-101-03	above ~~flood elevation~~	~~max. El. 25'-3"~~	
286	CIS-NE-41B	Power Range Neutron Flux (Lower)	PCCV	N/A	20'-2"	FA1-101-03	below ~~flood elevation~~	~~max. El. 25'-3"~~	3
287	CIS-NE-42A	Power Range Neutron Flux (Upper)	PCCV	N/A	20'-2"	FA1-101-03	above ~~flood elevation~~	~~max. El. 25'-3"~~	

288	CIS-NE-42B	Power Range Neutron Flux (Lower)	PCCV	N/A	20'-2"	FA1-101-03	below ~~flood elevation~~	~~max. El. 25'-3"~~	3
289	CIS-NE-43A	Power Range Neutron Flux (Upper)	PCCV	N/A	20'-2"	FA1-101-03	above ~~flood elevation~~	~~max. El. 25'-3"~~	
290	CIS-NE-43B	Power Range Neutron Flux (Lower)	PCCV	N/A	20'-2"	FA1-101-03	below ~~flood elevation~~	~~max. El. 25'-3"~~	3

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

Item No.	Equipment Tag	Description	Location of SSCs					~~Flood Elevation above Floor [ft]~~	Notes
			Building	Side	Floor Elevation	Fire Zone No.	~~Location Elevation above Floor~~ SSC level relative to the flood elevation (EL. 25'-3")		
291	CIS-NE-44A	Power Range Neutron Flux (Upper)	PCCV	N/A	20'-2"	FA1-101-03	above ~~flood elevation~~	~~max. El. 25'-3"~~	
292	CIS-NE-44B	Power Range Neutron Flux (Lower)	PCCV	N/A	20'-2"	FA1-101-03	below ~~flood elevation~~	~~max. El. 25'-3"~~	3
293	CIS-NE-33	Wide Range Neutron Flux	PCCV	N/A	20'-2"	FA1-101-03	above ~~flood elevation~~	~~max. El. 25'-3"~~	
294	CIS-NE-34	Wide Range Neutron Flux	PCCV	N/A	20'-2"	FA1-101-03	above ~~flood elevation~~	~~max. El. 25'-3"~~	
295	RCS-LE-181	Reactor Vessel Water Level	PCCV	N/A	46'-11"	-	above ~~flood elevation~~	~~max. El. 25'-3"~~	4
296	RCS-LE-182	Reactor Vessel Water Level	PCCV	N/A	46'-11"	-	above ~~flood elevation~~	~~max. El. 25'-3"~~	4
297	CIS-TE-01	Core Exit Temperature	PCCV	N/A	46'-11"	-	above ~~flood elevation~~	~~max. El. 25'-3"~~	4
298	CIS-TE-02	Core Exit Temperature	PCCV	N/A	46'-11"	-	above ~~flood elevation~~	~~max. El. 25'-3"~~	4
299	CIS-TE-03	Core Exit Temperature	PCCV	N/A	46'-11"	-	above ~~flood elevation~~	~~max. El. 25'-3"~~	4
300	CIS-TE-04	Core Exit Temperature	PCCV	N/A	46'-11"	-	above ~~flood elevation~~	~~max. El. 25'-3"~~	4
301	CIS-TE-05	Core Exit Temperature	PCCV	N/A	46'-11"	-	above ~~flood elevation~~	~~max. El. 25'-3"~~	4
302	CIS-TE-06	Core Exit Temperature	PCCV	N/A	46'-11"	-	above ~~flood elevation~~	~~max. El. 25'-3"~~	4
303	CIS-TE-07	Core Exit Temperature	PCCV	N/A	46'-11"	-	above ~~flood elevation~~	~~max. El. 25'-3"~~	4
304	CIS-TE-08	Core Exit Temperature	PCCV	N/A	46'-11"	-	above ~~flood elevation~~	~~max. El. 25'-3"~~	4

305	CIS-TE-09	Core Exit Temperature	PCCV	N/A	46'-11"	-	above ~~flood elevation~~	~~max. El. 25'-3"~~	4
306	CIS-TE-10	Core Exit Temperature	PCCV	N/A	46'-11"	-	above ~~flood elevation~~	~~max. El. 25'-3"~~	4
307	CIS-TE-11	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 21 of 23)

Item No.	Equipment Tag	Description	Location of SSCs					~~Flood Elevation above Floor [ft]~~	Notes
			Building	Side	Floor Elevation	Fire Zone No.	~~Location Elevation above Floor~~ SSC level relative to the flood elevation (EL. 25'-3")		
308	CIS-TE-12	Core Exit Temperature	PCCV	N/A	46'-11"	-	above ~~flood elevation~~	~~max. El. 25'-3"~~	4
309	CIS-TE-13	Core Exit Temperature	PCCV	N/A	46'-11"	-	above ~~flood elevation~~	~~max. El. 25'-3"~~	4
310	CIS-TE-14	Core Exit Temperature	PCCV	N/A	46'-11"	-	above ~~flood elevation~~	~~max. El. 25'-3"~~	4
311	CIS-TE-15	Core Exit Temperature	PCCV	N/A	46'-11"	-	above ~~flood elevation~~	~~max. El. 25'-3"~~	4
312	CIS-TE-16	Core Exit Temperature	PCCV	N/A	46'-11"	-	above ~~flood elevation~~	~~max. El. 25'-3"~~	4
313	CIS-TE-17	Core Exit Temperature	PCCV	N/A	46'-11"	-	above ~~flood elevation~~	~~max. El. 25'-3"~~	4
314	CIS-TE-18	Core Exit Temperature	PCCV	N/A	46'-11"	-	above ~~flood elevation~~	~~max. El. 25'-3"~~	4
315	CIS-TE-19	Core Exit Temperature	PCCV	N/A	46'-11"	-	above ~~flood elevation~~	~~max. El. 25'-3"~~	4
316	CIS-TE-20	Core Exit Temperature	PCCV	N/A	46'-11"	-	above ~~flood elevation~~	~~max. El. 25'-3"~~	4
317	CIS-TE-21	Core Exit Temperature	PCCV	N/A	46'-11"	-	above ~~flood elevation~~	~~max. El. 25'-3"~~	4
318	CIS-TE-22	Core Exit Temperature	PCCV	N/A	46'-11"	-	above ~~flood elevation~~	~~max. El. 25'-3"~~	4
319	CIS-TE-23	Core Exit Temperature	PCCV	N/A	46'-11"	-	above ~~flood elevation~~	~~max. El. 25'-3"~~	4
320	CIS-TE-24	Core Exit Temperature	PCCV	N/A	46'-11"	-	above ~~flood elevation~~	~~max. El. 25'-3"~~	4
321	CIS-TE-25	Core Exit Temperature	PCCV	N/A	46'-11"	-	above ~~flood elevation~~	~~max. El. 25'-3"~~	4

322	CIS-TE-26	Core Exit Temperature	PCCV	N/A	46'-11"	-	above ~~flood elevation~~	~~max. El. 25'-3"~~	4
323	RMS-RE-91	Containment High Range Area Radiation	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 22 of 23)

Item No.	Equipment Tag	Description	Location of SSCs					~~Flood Elevation above Floor [ft]~~	Notes
			Building	Side	Floor Elevation	Fire Zone No.	~~Location Elevation above Floor~~ SSC level relative to the flood elevation (EL. 25'-3")		
324	RMS-RE-92	Containment High Range Area Radiation	PCCV	N/A	76'-5"	FA1-101-23	above ~~flood elevation~~	~~max. El. 25'-3"~~	
325	RMS-RE-93	Containment High Range Area Radiation	PCCV	N/A	76'-5"	FA1-101-24	above ~~flood elevation~~	~~max. El. 25'-3"~~	
326	RMS-RE-94	Containment High Range Area Radiation	PCCV	N/A	76'-5"	FA1-101-25	above ~~flood elevation~~	~~max. El. 25'-3"~~	
337	VWS-MOV-422	Motor Operated Valve	PCCV	N/A	76'-5"	FA1-101-25	above ~~flood elevation~~	~~max. El. 25'-3"~~	

Table 3K-4 PS/B Components Protected From Internal Flooding
(Sheet 7 of 7)

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.
2. The electrical interconnections among components (e.g., cables) are excluded as SSCs requiring protection against internal flooding, because cables have a sheath around the wire and will maintain their function even if submerged.