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June 28, 2012

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-12184

Subject: **MHI's Response to US-APWR DCD RAI No. 934-6458 Revision 3 (SRP 14.03.02)**

Reference: 1) "Request for Additional Information No. 934-6458 Revision 3, SRP Section 14.03.02 – Structural and Systems Engineering - Inspections, Tests, Analyses, and Acceptance Criteria - Application Section: Tier 1 Section 2.2", dated May 29, 2012.

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. 934-6458 Revision 3 (SRP 14.03.02)."

Enclosed is the response to the questions contained within Reference 1.

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

Sincerely,

Y. Ogata

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

Enclosure:

1. Response to Request for Additional Information No. 934-6458 Revision 3 (SRP 14.03.02)

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NRO

CC: J. A. Ciocco
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Docket No. 52-021
MHI Ref: UAP-HF-12184

Enclosure 1

UAP-HF-12184
Docket No. 52-021

Response to Request for Additional Information No. 934-6458
Revision 3 (SRP 14.03.02)

June 2012

RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION

6/28/2012

US-APWR Design Certification

Mitsubishi Heavy Industries

Docket No. 52-021

RAI NO.: **NO. 934-6458 REVISION 3**

SRP SECTION: **14.03.02 – STRUCTURAL AND SYSTEMS ENGINEERING – INSPECTIONS, TESTS, ANALYSES, AND ACCEPTANCE CRITERIA**

APPLICATION SECTION: **TIER 1 SECTION 2.2**

DATE OF RAI ISSUE: **5/29/2012**

QUESTION NO.: 14.03.02-20

In Tier 1 DCD Revision 3, Table 2.2-4, ITAAC 1, the term "structural configurations is undefined. The defined term "physical arrangement" should replace the undefined term in the ITAAC's DC/ITA/AC.

ANSWER:

MHI will revise DCD Tier 1, Subsection 2.2.3.1 and Table 2.2-4, item 1 to replace the term "structural configuration" with "physical arrangement."

Impact on DCD

DCD Tier 1, Subsection 2.2.3.1 and Table 2.2-4, item 1 will be revised as shown in Attachment 1.

Impact on R-COLA

There is no impact on the R-COLA.

Impact on S-COLA

There is no impact on the S-COLA

Impact on PRA

There is no impact on the PRA.

Impact on Technical / Topical Reports

There is no impact on the Technical / Topical Reports.

RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION

6/28/2012

US-APWR Design Certification

Mitsubishi Heavy Industries

Docket No. 52-021

RAI NO.: **NO. 934-6458 REVISION 3**

SRP SECTION: **14.03.02 – STRUCTURAL AND SYSTEMS ENGINEERING – INSPECTIONS, TESTS, ANALYSES, AND ACCEPTANCE CRITERIA**

APPLICATION SECTION: **TIER 1 SECTION 2.2**

DATE OF RAI ISSUE: **5/29/2012**

QUESTION NO.: 14.03.02-21

In Tier 1 DCD Revision 3, Table 2.2-4, ITAAC 1, the second part of the ITAAC (i.e. verification of wall thickness) should be separate and clearly delineated in the DC/ITA/AC, perhaps as a new and separate ITAAC.

ANSWER:

MHI will revise DCD Tier 1 Subsection 2.2.3.1 and Table 2.2-4, item 1 to separate the verification of wall and floor thicknesses from the verification of the physical arrangement of R/B and PS/B structures. Additionally, Table 2.2-2 will be clarified to state that the wall and floor concrete thickness values are nominal dimensions.

Impact on DCD

DCD Tier 1, Subsection 2.2.3.1, Table 2.2-2, and Table 2.2-4, item 1 will be revised as shown in Attachment 1.

Impact on R-COLA

There is no impact on the R-COLA.

Impact on S-COLA

There is no impact on the S-COLA

Impact on PRA

There is no impact on the PRA.

Impact on Technical / Topical Reports

There is no impact on the Technical / Topical Reports.

RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION

6/28/2012

US-APWR Design Certification

Mitsubishi Heavy Industries

Docket No. 52-021

RAI NO.: **NO. 934-6458 REVISION 3**

SRP SECTION: **14.03.02 – STRUCTURAL AND SYSTEMS ENGINEERING – INSPECTIONS, TESTS, ANALYSES, AND ACCEPTANCE CRITERIA**

APPLICATION SECTION: **TIER 1 SECTION 2.2**

DATE OF RAI ISSUE: **5/29/2012**

QUESTION NO.: 14.03.02-22

In Tier 1 DCD Revision 3, Table 2.2-4, ITAACs 5 & 6, both ITAAC should include "Inspection" in the ITA, such as "Inspection and analysis will be performed..."

ANSWER:

MHI will revise DCD Tier 1, Table 2.2-4, items 5 and 6 to include "inspection" in the ITA.

Impact on DCD

DCD Tier 1, Table 2.2-4, items 5 and 6 will be revised as shown in Attachment 1.

Impact on R-COLA

There is no impact on the R-COLA.

Impact on S-COLA

There is no impact on the S-COLA

Impact on PRA

There is no impact on the PRA.

Impact on Technical / Topical Reports

There is no impact on the Technical / Topical Reports.

RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION

6/28/2012

US-APWR Design Certification

Mitsubishi Heavy Industries

Docket No. 52-021

RAI NO.: **NO. 934-6458 REVISION 3**

SRP SECTION: **14.03.02 – STRUCTURAL AND SYSTEMS ENGINEERING – INSPECTIONS, TESTS, ANALYSES, AND ACCEPTANCE CRITERIA**

APPLICATION SECTION: **TIER 1 SECTION 2.2**

DATE OF RAI ISSUE: **5/29/2012**

QUESTION NO.: 14.03.02-23

In Tier 1 DCD Revision 3, Table 2.2-4, ITAAC 14 references the "design basis flood level," while ITAAC 13 only references the "flood level". Should both ITAAC reference the same site specific "design basis flood"? Specify the required flood level.

ANSWER:

MHI will revise DCD Tier 1, Subsection 2.2.3.1 and Table 2.2-4, item 13 to replace the term "flood level" with "design basis flood level."

Impact on DCD

DCD Tier 1, Subsection 2.2.3.1 and Table 2.2-4, item 13 will be revised as shown in Attachment 1.

Impact on R-COLA

There is no impact on the R-COLA.

Impact on S-COLA

There is no impact on the S-COLA

Impact on PRA

There is no impact on the PRA.

Impact on Technical / Topical Reports

There is no impact on the Technical / Topical Reports.

RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION

6/28/2012

US-APWR Design Certification

Mitsubishi Heavy Industries

Docket No. 52-021

RAI NO.: **NO. 934-6458 REVISION 3**

SRP SECTION: **14.03.02 – STRUCTURAL AND SYSTEMS ENGINEERING – INSPECTIONS, TESTS, ANALYSES, AND ACCEPTANCE CRITERIA**

APPLICATION SECTION: **TIER 1 SECTION 2.2**

DATE OF RAI ISSUE: **5/29/2012**

QUESTION NO.: 14.03.02-24

In Tier 1 DCD Revision 3, Table 2.2-4, ITAAC 17, the "and" in the 3rd line from the bottom of the Acceptance Criteria should be deleted so it will just be "to preserve…".

ANSWER:

MHI will revise DCD Tier 1, Table 2.2-4, item 17 to remove the word "and" in the 3rd line from the bottom of the Acceptance Criteria.

Impact on DCD

DCD Tier 1, Table 2.2-4, item 17 will be revised as shown in Attachment 1.

Impact on R-COLA

There is no impact on the R-COLA.

Impact on S-COLA

There is no impact on the S-COLA

Impact on PRA

There is no impact on the PRA.

Impact on Technical / Topical Reports

There is no impact on the Technical / Topical Reports.

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

- Favorably orienting potential missile sources

2.2.3 System Structural Design

2.2.3.1 Piping Systems and Components

ITAAC for ASME Code, Section III piping systems and components are provided in Section 2.3. Section 2.3 also describes design considerations and related ITAAC to verify that safety-related SSCs can withstand the dynamic effects of pipe breaks.

1.a. The ~~structural configurations~~physical arrangements of the R/B and each PS/B are as described in the Design Description of Subsection 2.2.1 ~~and in Table 2.2-2,~~ and as shown in Figures 2.2-1 through 2.2-13. DCD_14.03.02-20 DCD_14.03.02-21

1.b. The wall and floor thicknesses of the R/B and each PS/B are as described in Table 2.2-2. DCD_14.03.02-21

2. Deleted.

3. The PCCV retains structural integrity at the design pressure of 68 psig.

4.a. The integrated containment system barrier prevents the release of fission products to the atmosphere.

4.b. The containment system barrier penetrations prevent the release of fission products to the atmosphere.

5. The PCCV can withstand design-basis loads.

6. The seismic Category I buildings identified in Table 2.2-1, other than the PCCV, can withstand design-basis loads.

7. Deleted.

8. Deleted.

9. Divisional flood barriers are provided in the R/B and each PS/B to protect against internal flooding.

10. Water-tight doors are provided in the R/B and each PS/B to protect against internal flooding.

11. Penetrations in the divisional flood barriers of the R/B and each PS/B, as shown in Figures 2.2-14 through 2.2-25, (other than water-tight doors) that are at or below the internal design flood level, as shown in Table 2.2-5, are fitted with water-tight seals.

12. Safety-related electrical, instrumentation, and control equipment in the R/B and each PS/B is located above the internal design flood level.

Table 2.2-2 Definition of Wall Thicknesses for Seismic Category I Structures: Containment Internal Structure, Reactor Building, and Power Source Building (Sheet 1 of 15)

Wall or Section Description	Column Lines[1]	Floor Elevation or Elevation Range[1]	Concrete Thickness[3]~~(4)~~[5]	Applicable Radiation Shielding Wall (Yes/No)
Containment Internal Structure (e.g., Primary Shield Wall, Secondary Shield Wall, Steam Generator Compartments, Pressurizer Compartment, Refueling Water Storage Pit, Refueling Cavity)				
Primary Shield Wall	Not Applicable	From -12'-6" to 35'-11"	~~9'-2"~~9'-11"[4]	Yes
Secondary Shield Wall	Not Applicable	From 3'-7" to 97'-9"	4'-0"	Yes
Secondary Shield Wall	Not Applicable	From 97'-9" to 112'-0"	4'-0"	Yes
Pressurizer Compartment	Not Applicable	From 58'-5" to 112'-4"	4'-0"	Yes
Pressurizer Compartment	Not Applicable	From 112'-4" to 139'-6"	3'-0"	Yes
Refueling Cavity	Not Applicable	From 34'-5" to 76'-5"	4'-8"	Yes
North side of Refueling Cavity	Not Applicable	From 34'-5" to 76'-5"	5'-7"	Yes

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DCD_14.03.02-21

DCD_03.07.02-35
MIC-03-T1-0 0066

Table 2.2-2 Definition of Wall Thicknesses for Seismic Category I Structures: Containment Internal Structure, Reactor Building, and Power Source Building (Sheet 2 of 15)

Wall or Section Description	Column Lines[1]	Floor Elevation or Elevation Range[1]	Concrete Thickness[3][5]	Applicable Radiation Shielding Wall (Yes/No)
Refueling Water Storage Pit Wall	Not Applicable	From 1'-11" to 21'-11"	3'-3"	Yes
North side of floor	Not Applicable	25'-3"	3'-4"	No
South side of floor	Not Applicable	25'-3"	3'-4"	Yes
East side of floor	Not Applicable	25'-3"	4'-3"	No
West side of floor	Not Applicable	25'-3"	4'-3"	No
Floor	Not Applicable	50'-2"	1'-4"	Yes
Floor	Not Applicable	76'-5"	2'-0"	No
Reactor Building				
Fuel Storage and Handling Area (Spent Fuel Pit, New Fuel Pit, Cask Pit, Cask Washdown Pit, Fuel Inspection Pit)				
Column Line AR wall	From 1R to 2aR	From -26'-4" to 3'-7"	3'-4"	Yes
Column Line AR wall	From 2aR to 4R	From -26'-4" to -8'-7"	4'-0"	Yes

DCD_14.03.02-21

Table 2.2-2 Definition of Wall Thicknesses for Seismic Category I Structures: Containment Internal Structure, Reactor Building, and Power Source Building (Sheet 3 of 15)

Wall or Section Description	Column Lines[1]	Floor Elevation or Elevation Range[1]	Concrete Thickness[5]	Applicable Radiation Shielding Wall (Yes/No)
Column Line AR wall	From 2aR to 4R	From -8'-7" to 3'-7"	3'-8"	Yes
Column Line AR wall	From 4R to 13'-2" east of 6aR	From -26'-4" to 3'-7"	3'-8"	Yes
Column Line AR wall	From 13'-2" east of 6aR to 8R	From -26'-4" to 3'-7"	3'-4"	Yes
Column Line AR wall	From 8R to 6'-8" east of 8aR	From -26'-4" to 3'-7"	4'-0"	Yes
Column Line AR wall	From 6'-8" east of 8aR to 11R	From -26'-4" to 3'-7"	3'-4"	Yes
Column Line AR wall	From 1R to 2aR	From 3'-7" to 25'-3"	3'-4"	Yes
Column Line AR wall	From 2aR to 4R	From 3'-7" to 25'-3"	3'-8"	Yes
Column Line AR wall	From 4R to 9'-4" east of 6aR	From 3'-7" to 25'-3"	7'-9"	Yes
Column Line AR wall	From 9'-4" east of 6aR to 11R	From 3'-7" to 25'-3"	3'-4"	Yes
Column Line AR wall	From 1R to 2aR	From 25'-3" to 50'-2"	3'-4"	Yes
Column Line AR wall	From 2aR to 4R	From 25'-3" to 50'-2"	5'-9"	Yes
Column Line AR wall	From 4R to 5aR	From 30'-1" to 76'-5"	7'-9"	Yes
Column Line AR wall	From 6R to 9'-4" east of 6aR	From 27'-4" to 76'-5"	7'-9"	Yes
Column Line AR wall	From 9'-4" east of 6aR to 11R	From 25'-3" to 50'-2"	3'-4"	Yes
Column Line AR wall	From 1R to 8'-3" east of 2bR	From 50'-2" to 76'-5"	3'-4"	Yes

DCD_14.03.02-21

Table 2.2-2 Definition of Wall Thicknesses for Seismic Category I Structures: Containment Internal Structure, Reactor Building, and Power Source Building (Sheet 4 of 15)

Wall or Section Description	Column Lines[1]	Floor Elevation or Elevation Range[1]	Concrete Thickness[5]	Applicable Radiation Shielding Wall (Yes/No)
Column Line AR wall	From 5aR to 6R	From 50'-2" to 76'-5"	7'-9"	Yes
Column Line AR wall	From 9'-4" east of 6aR to 6'-8" east of 8R	From 48'-3" to 76'-5"	6'-10"	Yes
Column Line AR wall	From 6'-8" east of 8R to 11R	From 50'-2" to 76'-5"	3'-4"	Yes
Column Line AR wall	From 1R to 7'-1" east of 2bR	From 76'-5" to 101'-0"	3'-4"	Yes
Column Line AR wall	From 7'-1" east of 2bR to 11R	From 76'-5" to 154'-6"	1'-9"	Yes
Column Line 1R wall	From AR to CR	From -26'-4" to 50'-2"	3'-4"	Yes
Column Line 1R wall	From AR to CR	From 50'-2" to 76'-5"	2'-8"	Yes
Column Line 1R wall	From AR to CR	From 76'-5" to 101'-0"	2'-4"	Yes
Column Line 11R wall	From AR to CR	From -26'-4" to 3'-7"	3'-4"	Yes
Column Line 11R wall	From A2R to CR	From 3'-7" to 25'-3"	3'-4"	Yes
Column Line 11R wall	From AR to CR	From 25'-3" to 50'-2"	3'-4"	Yes
Column Line 11R wall	From AR to CR	From 50'-2" to 76'-5"	3'-4"	Yes
Column Line 11R wall	From AR to CR	From 76'-5" to 125'-8"	3'-4"	Yes
Column Line 11R wall	From AR to CR	From 125'-8" to 154'-6"	2'-0"	Yes
Floor	From AR to CR and 1R to 11R	-26'-4"	9'-11"	No

DCD_14.03.02-21

Table 2.2-2 Definition of Wall Thicknesses for Seismic Category I Structures: Containment Internal Structure, Reactor Building, and Power Source Building (Sheet 5 of 15)

Wall or Section Description	Column Lines[1]	Floor Elevation or Elevation Range[1]	Concrete Thickness[5]	Applicable Radiation Shielding Wall (Yes/No)
Safety System Pumps Areas				
Column Line CR wall	From 1R to 2R	From -26'-4" to -8'-7"	3'-4"	No
Column Line CR wall	From 2R to 4bR	From -26'-4" to 3'-7"	3'-4"	Yes
Column Line CR wall	From 8R to 10R	From -26'-4" to 3'-7"	3'-4"	Yes
Column Line CR wall	From 10R to 11R	From -26'-4" to -8'-7"	3'-4"	No
Column Line CR wall	From 2R to 3'-4" east of 4aR	From 3'-7" to 15'-9"	3'-10"	Yes
Column Line CR wall	From 2R to 3'-4" east of 4aR	From 15'-9" to 25'-3"	3'-2"	Yes
Column Line CR wall	From 3'-4" east of 4aR to 10'-1" east of 8R	From 3'-7" to 25'-3"	3'-2"	Yes
Column Line CR wall	From 10'-1" east of 8R to 11R	From 3'-7" to 25'-3"	3'-10"	Yes
Column Line CR wall	From 1R to 4bR	From 25'-3" to 50'-2"	3'-2"	Yes
Column Line CR wall	From 4bR to 10'-5" east of 4bR	From 25'-3" to 50'-2"	3'-4"	Yes
Column Line CR wall	From 10'-5" east of 4bR to 6aR	From 25'-3" to 50'-2"	3'-10"	Yes
Column Line CR wall	From 6aR to 7aR	From 25'-3" to 50'-2"	3'-8"	Yes
Column Line CR wall	From 7aR to 2'-4" east of 8aR	From 25'-3" to 50'-2"	3'-2"	No
Column Line CR wall	From 2'-4" east of 8aR to 11R	From 25'-3" to 50'-2"	2'-0"	Yes

DCD_14.03.02-21

Table 2.2-2 Definition of Wall Thicknesses for Seismic Category I Structures: Containment Internal Structure, Reactor Building, and Power Source Building (Sheet 6 of 15)

Wall or Section Description	Column Lines[1]	Floor Elevation or Elevation Range[1]	Concrete Thickness[5]	Applicable Radiation Shielding Wall (Yes/No)
Column Line CR wall	From 1R to 8'-3" east of 2bR	From 50'-2" to 76'-5"	2'-6"	Yes
Column Line CR wall	From 1R to 2R	From 76'-5" to 101'-0"	2'-8"	No
Column Line CR wall	From 3'-9" east of 2bR to 4bR	From 76'-5" to 101'-0"	2'-8"	Yes
Column Line CR wall	From 3'-9" east of 2bR to 4bR	From 101'-0" to 154'-6"	1'-9"	Yes
Column Line CR wall	From 4bR to 11R	From 76'-5" to 154'-6"	1'-9"	Yes
Column Line JR wall	From 1R to 5R	From -26'-4" to 3'-7"	3'-8"	Yes
Column Line JR wall	From 7R to 11R	From -26'-4" to 3'-7"	3'-8"	Yes
Column Line JR wall	From 1R to 11R	From 3'-7" to 26'-11"	3'-8"	Yes
Column Line JR wall	From 1R to 11R	From 26'-11" to 50'-2"	3'-4"	Yes
Column Line JR wall	From 1R to 5R	From 50'-2" to 76'-5"	3'-4"	No
Column Line JR wall	From 5R to 7R	From 50'-2" to 65'-0"	3'-4"	No
Column Line JR wall	From 7R to 11R	From 50'-2" to 76'-5"	3'-4"	No
Column Line JR wall	From 1R to 5R	From 76'-5" to 101'-0"	3'-4"	No
Column Line JR wall	From 7R to 11R	From 76'-5" to 101'-0"	3'-4"	No
Column Line 1R wall	From CR to JR	From -26'-4" to 3'-7"	3'-4"	Yes

DCD_14.03.02-21

Table 2.2-2 Definition of Wall Thicknesses for Seismic Category I Structures: Containment Internal Structure, Reactor Building, and Power Source Building (Sheet 7 of 15)

Wall or Section Description	Column Lines[1]	Floor Elevation or Elevation Range[1]	Concrete Thickness[5]	Applicable Radiation Shielding Wall (Yes/No)
Column Line 1R wall	From CR to 12'-7" south of D2R	From 3'-7" to 25'-3"	3'-4"	Yes
Column Line 1R wall	From 12'-7" south of D2R to 10'-8" south of GR	From 3'-7" to 17'-8"	3'-4"	Yes
Column Line 1R wall	From 12'-7" south of D2R to 10'-8" south of GR	From 17'-8" to 25'-3"	4'-2"	Yes
Column Line 1R wall	From 10'-8" south of GR to JR	From 3'-7" to 25'-3"	3'-4"	Yes
Column Line 1R wall	From CR to 11'-11" south of D2R	From 25'-3" to 50'-2"	3'-4"	Yes
Column Line 1R wall	From 11'-11" south of D2R to 11'-4" south of GR	From 25'-3" to 42'-4"	3'-4"	Yes
Column Line 1R wall	From 11'-11" south of D2R to 11'-4" south of GR	From 42'-4" to 50'-2"	4'-2"	Yes
Column Line 1R wall	From 10'-8" south of GR to JR	From 25'-3" to 50'-2"	3'-4"	Yes
Column Line 1R wall	From CR to 15'-7" south of HR	From 50'-2" to 76'-5"	2'-8"	Yes
Column Line 1R wall	From 15'-7" south of HR to JR	From 50'-2" to 76'-5"	3'-4"	No
Column Line 1R wall	From CR to JR	From 76'-5" to 101'-0"	2'-4"	Yes
Column Line 2R wall	From CR to 8'-7" south of CR	From -26'-4" to -8'-7"	3'-4"	Yes
Column Line 2R wall	From 17'-7" south of CR to 6'-10" south of D2R	From -26'-4" to -8'-7"	2'-8"	Yes
Column Line 2R wall	From 16'-5" south of GR to 15'-7" south of HR	From -26'-4" to -8'-7"	2'-8"	Yes

DCD_14.03.02-21

Table 2.2-2 Definition of Wall Thicknesses for Seismic Category I Structures: Containment Internal Structure, Reactor Building, and Power Source Building (Sheet 8 of 15)

Wall or Section Description	Column Lines[1]	Floor Elevation or Elevation Range[1]	Concrete Thickness[5]	Applicable Radiation Shielding Wall (Yes/No)
Column Line 2R wall	From 4'-1" south of H1R to JR	From -26'-4" to 3'-7"	5'-0"	Yes
Column Line 2R wall	From CR to 6'-10" south of D2R	From -8'-7" to 3'-7"	3'-4"	Yes
Column Line 2R wall	From 16'-5" south of GR to 4'-1" south of H1R	From -8'-7" to 3'-7"	3'-4"	Yes
Column Line 2R wall	From CR to DR	From 3'-7" to 25'-3"	3'-10"	Yes
Column Line 2R wall	From DR to ER	From 3'-7" to 25'-3"	3'-6"	Yes
Column Line 2R wall	From ER to GR	From 3'-7" to 17'-8"	2'-8"	Yes
Column Line 2R wall	From ER to GR	From 17'-8" to 25'-3"	4'-2"	Yes
Column Line 2R wall	From GR to HR	From 3'-7" to 25'-3"	3'-6"	Yes
Column Line 2R wall	From HR to JR	From 3'-7" to 25'-3"	3'-10"	Yes
Column Line 2R wall	From CR to DR	From 25'-3" to 50'-2"	3'-2"	Yes
Column Line 2R wall	From DR to ER	From 25'-3" to 50'-2"	3'-10"	Yes
Column Line 2R wall	From ER to GR	From 25'-3" to 50'-2"	2'-8"	Yes
Column Line 2R wall	From GR to HR	From 25'-3" to 50'-2"	3'-10"	Yes
Column Line 2R wall	From HR to H1R	From 25'-3" to 50'-2"	2'-8"	No
Column Line 2R wall	From CR to H1R	From 50'-2" to 76'-5"	2'-8"	Yes

DCD_14.03.02-21

Table 2.2-2 Definition of Wall Thicknesses for Seismic Category I Structures: Containment Internal Structure, Reactor Building, and Power Source Building (Sheet 9 of 15)

Wall or Section Description	Column Lines[1]	Floor Elevation or Elevation Range[1]	Concrete Thickness[5]	Applicable Radiation Shielding Wall (Yes/No)
Column Line 2R wall	From CR to DR	From 76'-5" to 101'-0"	2'-8"	No
Column Line 2R wall	From DR to ER	From 76'-5" to 101'-0"	3'-8"	Yes
Column Line 2R wall	From ER to 9'-5" south of G1R	From 76'-5" to 101'-0"	2'-8"	Yes
Column Line 10R wall	From CR to 8'-7" south of CR	From -26'-4" to -8'-7"	3'-4"	Yes
Column Line 10R wall	From 5-9" south of C1R to 11'-3" south of D1R	From -26'-4" to -8'-7"	2'-8"	Yes
Column Line 10R wall	From 16'-5" south of GR to 13'-7" south of HR	From -26'-4" to -8'-7"	2'-8"	Yes
Column Line 10R wall	From 4'-1" south of H1R to JR	From -26'-4" to 3'-7"	5'-0"	Yes
Column Line 10R wall	From CR to 11'-3" south of D1R	From -8'-7" to 3'-7"	3'-4"	Yes
Column Line 10R wall	From 16'-5" south of GR to 4'-1" south of H1R	From -8'-7" to 3'-7"	3'-4"	Yes
Column Line 10R wall	From CR to DR	From 3'-7" to 25'-3"	3'-10"	Yes
Column Line 10R wall	From DR to ER	From 3'-7" to 25'-3"	3'-6"	Yes
Column Line 10R wall	From ER to GR	From 3'-7" to 17'-8"	2'-8"	Yes
Column Line 10R wall	From ER to GR	From 17'-8" to 25'-3"	4'-2"	Yes
Column Line 10R wall	From GR to HR	From 3'-7" to 25'-3"	3'-6"	Yes
Column Line 10R wall	From HR to JR	From 3'-7" to 25'-3"	3'-10"	Yes

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Table 2.2-2 Definition of Wall Thicknesses for Seismic Category I Structures: Containment Internal Structure, Reactor Building, and Power Source Building (Sheet 10 of 15)

Wall or Section Description	Column Lines(1)	Floor Elevation or Elevation Range(1)	**Concrete Thickness(5)**	Applicable Radiation Shielding Wall (Yes/No)
Column Line 10R wall	From CR to DR	From 25'-3" to 50'-2"	2'-8"	No
Column Line 10R wall	From DR to ER	From 25'-3" to 50'-2"	3'-10"	Yes
Column Line 10R wall	From ER to GR	From 25'-3" to 50'-2"	2'-8"	Yes
Column Line 10R wall	From GR to HR	From 25'-3" to 50'-2"	3'-10"	Yes
Column Line 10R wall	From HR to H1R	From 25'-3" to 50'-2"	2'-8"	No
Column Line 10R wall	From CR to H1R	From 50'-2" to 76'-5"	2'-8"	Yes
Column Line 10R wall	From D1R to ER	From 76'-5" to 112'-0"	2'-8"	No
Column Line 10R wall	From ER to GR	From 76'-5" to 101'-0"	2'-8"	Yes
Column Line 10R wall	From GR to H1R	From 76'-5" to 101'-0"	3'-8"	Yes
Column Line 11R wall	From CR to JR	From -26'-4" to 3'-7"	3'-4"	Yes
Column Line 11R wall	From CR to 17'-0" south of D1R	From 3'-7" to 25'-3"	3'-4"	Yes
Column Line 11R wall	From 17'-0" south of D1R to 10'-8" south of GR	From 3'-7" to 17'-8"	3'-4"	Yes
Column Line 11R wall	From 17'-0" south of D1R to 10'-8" south of GR	From 17'-8" to 25'-3"	4'-2"	Yes
Column Line 11R wall	From 10'-8" south of GR to HR	From 3'-7" to 25'-3"	3'-4"	Yes
Column Line 11R wall	From HR to JR	From 3'-7" to 76'-5"	5'-0"	Yes

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Table 2.2-2 Definition of Wall Thicknesses for Seismic Category I Structures: Containment Internal Structure, Reactor Building, and Power Source Building (Sheet 11 of 15)

Wall or Section Description	Column Lines[1]	Floor Elevation or Elevation Range[1]	Concrete Thickness[5]	Applicable Radiation Shielding Wall (Yes/No)
Column Line 11R wall	From CR to 16'-4" south of D1R	From 25'-3" to 50'-2"	3'-4"	Yes
Column Line 11R wall	From 16'-4" south of D1R to 11-4" south of GR	From 25'-3" to 42'-4"	3'-4"	Yes
Column Line 11R wall	From 16'-4" south of D1R to 11-4" south of GR	From 42'-4" to 50'-2"	4'-2"	Yes
Column Line 11R wall	From 11'-4" south of GR to HR	From 25'-3" to 50'-2"	3'-4"	Yes
Column Line 11R wall	From CR to HR	From 50'-2" to 76'-5"	2'-8"	Yes
Column Line 11R wall	From D1R to ER	From 76'-5" to 112'-0"	2'-4"	Yes
Column Line 11R wall	From ER to HR	From 76'-5" to 101'-0"	2'-4"	Yes
Column Line 11R wall	From HR to JR	From 76'-5" to 101'-0"	5'-0"	No
Floor	From CR to JR and 1R to 2R	-26'-4"	9'-11"	No
Floor	From CR to JR and 10R to 11R	-26'-4"	9'-11"	No
Floor	From CR to JR and 1R to 2R	3'-7"	2'-8"	No
Floor	From CR to JR and 10R to 11R	3'-7"	2'-8"	No
Floor	From ER to GR and 1R to 2R	25'-3"	3'-10"	Yes
Floor	From ER to GR and 1R to 2R	25'-3"	3'-10"	Yes
Floor	From ER to GR and 1R to 2R	50'-2"	3'-10"	Yes

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Table 2.2-2 Definition of Wall Thicknesses for Seismic Category I Structures: Containment Internal Structure, Reactor Building, and Power Source Building (Sheet 12 of 15)

Wall or Section Description	Column Lines[1]	Floor Elevation or Elevation Range[1]	Concrete Thickness[5]	Applicable Radiation Shielding Wall (Yes/No)
Floor	From ER to GR and 10R to 11R	50'-2"	3'-10"	Yes
Floor	From CR to GR and 1R to 2R	76'-5"	2'-4"	No
Floor	From GR to HR and 1R to 2R	76'-5"	2'-8"	Yes
Floor	From CR to HR and 10R to 11R	76'-5"	3'-4"	Yes
Floor	From CR to GR and 1R to 2R	101'-0"	1'-3"	Yes
Floor	From 4'-0" south of CR to ER and 10R to 11R	112'-0"	1'-3"	Yes
Non-Radiological Control Area				
Column Line LR wall	From 1R to 11R	From -26'-4" to 3'-7"	3'-8"	No
Column Line LR wall	From 1R to 3aR	From 3'-7" to 26'-11"	3'-8"	No
Column Line LR wall	From 3aR to 8bR	From 3'-7" to 25'-3"	3'-8"	No
Column Line LR wall	From 8bR to 11R	From 3'-7" to 26'-11"	3'-8"	No
Column Line LR wall	From 1R to 3aR	From 26'-11" to 50'-2"	3'-4"	No
Column Line LR wall	From 3aR to 8bR	From 25'-3" to 50'-2"	3'-4"	Yes
Column Line LR wall	From 8bR to 11R	From 26'-11" to 50'-2"	3'-4"	No
Column Line LR wall	From 1R to 5R	From 50'-2" to 76'-5"	3'-4"	No

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Table 2.2-2 Definition of Wall Thicknesses for Seismic Category I Structures: Containment Internal Structure, Reactor Building, and Power Source Building (Sheet 13 of 15)

Wall or Section Description	Column Lines[1]	Floor Elevation or Elevation Range[1]	Concrete Thickness[5]	Applicable Radiation Shielding Wall (Yes/No)
Column Line LR wall	From 5R to 7R	From 50'-2" to 65'-0"	3'-4"	No
Column Line LR wall	From 7R to 11R	From 50'-2" to 76'-5"	3'-4"	No
Column Line LR wall	From 1R to 5R	From 76'-5" to 115'-6"	3'-4"	No
Column Line LR wall	From 5R to 7R	From 65'-0" to 115'-6"	4'-4"	No
Column Line LR wall	From 7R to 11R	From 76'-5" to 115'-6"	3'-4"	No
Column Line 1R wall	From JR to KR	From -26'-4" to 101'-0"	3'-4"	No
Column Line 1R wall	From KR to LR	From -26'-4" to 115'-6"	3'-4"	No
Column Line 11R wall	From JR to KR	From -26'-4" to 101'-0"	3'-4"	No
Column Line 11R wall	From KR to LR	From -26'-4" to 115'-6"	3'-4"	No
Floor	From JR to LR and 1R to 11R	-26'-4"	9'-11"	No
Floor	From JR to LR and 1R to 11R	3'-7"	4'-0"	No
Floor	From JR to LR and 1R to 3R	26'-11"	2'-4"	No
Floor	From JR to LR and 5R to 7R	25'-3"	3'-4"	Yes
Floor	From JR to LR and 9R to 11R	26'-11"	2'-4"	No
Floor	From JR to LR and 1R to 5R	50'-2"	2'-4"	No

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Table 2.2-2 Definition of Wall Thicknesses for Seismic Category I Structures: Containment Internal Structure, Reactor Building, and Power Source Building (Sheet 14 of 15)

Wall or Section Description	Column Lines[1]	Floor Elevation or Elevation Range[1]	Concrete Thickness[5]	Applicable Radiation Shielding Wall (Yes/No)
Floor	From JR to LR and 5R to 7R	50'-2"	3'-4"	Yes
Floor	From JR to LR and 7R to 11R	50'-2"	2'-4"	No
Floor	From JR to KR and 1R to 5R	76'-5"	2'-4"	No
Floor	From KR to LR and 1R to 5R	76'-5"	4'-4"	No
Floor	From JR to KR and 7R to 11R	76'-5"	2'-4"	No
Floor	From KR to LR and 7R to 11R	76'-5"	4'-4"	No
Floor	From JR to KR and 1R to 5R	101'-0"	2'-4"	No
Floor	From JR to KR and 7R to 11R	101'-0"	2'-4"	No

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Table 2.2-2 Definition of Wall Thicknesses for Seismic Category I Structures: Containment Internal Structure, Reactor Building, and Power Source Building (Sheet 15 of 15)

Wall or Section Description	Column Lines[1]	Floor Elevation or Elevation Range[1]	Concrete Thickness[5]	Applicable Radiation Shielding Wall (Yes/No)
Power Source Buildings				
Column Line AP wall	From 1P to 5P	From -26'-4" to 3'-7"	2'-8"	No
Column Line CP wall	From 1P to 5P	From -26'-4" to 3'-7"	2'-8"	No
Column Line 1P wall	From AP to CP	From -26'-4" to 3'-7"	2'-8"	No
Column Line 5P wall	From AP to CP	From -26'-4" to 3'-7"	2'-8"	No
Column Line AP wall	From 1P to 5P	From 3'-7" to 39'-6"	1'-9"	No
Column Line CP wall	From 1P to 5P	From 3'-7" to 39'-6"	1'-9"	No
Column Line 1P wall	From AP to CP	From 3'-7" to 39'-6"	1'-9"	No
Column Line 5P wall	From AP to CP	From 3'-7" to 39'-6"	2'-8"	No
Floor	From AP to CP and 1P to 5P	-26'-4"	9'-11"	No
Floor	From AP to CP and 1P to 2P	3'-7"	3'-4"	No
Floor	From AP to CP and 2P to 5P	3'-7"	2'-8"	No
Floor	From AP to CP and 1P to 5P	39'-6"	1'-3"	No

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NOTES:

1. The column lines and floor elevations are identified and included on Figures 2.2-3 through 2.2-13.
2. Deleted.
3. For walls that are part of structural modules, the concrete thickness also includes the steel face plates.
4. ~~The concrete thickness values shown are minimum design required for radiation shielding~~.This dimension is the smallest nominal wall thickness and exceeds minimum radiation shielding requirements.
5. Concrete thickness values are nominal dimensions.

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Table 2.2-4 Structural and Systems Engineering Inspections, Tests, Analyses, and Acceptance Criteria (Sheet 1 of 5)

Design Commitment	Inspections, Tests, Analyses	Acceptance Criteria
1.a The ~~structural configurations~~physical arrangements of the R/B and each PS/B are as described in the Design Description of Subsection 2.2.1 ~~and in Table 2.2-2,~~ and as shown in Figures 2.2-1 through 2.2-13.	1.a Inspections will be performed to verify that the as-built R/B and each PS/B conform to the ~~structural configurations~~physical arrangements as described in the Design Description of Subsection 2.2.1 ~~and in Table 2.2-2,~~ and as shown in Figures 2.2-1 through 2.2-13.	1.a The as-built R/B and each PS/B conform to the ~~structural configurations~~physical arrangements as described in the Design Description of Subsection 2.2.1 ~~and in Table 2.2-2,~~ and as shown in Figures 2.2-1 through 2.2-13, with the following construction tolerances. 1) ~~Thickness of exterior walls below plant grade: +12 inches/ -1 inch~~ ~~2) Thickness of exterior walls above plant grade, and interior walls: +1/ -1 inch~~ ~~3) Thickness of floors: +1/ -1 inch~~ ~~4)~~ Floor level: +1/-1 inch
1.b The wall and floor thicknesses of the R/B and each PS/B are as described in Table 2.2-2.	1.b Inspections will be performed to verify that the as-built wall and floor thicknesses of the R/B and each PS/B conform to Table 2.2-2.	1.b The as-built nominal wall and floor thicknesses of the R/B and each PS/B conform to Table 2.2-2, with the following construction tolerances. 1) Thickness of exterior walls below plant grade: +12 inches/-1 inch 2) Thickness of exterior walls above plant grade, and interior walls: +1/-1 inch 3) Thickness of floors: +1/-1 inch
2. Deleted.	2. Deleted.	2. Deleted.
3. The PCCV retains structural integrity at the design pressure of 68 psig.	3. A structural integrity test (SIT) of the as-built PCCV will be performed in accordance with Article CC-6000 of ASME code, Section III, Division 2.	3. The PCCV maintains its structural integrity at a test pressure of greater than or equal to 115% of the design pressure of 68 psig in accordance with the requirements of ASME Code, Section III.
4.a The integrated containment system barrier prevents the release of fission products to the atmosphere.	4.a A containment integrated leak rate test will be performed in accordance with 10 CFR 50, Appendix J, Type A testing.	4.a The containment integrated leak rate is less than or equal to the allowable leakage rate specified in 10 CFR 50, Appendix J, for Type A testing.
4.b The containment system barrier penetrations prevent the release of fission products to the atmosphere.	4.b Type B testing will be performed for all containment penetrations in accordance with 10 CFR 50, Appendix J.	4.b The containment penetration leak rates are less than or equal to the allowable leakage rate specified in 10 CFR 50, Appendix J, for Type B testing.
5. The PCCV can withstand design-basis loads.	5. ~~An~~Inspection and analysis will be performed to reconcile the as-built PCCV with the structural design-basis loads.	5. Reports exist and conclude that the as-built PCCV can withstand design-basis loads.

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Table 2.2-4 Structural and Systems Engineering Inspections, Tests, Analyses, and Acceptance Criteria (Sheet 2 of 5)

Design Commitment	Inspections, Tests, Analyses	Acceptance Criteria
6. The seismic Category I buildings identified in Table 2.2-1, other than the PCCV, can withstand design-basis loads.	6. ~~An~~Inspection and analysis will be performed to reconcile the as-built seismic Category I buildings identified in Table 2.2-1, other than the PCCV, with the structural design-basis loads.	6. Reports exist and conclude that the as-built seismic Category I buildings identified in Table 2.2-1, other than the PCCV, can withstand design-basis loads.
7. Deleted.	7. Deleted.	7. Deleted.
8. Deleted.	8. Deleted.	8. Deleted.
9. Divisional flood barriers are provided in the R/B and each PS/B to protect against internal flooding.	9. An inspection will be performed to verify that the as-built divisional flood barriers in the R/B and each PS/B exist, as shown in Figures 2.2-14 through 2.2-25.	9. The as-built divisional flood barriers in the R/B and each PS/B that protect against the internal flooding exist, as shown in Figures 2.2-14 through 2.2-25.
10. Water-tight doors are provided in the R/B and each PS/B to protect against internal flooding.	10. An inspection will be performed to verify that the as-built water-tight doors in the R/B and each PS/B exist, as shown on Figures 2.2-14 through 2.2-25.	10. The as-built water-tight doors in the R/B and each PS/B that protect against internal flooding exist, as shown on Figures 2.2-14 through 2.2-25.
11. Penetrations in the divisional flood barriers of the R/B and each PS/B, as shown in Figures 2.2-14 through 2.2-25, (other than water-tight doors) that are at or below the internal flood level, as shown in Table 2.2-5, are fitted with water-tight seals.	11. An inspection will be performed to verify that the as-built penetrations in the divisional flood barriers of the R/B and each PS/B, as shown in Figures 2.2-14 through 2.2-25, (other than water-tight doors) that are at or below the internal design flood level, as shown in Table 2.2-5, are fitted with water-tight seals.	11. The as-built penetrations in the divisional flood barriers of the R/B and each PS/B, as shown in Figures 2.2-14 through 2.2-25, (other than water-tight doors) that are at or below the internal design flood level, as shown in Table 2.2-5, are fitted with watertight seals.
12. Safety-related electrical, instrumentation, and control equipment in the R/B and each PS/B is located above the internal design flood level.	12. An inspection will be performed to verify that the as-built safety-related electrical, instrumentation, and control equipment in the R/B and each PS/B is located above the internal design flood level, as shown in Table 2.2-5.	12. The as-built safety-related electrical, instrumentation, and control equipment in the R/B and each PS/B is located above the internal design flood level, as shown in Table 2.2-5.
13. For the R/B and each PS/B, external walls below design basis flood level are a minimum of two feet thick to protect against water seepage.	13. An inspection will be performed to verify that the as-built external walls below design basis flood level for the R/B and each PS/B are a minimum of two feet thick.	13. For the R/B and each PS/B, the as-built external walls below design basis flood level are a minimum of two feet thick to protect against water seepage.

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Table 2.2-4 Structural and Systems Engineering Inspections, Tests, Analyses, and Acceptance Criteria (Sheet 3 of 5)

Design Commitment	Inspections, Tests, Analyses	Acceptance Criteria
14. Penetrations in the external walls of the R/B and each PS/B, as shown in Figures 2.2-14 through 2.2-25, that are at or below design basis flood level, are fitted with water-tight seals to protect against external flooding.	14. An inspection will be performed to verify that as-built penetrations in the external walls of the R/B and each PS/B, as shown in Figures 2.2-14 through 2.2-25, that are at or below design basis flood level, are fitted with water-tight seals.	14. The as-built penetrations in the external walls of the R/B and each PS/B, as shown in Figures 2.2-14 through 2.2-25, that are at or below design basis flood level, are fitted with water-tight seals to protect against external flooding.
15. Deleted.	15. Deleted.	15. Deleted.
16. Deleted.	16. Deleted.	16. Deleted.
17. Redundant safe shutdown components and associated electrical divisions outside the containment and the control room complex are separated by 3-hour rated fire barriers to preserve the capability to safely shutdown the plant following a fire.	17. An inspection will be performed to verify that the as-built 3-hour rated fire barriers are placed as required by the FHA.	17. The as-built 3-hour rated fire barriers are placed as required by the FHA for separation of redundant safe shutdown components and associated electrical divisions outside the containment and the control room complex, ~~and~~ to preserve the capability to safely shutdown the plant following a fire.
18.a Penetrations and openings, other than ventilation ducts, through fire barriers are protected against fire.	18.a An inspection will be performed to verify that the as-built penetrations and openings, other than ventilation ducts, through fire barriers identified in the FHA are sealed or can be closed with fire rated components consistent with the fire resistance rating of the associated barrier.	18.a As-built penetrations and openings , other than ventilation ducts, through fire barriers identified in the FHA are sealed or can be closed with fire rated components (e.g., fire doors in door openings and penetration seals) consistent with the fire resistance rating of the associated barrier.
18.b Ventilation ducts that penetrate fire barriers are protected by fire dampers.	18.b An inspection will be performed to verify that fire dampers are installed in the as-built ventilation ducts that penetrate the fire barriers identified in the FHA.	18.b Fire dampers are installed in the as-built ventilation ducts that penetrate the fire barriers identified in the FHA.
19. Deleted.	19. Deleted.	19. Deleted.
20. Deleted.	20. Deleted.	20. Deleted.

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